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phone: (+48) 81 454-56-78
e-mail: wydawnictwo@kul.pl
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Institute of Linguistics
The John Paul II Catholic University of Lublin
Al. Racławickie 14
20-950 Lublin, Poland
e-mail: lingbaw@gmail.com

Articles

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Pushing boundaries in the measurement of language attitudes: Enhancing research practices with the L'ART Research Assistant app

Florian Breit[1,2], Marco Tamburelli[1], Ianto Gruffydd[1,3] and Lissander Brasca[1]
[1]Bangor University; [2]University College London; [3]Cardiff University, UK

Abstract

The importance of methodological developments has recently been emphasised both in language attitude research specifically (Kircher & Zipp 2022), and across linguistics and the social sciences more broadly, where there has been a particular focus on replicability (Sönnig & Werner 2021; Kobrock & Roettger 2023). One aspect of this concerns the adoption of more open, consistent, and comparable implementations of method.

We introduce a new digital application (the L'ART Research Assistant) for research in multilingualism and language attitudes. Designed specifically for work with populations speaking a majority and a regional/minority/minoritised/heritage language, the app implements reference versions of some common research methods and tasks. This benefits the research community by enhancing consistency and comparability within and across studies and by improving replicability and reproducibility.

We discuss technical and methodological considerations behind the app and illustrate its use with a brief case study of language attitudes across three European communities whose regional/minority languages receive radically different degrees of socio-political recognition: Lombard (Italy), Moselle-Franconian (Belgium), and Welsh (UK). The case study demonstrates not only how the app facilitates research across different communities that is easily comparable, results also reveal fundamental differences in attitude scores depending on the methods employed (AToL v. MGT). Consequently, we argue that there is a need to move toward both the adoption of more consistent, comparable methods as well as toward a more holistic approach to measuring language attitudes, where a battery of tests — as opposed to a single measure — should become the norm.

Keywords: language attitudes; bilingualism; methodology; research tools; replicability

1. Introduction

Speaker attitudes are considered a fundamental barometer for the current and future vitality of a language, with recent work emphasising the importance of methodological developments (Kircher & Zipp 2022). This, together with the growing concern surrounding the replicability of results across the social sciences, including linguistics (e.g. Sönnig & Werner 2021; Grieve

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2021; Kobrock & Roettger 2023), calls for urgent developments in research practices, including the adoption of more consistent and comparable implementations of methods. To this end, we present the L'ART Research Assistant, a newly developed, freely available open-source application for the collection, storage and transfer of data for research in bilingualism and language attitudes, with a particular focus on bilingual populations who speak a majority language (ML) and a regional/minority/minoritised or heritage language (RML). The app aims to make research in bilingualism — and particularly on language attitudes — easier, more comparable, and readily replicable. The most recent release of the app as of writing (version 0.5.2) implements a digital informed consent facility, a comprehensive background questionnaire in the form of the Language and Social Background Questionnaire (Anderson et al. 2018), the Attitudes Towards Languages Scale (Schoel et al., 2013), the Verbal Guise/Matched Guise Technique (Lambert et al. 1960; and e.g. Markel et al. 1967) and a simple memory game which can be employed as a distractor task.

In this article, we first discuss the general advantages provided by apps like the L'ART Research Assistant, before describing the currently implemented research tools and their respective adaptations. We then illustrate the practical use of the L'ART Research Assistant by briefly discussing results from a case study on linguistic attitudes carried out using the app, which looked at three bilingual communities: Lombard—Italian in Northern Italy, Moselle-Franconian—German in East Belgium and Welsh—English in North Wales.

2. The L'ART Research Assistant: main advantages

Integrated digital research toolkits such as the L'ART Research Assistant provide many advantages to researchers over paper-and-pencil or word-processor based questionnaires, as well as questionnaires implemented through online survey platforms, especially where use of a single tool finds broader adoption across several studies, populations, and/or research groups. The advantages of adopting such toolkits include:

- less work for the researcher, who can largely rely on pre-implemented logic and only needs to adapt stimuli where no suitable ones are yet provided for the target population;
- enhanced consistency and comparability within and across studies, since — apart from translation/localisation-related content — the presentation, data types, validation, coding and output formats remain consistent across use instances;
- improved transparency and replicability/reproducibility, because the entire source code is openly available and version controlled, so that referencing specific versions of the app/tasks allows other researchers to view and reconstruct tasks as they were administered at the time the research was carried out.

Note that while we also mention online survey platforms here, the primary focus of these platforms is different from that of our app: the L'ART Research Assistant is (at least presently) aimed foremost at research conducted offline, whether in a lab or in the field. Particularly where fieldwork on regional and minority languages is concerned, the research setting often

only provides limited or unstable internet connection, if internet connection is available at all — a significant factor in our decision to adopt an offline-first approach.[1]

2.1. Input validation and consistency

Paper/word-processor based questionnaires are especially prone to human error. Participants may omit questions, forget to enter some information, or provide data that is inconsistent in some manner. Researchers may accidentally omit questions or parts thereof, or alter layout and formatting in an unintended manner that could influence responses. The same document opened in a different word processor or on a different machine might produce different layouts and/or affect functionality such as built-in form fields. Some participants may look ahead or back, and alter their answers depending on what they see next, while others may decide not to do so, leading to a loss of control and consistency concerning the data collection flow. Finally, in implementing or adapting the questionnaire, researchers may accidentally omit questions or parts thereof, or alter layout and formatting in an unintended manner that could influence responses.

Questionnaires implemented using common online survey platforms (e.g. Qualtrics, SurveyMonkey) usually succeed in reducing at least some of these error sources e.g. through marking certain fields required and through basic input validation (e.g. a 'date' data field will only accept a valid date). Many platforms also have features that allow researchers to implement at least some conditional logic, though experience shows that the degree to which individual researchers take advantage of such advanced features varies greatly. What they cannot address are those aspects that depend principally on the researcher(s) implementing the questionnaire, as well as to some degree the flow and layout, which may be limited by the specific platform chosen.

A purposely developed app also cannot entirely eliminate all such sources of errors and inconsistencies. It can, however, considerably reduce their occurrences (e.g. Vergnaud et al. 2011) and ensure much greater consistency in that endeavour compared to situations where we have many different more-or-less independent implementations of what is supposedly the same instrument (questionnaire or other research task). The separation of control flow and validation logic from stimuli and text prompts/translations makes it possible to focus efforts in a way that leads to richer and more consistent validation and control flow throughout, which then is not dependent on whether the individual researcher has the time and/or skills to implement this logic themselves.

In the L'ART Research Assistant, not only must participants complete all required questions before they are able to continue, but responses are also validated both in the user interface and in the underlying data models, so that e.g. an invalid date (e.g. 31st February 1983) or a repeated entry of the same language (e.g. a participant who reports that they speak

[1] Many choices in the design and implementation of the software were specifically made such that the software could potentially be extended to offer both offline and online versions of its research tasks in the future, though we currently do not have the resources available to pursue this further.

Spanish as both their second and fourth language) will be rejected and the user is provided automatic feedback on the error.

In many cases, the user interface design already pre-empts certain errors or inconsistent responses. For example: a question on whether a participant uses corrective lenses is only presented if they have indicated impaired eyesight; sliders (some with an adjacent "not applicable" option) are used where a range value (e.g. 0-100) is to be collected; when a bilingual user is prompted to state the languages they speak, two blank language fields are presented as required initially, with location-based auto-suggestion of language options as they complete the field, ensuring that bilingual participants minimally enter at least two languages (participants can add additional languages);[2] further, these questions automatically generate relevant follow-on questions specifically referring back by name to the languages participants entered earlier, ensuring that participants always provide complete information on all their languages.

Potential confounds introduced by participants looking ahead or returning to adjust answers at a later point in the task are controlled by disabling facilities to return to previous screens and only allowing participants to advance to the next screen once the current screen has been fully and validly completed. For example, in the AToL-C, participants cannot return to change their ratings for Welsh once the task has advanced to solicit ratings on English. Similarly, in the audio guise task participants can only listen to a guise once, and they are unable to return and change their ratings for a previous guise once they have moved on. This makes the data collection procedure more consistent and rigorous by minimising presentation-based cross-participant and cross-study confounds.[3]

Another common source of human error is introduced where paper or word-processor based questionnaire data is transferred to a digital format suitable for spreadsheet and statistical applications. Applications such as the L'ART Research Assistant entirely sidestep this by recording data in a widely used data exchange format (JSON), which is easily exported/imported, shared, and inspected, as well as being compatible with most tools in the modern data-pipeline. Note also on this point again the advantage of consistency in the specific layout of the data files where a single tool is adopted (whether that be our app or some other tool): even though for example both survey platforms A and B might offer the export of responses as JSON files, it is unlikely that these JSON files will follow the same, consistent format across platforms, potentially requiring extensive checks and pre-processing to combine data from different sources.

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[2] It is, in the authors' experience, not unusual to find participant background data (usually from paper/word-processor based questionnaires) with conflicting information, which would suggest, for example, that some multilinguals only speak a single language.

[3] Researchers can temporarily unlock the facility to return to a previous screen, e.g. in cases where an error occurred. Requiring manual intervention ensures that researchers will be aware of such issues and can keep appropriate records.

2.2. Data security and shareability

Particular attention was paid to designing the app and its tools such that no identifying sensitive personal information needs to be recorded. Data is referenced to participants only by their participant ID. Participant IDs must be pre-assigned by the researcher, meaning that sensitive participant information will be stored and managed entirely separately from the research data collected with the app, as is best practice for data protection and security.

Data files from participant responses are stored as individual JSON files, each identified by both the participant ID and an automatically generated Universally Unique Identifier (UUID). The UUID reduces chances of naming clashes with duplicate IDs or multiple responses from the same participant for the same task (e.g. due to repeated testing), even when collating and merging large data sets from different studies. With this system, the chance of duplication or accidental overwrites due to filename conflicts is practically nil even when large data sets are simply pasted together in place.[4]

Data backup is also facilitated by the increased unicity of response data files — researchers need not worry about potential clashes when copying large sets of collated data files for backup, and since they are stored as plain files in the systems' user profile location (specifically, the roaming profile on systems supporting this), they are easily captured by many standard solutions for the synchronisation and backup of user profile data which may already be institutionally deployed by system administrators, in addition to being easily targetable for cloud synching and backup with user-level tools such as rsync[5]. An additional, integrated cloud-based backup and synchronisation option is planned for future versions of the app.

Shareability of data is also facilitated by this approach: researchers can simply transfer/upload/share files for all relevant or selected responses as they would any other file. Being text-based JSON files, they can be easily compressed, transferred, and validated, and are compatible with a wide range of data tools and programming packages. The underlying implementations of the app's data models are currently being ported to Pydantic[6], one of the most widely used Python packages for data models and validation, which will further facilitate the interchange and use of research data, for instance by making the models more easily accessible programmatically for Python users, and by providing auto-generated JSON Schemas for the files produced by each research task, so that shared or imported files can be easily revalidated on import.

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[4] Statistically, we would have to generate one data file per second for approximately one billion years to have a 0.1% chance of repeating the same UUID — see e.g. Rehak (2017) for an informal illustration.

[5] https://rsync.samba.org/

[6] https://pydantic.dev/

2.3. Replicability, reproducibility, and extensibility

The importance of replicability and reproducibility of research has recently received significant attention across empirical fields, as it forms an essential part of the scientific method impacting the scientific community's ability to assess the validity and reliability of empirically backed claims (see e.g. Moonesinghe et al. 2007; Simons 2014). This also extends to the larger field of linguistics (see e.g. Sönnig & Werner 2021 and articles therein; Kobrock & Roettger 2023) both regarding the replicability of methods and the reproducibility of results given extant data that may not be replicable directly (see also Berez-Kroeker et al. 2019).

Research on language attitudes has to-date relied on non-standardised methods, where questionnaires and other methodologies are frequently modified and adapted on an ad-hoc basis without sufficient documentation and without materials and data being made fully available, impeding not only replicability and reproducibility but also the comparability of results across studies.

For instance, consider the following sample of five studies employing the Matched Guise Test (MGT): Lambert et al. (1960), Echeverria (2005), Soukup (2013), Loureiro-Rodriguez, Boggess & Goldsmith (2013), and Price & Tamburelli (2020). Of these, two employed bipolar oppositional adjective pairs, once along an oppositional scale (Soukup 2013) and once as singleton agree-disagree items (Price & Tamburelli 2020), while all others had only singular adjectives along an agree-disagree scale. Lambert et al. (1960) used a 6-point Likert-type scale, while all others used a 5-point scale. As shown in Appendix A, the studies presented 10, 12, 6, and 8 guises respectively, with varied numbers of speakers ranging from 2 to 4 (apart from fillers, on which reporting was generally lacking). In total, the five studies used 109 different traits, with individual studies asking participants to rate between 15 and 30 traits. Of the 109 traits across studies, none appeared in all five studies, and only confidence, intelligence, progressiveness, sense of humour, and trustworthiness appeared in four of the studies. 44 of the traits appeared only in a single study. This situation prevents us from meaningfully comparing results across studies and thus from assessing their cross-cultural/cross-linguistic validity. A hypothetical mini-meta-analysis of the five studies could at best compare only 5 traits, with 1-2 of them treated as 'NAs' for all except Soukup (2013). The practical comparability of a large body of work employing the MGT thus currently approaches zero. We propose that this can and must be addressed by a more standardised, freely available, and reusable implementation such as ours, which maximises constants across studies and populations.

Regarding reproducibility and replicability (the abilities to derive the same results from the same inputs and the ability to re-run a study [possibly with a new population sample] to arrive at comparable results, respectively) both present major challenges to the subfield at present. None of the five studies in the sample above shared either their data or means of analysis to a degree that would be sufficient to reproduce their results. None of the studies shared their protocol or materials (or described them in sufficient detail) and only one study (Price & Tamburelli 2020) gave an example of one of the rating sheets presented to participants, making reasonably faithful replications effectively unfeasible. While one would hope that most researchers would be willing to share data or more detail on materials and

protocol upon request (ignoring here issues such as researchers becoming inactive or not holding on to old files and materials), even then these might come in widely different formats, employ different measures and scales, rely on closed platforms or formats or otherwise unavailable technology, and so on. Our app addresses the data issue by adopting an easily shareable, validatable, consistent, open data format (based on JSON), with a one-file-per-response approach. Releasing the app as free and open-source software ("FOSS"), with any changes being version controlled and transparent, goes a significant way toward addressing the concerns regarding protocol, materials, and technological availability. If a researcher makes an adaptation or improvement, they can commit this to the public repository and the only information they need to share to make their study replicable is the version number and protocol that was followed with participants on the ground. To share data, they can simply upload the set of data files produced by the app to a public archive/repository such as OSF, and other researchers who have previously worked with output from the app can easily consume that data in the same manner.

In general, we believe that the less a researcher must do themselves to make their work replicable, reproducible, and comparable, the more likely it is that they will do so. This is the major methodological reason for not only developing but also adopting tools such as the L'ART Research Assistant.

Finally, let us say a word about extensibility. A researcher working on the attitudes of French—English bilinguals in Canada needs an MGT with (Canadian) French and English guises, but the app may not yet have these available. To increase the adoption of the app and the benefits this would bring (as discussed above), the implemented research tasks must be easily adaptable and extensible without compromising their consistency, openness and transparency. This is achieved in three ways. First, for tasks where all materials are text-based, such as the LSBQe or the AToL, all a researcher needs to do when intending to apply these in a new location for which suitable materials are not already available is to edit a single text-based localisation file. Second, for tasks that rely on additional stimuli (such as the audio stimuli of the MGT/AGT), researchers can simply include these stimuli along with their localisation file. Third, where a new task is to be implemented, or a wholesale change proposed for a task,[7] researchers can submit code based on the app's APIs to be integrated into the app — this is facilitated by full documentation and the use of a technology stack widely employed across the scientific community (Python, JavaScript, and HTML). In all cases, researchers can and should propose changes and/or additions to be included in the official repository on GitHub via pull requests or issues. This makes the process of incorporating changes and additions transparent as well as making them available to the wider research community. Instructions on how researchers can go about adding new translations and adaptations are available as part of the official documentation of the app, available at https://lart.readthedocs.io/projects/research-assistant/ (see also Breit et al. 2023 for

[7] Changes to existing tasks will only be accepted where they maintain compatibility with the wider use-case of that task — alternatively they can be added as new standalone tasks.

a more practice-oriented, less formal description of the app and the research tools implemented therein).

3. Research tasks currently available in the app

In this section, we describe the principal user-facing features of the L'ART Research Assistant app, namely the research tools, or tasks, that are currently available as part of the app, focusing here principally on technical and methodological aspects.

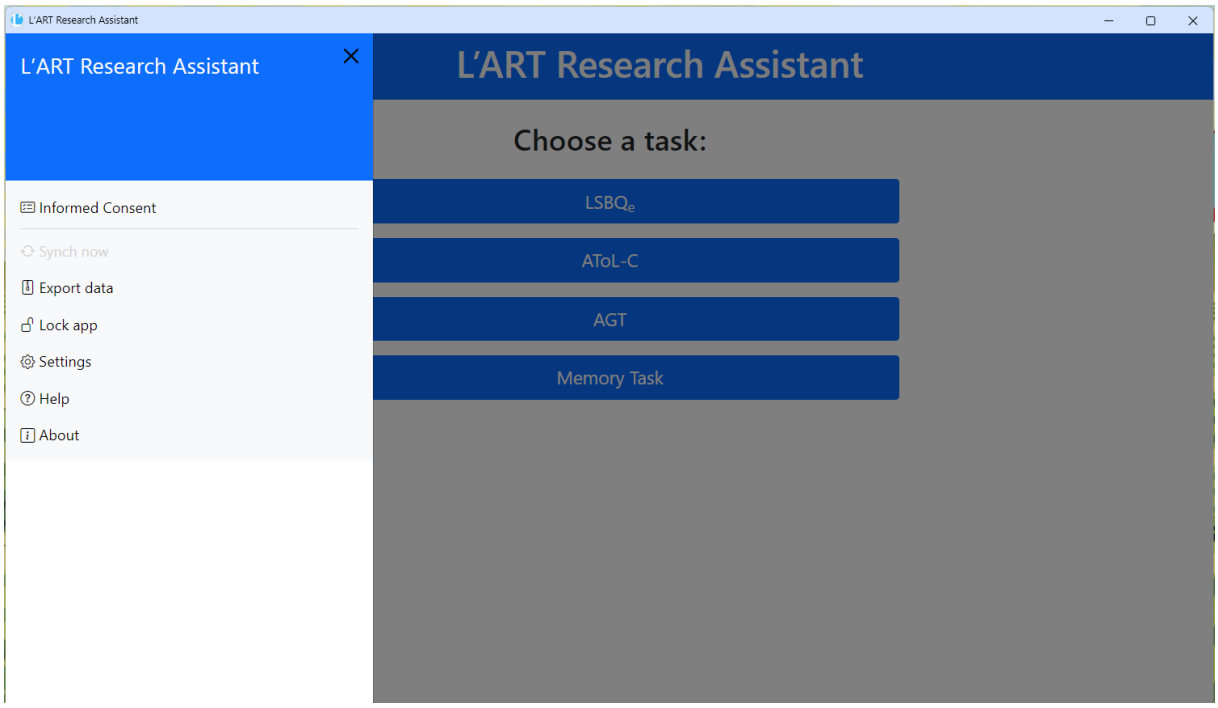

Figure 1: *App home screen with opened menu*

3.1. Informed consent

The built-in informed consent facility presents an optional entry point for data collection via the app. It presents users with a simple participant information sheet that shows list-based information (such as study title, purpose of the research, ethics approval), at the bottom of which participants find a checkbox to confirm that they have read and understood the information and that they agree to take part voluntarily. This section is followed by a short block with eligibility criteria, which likewise asks participants to confirm that they are eligible to take part in the study, as illustrated in Figure 2.

Researchers can fully customise the information displayed, both for the informed consent section and the eligibility criteria, by editing a simple text-based file containing a list of the items to display to participants to include specific descriptions and other relevant information for their project.

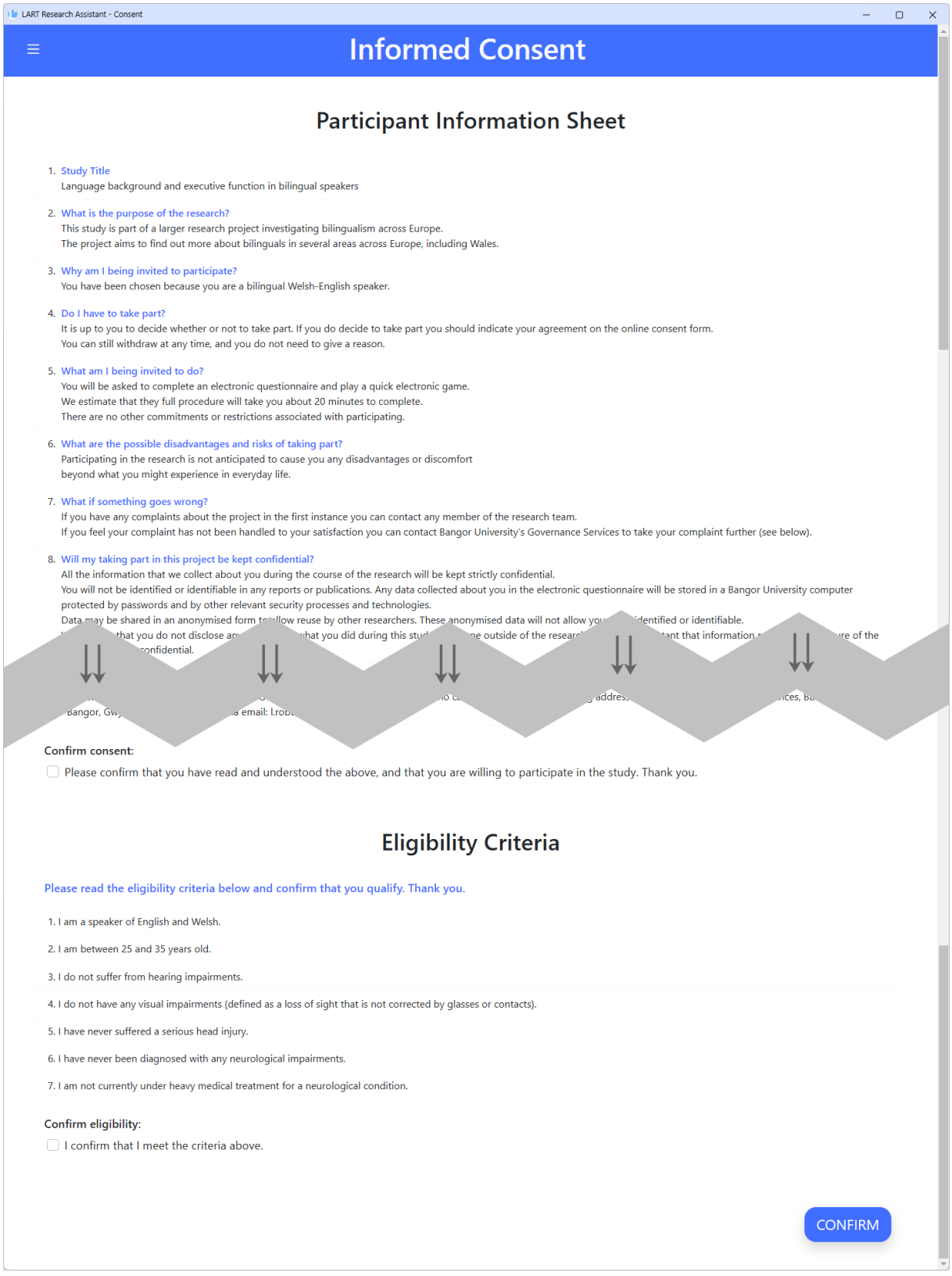

Figure 2: *Example of a digital informed consent form. Shown are the top portion (above the grey divider) with customisable project information and the bottom portion of the informed consent screen (below the grey divider) with customisable eligibility criteria confirmation.*

Importantly, apart from the two checkboxes, the only information solicited by the informed consent facility is the participant ID which the researcher pre-assigns to the participant. This means that no sensitive personal information (e.g. name, email address, signature) is recorded, so that data files with the participants' consent record can be shared along with other data, without special precautions needed for data protection. While we are aware that this will be incompatible with some use cases, principally where local ethics committees mandate that the identity of a participant is recorded on the consent form, we did not want to compromise the principle of avoiding the collection of data that would regularly need to be sanitised before being shared or stored on unprotected hardware to conform to common data protection regulations.[8] In those cases, researchers can of course simply continue to employ regular paper-based consent forms without impacting the core functionality offered by the app.

3.2. LSBQe: Language and Social Background Questionnaire

The LSBQe ('e' for electronic) is an adapted version of Anderson et al.'s (2016, 2018) Language and Social Background Questionnaire (LSBQ). Adaptations were made with two goals in mind: first, to increase the domain of applicability of the questionnaire by making it less task- and location-specific; second, to take advantage of the additional tools on offer in a digital implementation compared to a paper-based presentation.

Adaptations of the first kind include removal of "the other language" where that language could be predetermined, for example based on the specific localisation or from prior user input; the removal of some eligibility-based questions that were specifically designed with particular research paradigms in mind (e.g. neurophysiological studies); a neutral phrasing for questions of origin and past places of residence (where the original assumes Canada as a base and asserts this in its phrasing); and a re-design and re-referencing of educational background questions to 5 levels referenced to the European Qualifications Framework (EQF), as follows: (1) EQF Level 1, (2) EQF Levels 2-3, (3) EQF Level 4, (4) EQF Levels 5-6, and (5) EQF Levels 7-8. Different localisations include appropriate examples for each level based on the location of the research, such as "Abschluss der Grund– oder Primarschule, CEB, getuigschrift basisonderwijs, oder weniger" for EQF Level 1 in the version localised for German in Belgium. The EQF was chosen because it is easily cross-referenceable across different countries and education systems, can be compared with the International Standard Classification of Education (ICSD), and is recognised outside Europe as a vital reference framework for comparing qualifications worldwide (Chakroun 2010).

[8] Particularly the principle of data minimisation in Art. 5(1)(c) of the General Data Protection Regulation.

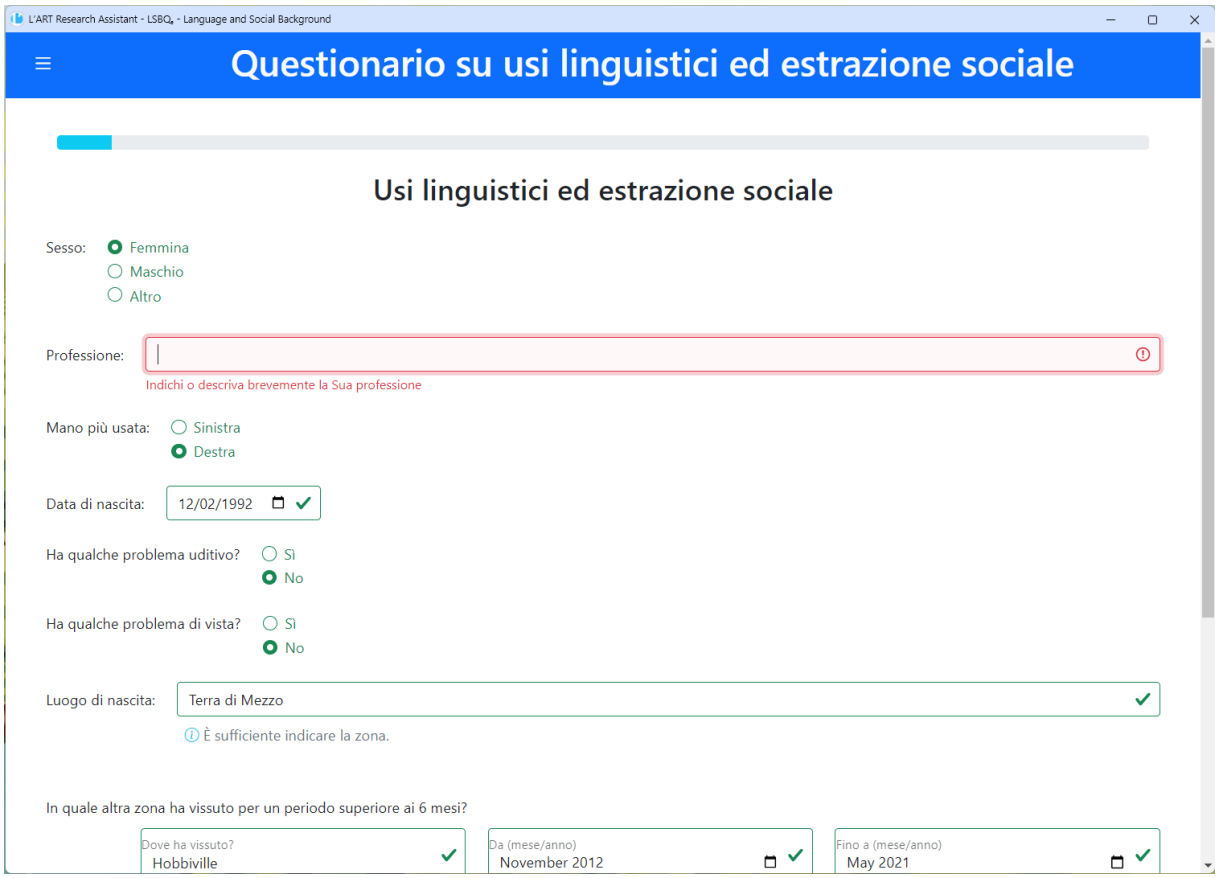

Figure 3: *First page of the LSBQe, showing active input validation (Italian)*

Technological adaptations and improvements include page-wise input validation with feedback (as shown in Figure 3), the automated display/hiding of relevant/irrelevant questions based on previous answers (e.g. in Figure 3, if the participants selects 'Yes' to the question on visual impairment, an additional question appears beneath asking whether they use glasses or contact lenses, but remains hidden otherwise), the expandability of repeatable groups of questions such as the list of places a participant has lived in (so there is no chance of a participant running out of a pre-determined maximum length of lists, and they can also not miss partial questions relevant to each), the requirement to give at least two languages for bilingual participants, the suggestion of possible locally relevant languages when entering languages they speak (as illustrated in Figure 4), and the use of continuous sliders (Figure 5) instead of Likert-type scales where continuous range data is to be collected (e.g. questions asking how proficient a participant is on proficiency in speaking and understanding a particular language, ranging from 'No Proficiency' to 'High Proficiency'), and the requirement to mark non-applicable questions explicitly as not applicable for validation purposes, which ensures questions are not accidentally left blank. The use of sliders allows to measure a response as a double-precision floating point number between 0 and 100, enabling much finer-grained data without burdening the participant with excessive options. Additionally, the resultant data is to some extent insulated from the "scale coarseness effect" (Symonds 1924; Russell & Bobko 1992; Aguinis, Pierce & Culpepper 2009) – a methodological artifact which causes a downward bias in correlation coefficients, arising from measurement of a continuous variable via a categorical scale, such as Likert-type scales.

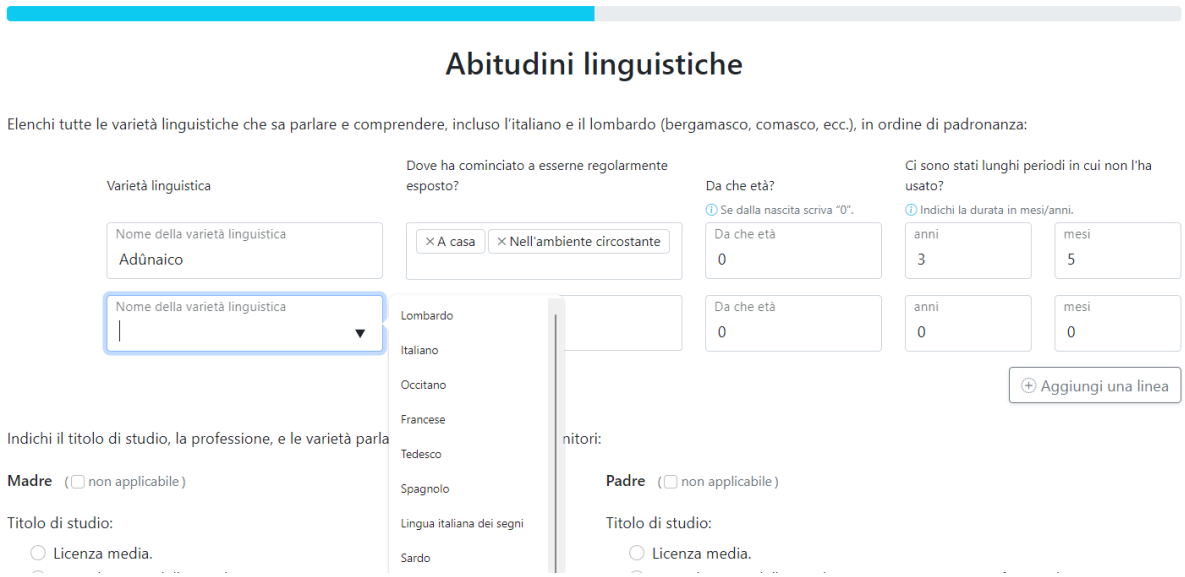

Figure 4: *Language entry fields on the LSBQe with suggested languages as the participant types and the option to add additional language entry fields (Italian)*

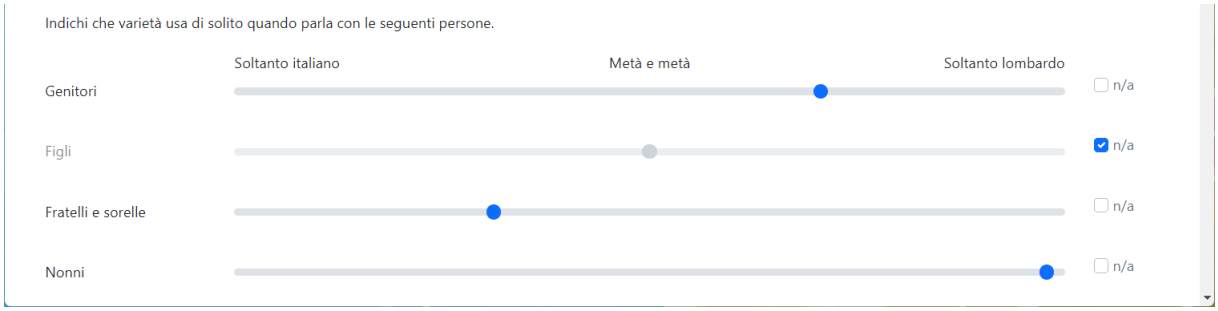

Figure 5: *Sliders and explicit "not applicable" options for optional, continuous range data collection (Italian)*

Our final modification was to include a final open ended free-text question where participants can optionally enter any additional information they believe might be relevant. In all other respects, we have attempted to make the LSBQe as faithful to the design of the established LSBQ as possible.

3.3. AToL-C: Attitudes Towards Languages

The AToL-C ('C' for continuous) is our implementation of Schoel et al.'s (2013) Attitudes Towards Languages (AToL) Scale, a cross-linguistically well-validated attitudinal questionnaire employing 15 oppositional adjective pairs yielding three primary measurement dimensions, namely: Value, Structure, and Sound. Structure and Sound capture scale items principally describing the structural and sonic aspects of the language, respectively. Value is a hierarchical superordinate factor, which although shaped by its own subscale, shows correlation to both Sound and Structure (see Schoel et al.: 24–27).

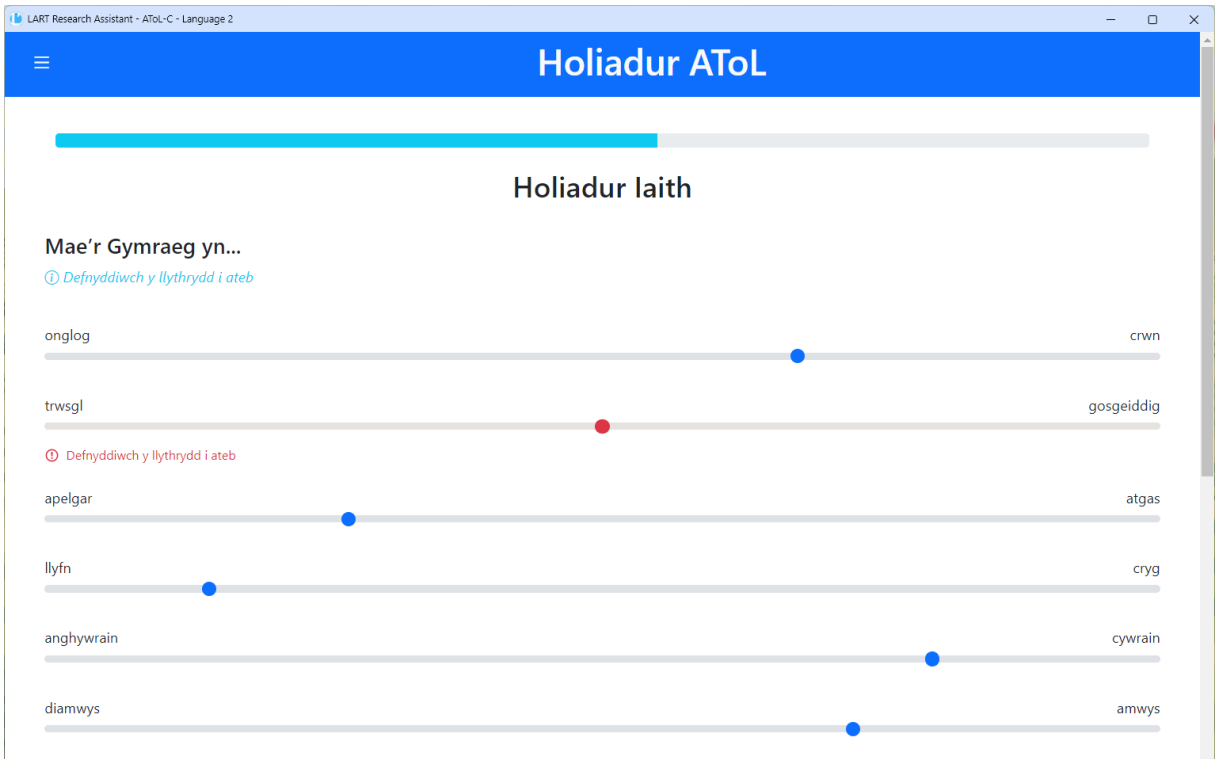

Figure 6: *AToL-C with continuous sliders and user feedback for a slider that was not moved by the participant (Welsh)*

Because Schoel et al. (2013) went through an extensive selection and validation process of these adjectives and dimensions, our implementation seeks to be as faithful as possible to the original. However, as shown in Figure 6, we take advantage of the digital format by adopting continuous sliders instead of the 5-point Likert-type scales used in the original (see 3.2 for more on continuous sliders), and by introducing randomisation of the adjective pairs' presentation order across participants. Neither of these should negatively affect the validity or reliability of the AToL. For the same reason, and because we see the establishment of well-validated reference tools as especially important in our field, we also chose not to implement extensions or variations of the AToL, such as Lehnert et al.'s (2016, 2018) extended AToL or Attitudes Towards Language Users Scale (AToLU), though they can easily be derived and implemented from our AToL codebase.

3.4. AGT: Verbal/Matched/Audio Guise Task

The speaker evaluation paradigm involves exposing participants to different audio-recorded guises representing different linguistic varieties that participants must rate (Dragojevic & Goatley-Soan 2022). The design we have adopted (which we generically term the Audio Guise Task; AGT) allows researchers to implement the speaker evaluation paradigm both using the Matched Guise Test (MGT; Lambert et al. 1960) and the Verbal Guise Technique (VGT;

Markel, Eisler & Reese 1967).[9] Three fully functional MGT localisations are currently included in the app, for the language pairs Welsh–English, Moselle-Franconian–German, and Lombard–Italian.

Following standard procedure for both the MGT and VGT, the AGT asks participants to complete an evaluative questionnaire rating speakers on a range of traits. This includes 18 traits (see Appendix B), which were selected based on a cross-comparison of several published MGT studies (see also the discussion in Section 2.3). In constructing the trait list, we also considered whether they (intuitively) aimed at status or solidarity,[10] the valence of a trait,[11] and translatability across the languages we implemented, with at least one member of our team possessing linguistic expertise in each of these languages.

Figure 7: *Guise presentation and trait rating during the AGT (German)*

[9] The chief difference between the MGT and the VGT are that the former has two guises each (one per language) from six speakers, whereas the verbal guise technique uses twelve speakers providing one sample each (across two or more languages).

[10] For data analysis, this must be decided on a per-population basis, e.g. via principal factor analysis.

[11] We included items which have the opposite valence direction (*agree* is worse) to the majority (*agree* is better), while keeping the scale directionality constant (disagree→agree) to guard from potential scale direction effects (Yan, Keusch & He 2018; Salzberger & Koller 2019). This principle can also be observed in Schoel et al.'s (2013) bipolar AToL traits.

Procedurally, participants are first presented with instructions followed by a practice guise, to familiarise them with the task and the traits they will be rating. This is important for the AGT given that participants only have a limited time to hear the test guises. They are then presented successively with 12 guises (including 4 filler guises) in pseudo-randomised order.[12] The trait list presented is randomised afresh for each guise, and while participants do not have an upper time limit, they must complete all 18 ratings and listen to at least half the guise (or 30 seconds of the guise, whichever is shorter) before they can advance. This minimum time enforcement is to prevent participants from rating guises too quickly, e.g. before they have had a reasonable opportunity to develop an opinion toward the guise. Participants cannot relisten to a guise or return to earlier guises, but they are provided with visual feedback on the remaining playtime of the current guise (see Figure 7).

3.5. Memory Task

We also implemented a short memory game, adapted from Tarnate (2022). This task is intended as a general distractor that can be employed when running tasks in series. This is particularly relevant in research on language attitudes, where it is standard practice not to fully disclose the aim of the study to participants in order to render attitudinal measures less direct (see e.g. Pharao & Kristiansen 2019). This serves to minimise acquiescence bias, where participants tend to give the response they believe the researchers are looking for (Jackson & Messick 1965), and the social desirability effect, where participants respond with the attitude they think is perceived more desirable (Diekmann 2007).

[12] The randomisation is constrained such that fillers are spaced regularly, that repeating speakers are maximally spaced apart, and that the same language does not repeat in more than two successive test guises (see Breit et al. 2023: 20–21 for more detail).

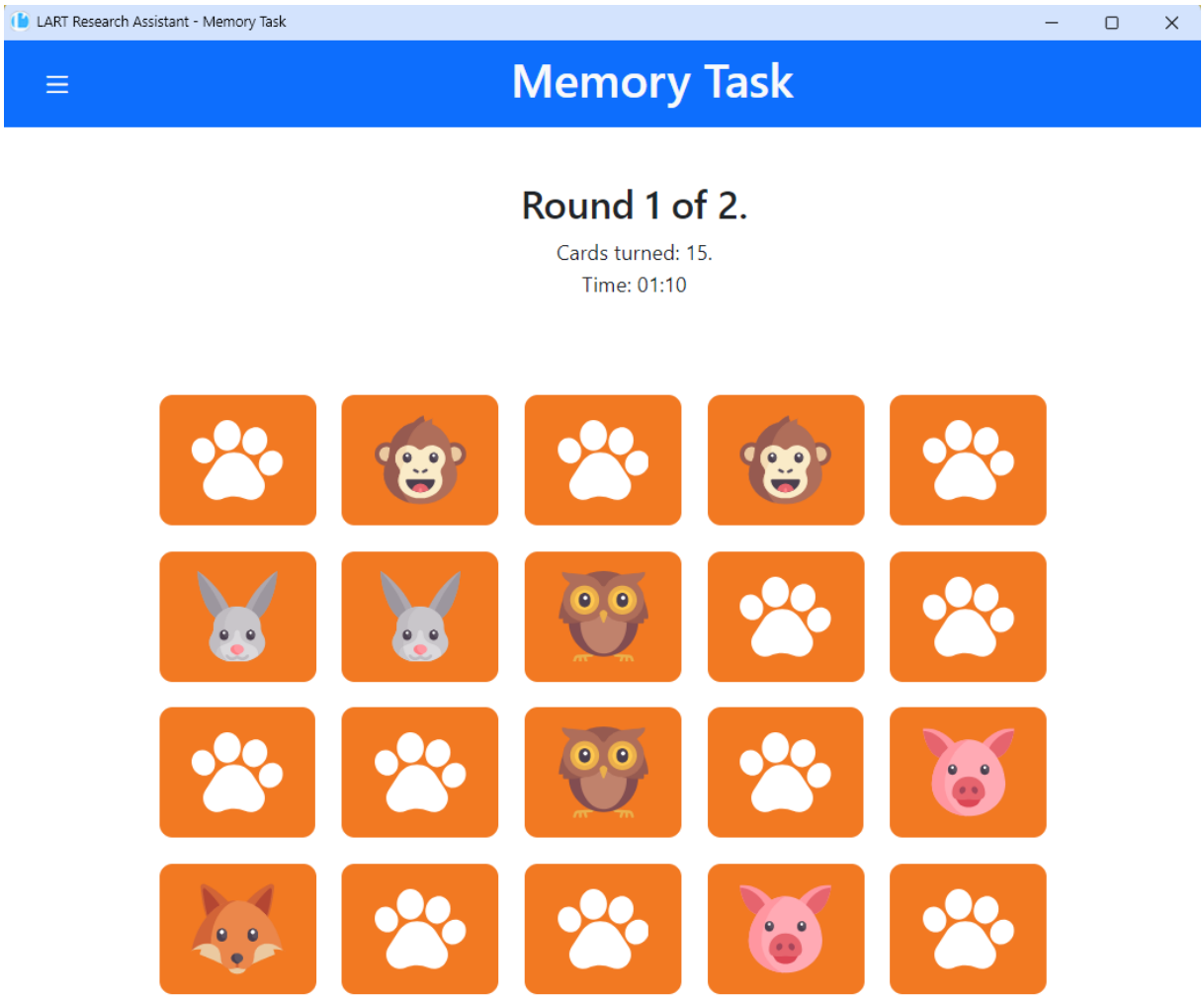

Figure 8: *The Memory Task in the L'ART Research Assistant, showing the cards turned counter, timer, and some uncovered/matched card pairs (illustrations on playing cards © Freepik at flaticon.com, licensed under CC BY 3.0)*

The game (shown in Figure 8) requires participants to successively uncover and match identical card pairs in the shortest amount of time. Participants are scored on time and number of cards uncovered. Participants play the game twice and are instructed on the second attempt to try and beat their previous score.

4. Case study

In this section, we report preliminary results from a larger project currently underway, which investigates attitudes across three bilingual language communities in three countries, where each of the regional/minority languages is found in a different sociopolitical and sociolinguistic context:

- Welsh–English in North Wales: official recognition and active institutional support, concerted effort to increase speaker numbers;

- Moselle-Franconian–German in East Belgium: not officially recognised, indirectly supported via Standard German, diglossia with slow language shift toward German; and
- Lombard–Italian in Northern Italy: not officially recognised, a case of "benign neglect" (Coluzzi, 2009; Coluzzi et al., 2018; see also "no-policy policy" in Fishman 2006: 325), advanced language shift toward Italian.

Our primary focus here is on demonstrating the use of the L'ART Research Assistant in fieldwork, which is why we omit much of the otherwise warranted background and discussion around the rationale, linguistic situation and implications of these studies.

4.1. Methods

4.1.1. Participants

Our population sample included early bilinguals aged 24-36, the 'current parent generation' most influential on intergenerational transmission. The sample sizes for the AToL were 42 (female = 21, mean age = 28.0 in Wales, 30 (female = 22, mean age = 29.63) in Belgium, and 39 (female = 24, mean age = 28.62) in Italy. For the MGT these were 44 (female = 19, mean age = 28.20) in Wales, 40 (female = 30, mean age = 29.56) in Belgium, and 40 (female = 23, mean age = 30.18) in Italy.

4.1.2. Materials

We used the L'ART Research Assistant (Version 0.5.0; see Section 3), with the LSBQe as background questionnaire, combined with either the AToL-C and the Memory Task, or the AGT. All tasks were run as implemented for the respective language pairs in that version of the app, which includes all our materials.

4.1.3. Procedure

For the AToL, participants were told they would take part in a study on executive function in bilinguals comparing linguistic communities across Europe. Participants' informed consent and eligibility was recorded with the app's Informed Consent facility (Section 3.1). They were told we would first collect comprehensive information on their linguistic background, before they would complete a short memory task to assess their executive function. They then completed the LSBQe (Section 3.2), followed by the AToL-C (Section 3.3) and finally the Memory Task (Section 3.5) as a distractor. This took about 30 minutes total.

For the MGT, participants were told they would take part in a study looking at how people from different bilingual backgrounds across Europe perceive and rate different voices. Informed consent, eligibility, and background questionnaire were as above, with the LSBQe being followed by the AGT (Section 3.4). No distractor task was employed this time. This took about 30 minutes total.

For both studies, experiments were administered in pre-booked rooms across various locations. Due to the practicalities of our locations, the researcher was present either in the room or just outside, but participants were situated such that they were focused on the computer where they completed the task and could not observe the researcher. They were told the researcher would be completing paperwork in the meantime but would be available to assist them if necessary. Participants were compensated for their time at the end of their participation.

Data analysis was carried out in IBM SPSS (Version 29). The AToL was analysed using a 3×2 (community: Wales, Belgium, Italy × language: majority, minority) factorial analysis of variance (ANOVA) with repeated measures on the third factor. For the MGT, we first conducted factor analysis using principal axis factor (PAF) with varimax (orthogonal) rotation of the 18 traits (see Appendix B) across all participants, with the Kaiser-Meyer-Olkin measure of sampling adequacy examined to confirm factorability, successively excluding outliers or single-trait factors until we arrived at two factors consistent with the status and solidarity dimensions, employing Cronbach's alpha to confirm reliability of the final factorisation. The MGT ratings were then analysed using a 2×2 (dimension: solidarity, status × language: majority, minority) factorial ANOVA with repeated measures and with community (Wales, Belgium, Italy) as a 3-level between-subjects factor.

The data presented here are freely available from the Open Science Framework (https://doi.org/10.17605/OSF.IO/CP6RE); see also Brasca et al. (2024).

4.2. Results: AToL

Statistical analysis revealed significant main effects for community ($F(4,214) = 27.904$, $p < .001$, $\eta_p^2 = .343$) and for AToL dimension (Value, Sound, Structure) ($F(5,105) = 28.93$, $p < .001$, $\eta_p^2 = .524$). We also found an AToL dimension × community interaction ($F(8,210) = 12.228$, $p < .001$, $\eta_p^2 = .318$), indicating that the mean score for each AToL dimension was different across communities. Within-subject tests showed that the difference across AToL dimensions was significant for both majority ($F(1,108) = 9.685$, $p = .002$, $\eta_p^2 = .082$) and minority languages ($F(1,108) = 13.547$, $p < .001$, $\eta_p^2 = .111$). Between-subject effects were also significant for both majority ($F(2,108) = 40.071$, $p < .001$, $\eta_p^2 = .426$) and minority languages ($F(2,108) = 16.212$, $p < .001$, $\eta_p^2 = .231$).

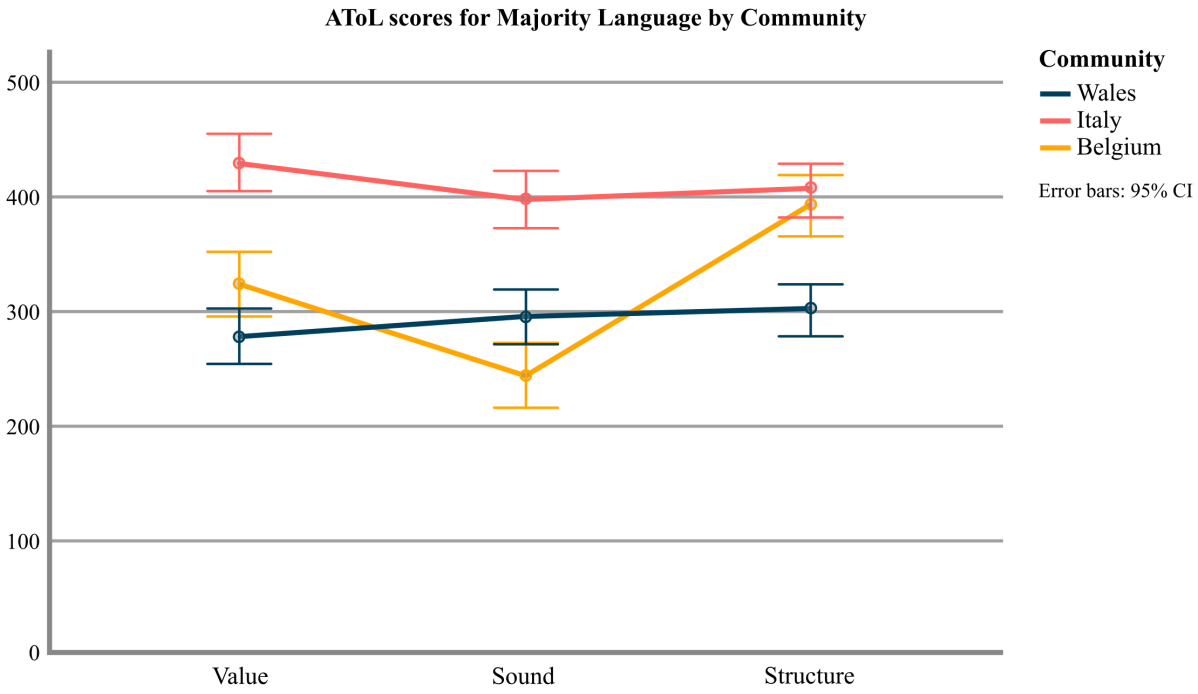

Figure 9: *AToL scores for Majority Language (English, Italian, German) by Community*

Figure 9 shows the AToL scores in each dimension for the respective majority languages (English, Italian, German). As can be seen there, the Lombard–Italian speakers rated Italian extremely high across dimensions, while the Welsh–English and Moselle-Franconian–German rated English and German medium high for Value and Sound, though notably for German, Structure was rated much higher.

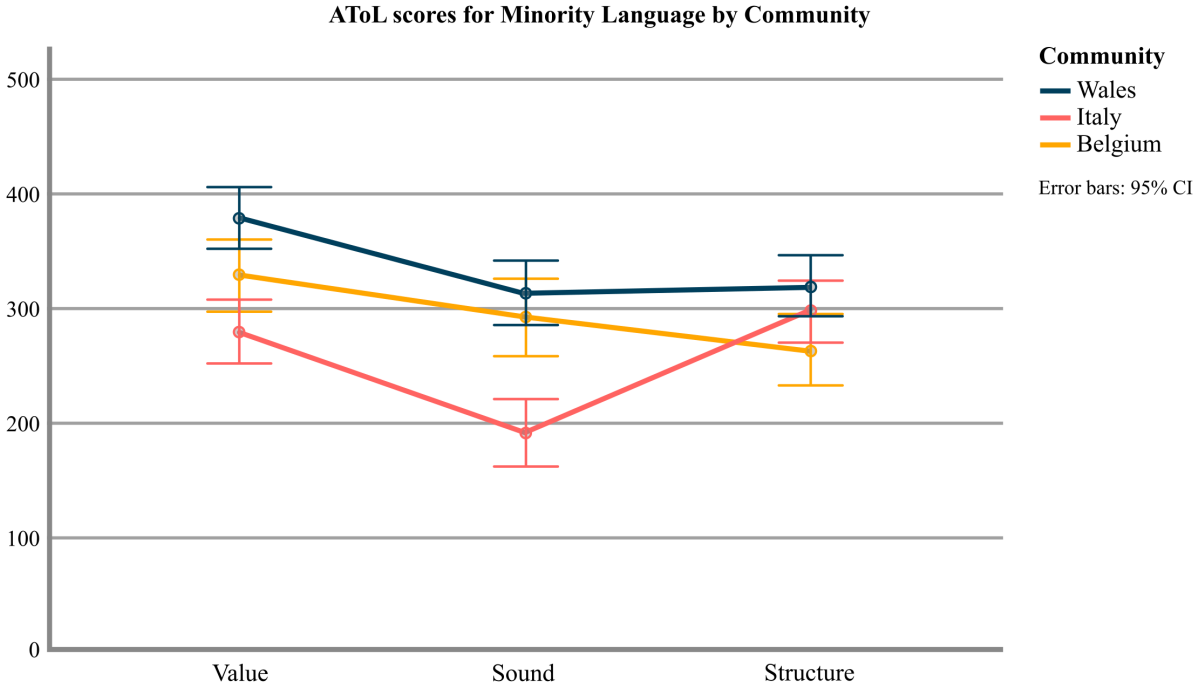

Figure 10: *AToL scores for Minority Language (Welsh, Lombard, Moselle-Franconian) by Community*

A different pattern is revealed by Figure 10, showing the analogous scores for the minority languages (Welsh, Lombard, Moselle-Franconian). Most notably, the Lombard–Italian speakers rated Lombard low to medium high, and particularly poorly in the Sound dimension. This stands in stark contrast to their rating of Italian. The Welsh–English speakers rated Welsh much higher than English in the Value dimension, but similarly to English in Sound and Structure. Compared to German, the Moselle-Franconian–German speakers rated Moselle-Franconian similar in Value, slightly better in Sound, and worse in Structure.

4.3. Results: MGT

Statistical analysis revealed significant main effects for language ($F(1,121) = 19.074$, $p < .001$, $\eta_p^2 = .136$) and MGT component (solidarity, status) ($F(1,121) = 367.723$, $p < .001$, $\eta_p^2 = .752$). We also found interactions of MGT component × language ($F(1,121) = 85.931$, $p < .001$, $\eta_p^2 = .415$) and community × language ($F(1,121) = 21.575$, $p < .001$, $\eta_p^2 = .263$), indicating that mean MGT scores were different for languages by community and by MGT component. Within-subject tests showed that the difference between MGT components was significant for language (majority, minority) ($F(1,121) = 19.074$, $p < .001$, $\eta_p^2 = .136$). There was a significant between-subject effect for community ($F(2,121) = 14.17$, $p < .001$, $\eta_p^2 = .190$).

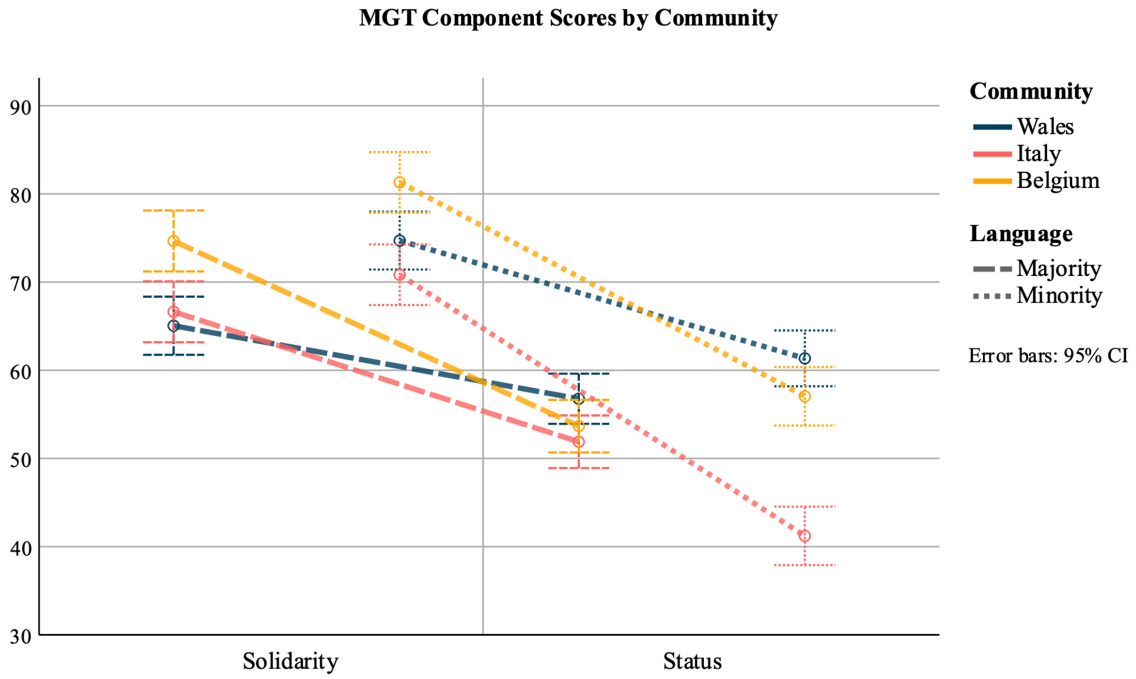

Figure 11: *MGT scores by component (solidarity, status) for majority and minority languages across the three communities*

As can be seen from Figure 11, showing mean MGT scores by MGT component and language for each of the three communities, the minority languages score consistently higher in solidarity compared to the majority language, showing that at least Welsh and Moselle-Franconian engender greater solidarity — however, this is much less pronounced for Italian v. Lombard, with a notable overlap in their 95% CI. For the status component, we see that

Lombard scores much worse than Italian, indicating a significant detriment in the perceived status. Moselle-Franconian scores slightly better than German on status, though there is a notable overlap in the 95% CI here. Welsh also scores higher than English on the status dimension, with a smaller overlap of 95% CI compared to Moselle-Franconian–German, possibly indicating that Welsh may outstrip English in both solidarity and status in our sample.

4.4. Discussion

The results from our AToL and MGT studies show what might be expected based on the vitality of the respective minority languages and the socio-political setting of the three communities: Attitudes towards Lombard are consistently the lowest, it performs particularly low on the status component of the MGT and in the AToL Sound dimension, both compared to Italian and the other minority languages. This reflects the fact that it is the most challenged of these languages both socio-politically and in terms of its declining vitality. Conversely, Welsh has seen significant political support in Wales since devolution, and performs better than English across all the AToL dimensions and MGT components, with a particular boost in the AToL's Value dimension. Moselle-Franconian exemplifies what one might expect in a fairly stable diglossic situation engendering functional separation, where both languages perform similarly overall but are differentiated mainly in the individual components, where Moselle-Franconian performs particularly well in the MGT's solidarity component and particularly poorly, compared to German, in the AToL's Structure dimension.

Beyond this, the comparison of results from the AToL and MGT highlights another aspect of interest regarding these measures. Namely, while overall results by community are fairly consistent, the factors which vary most significantly for a given language are not necessarily commensurate. For example, German has its highest score in the AToL Structure dimension, which is not reflected or transferable to the MGT, while Moselle-Franconian is associated with a significant solidarity boost in the MGT, which is not apparent from any of the AToL dimension scores. Further research needs to address to what extent these are measures of the same attitudinal object, and to what extent attitudinal research might need to move not only toward adopting an approach employing a multimethodological battery of tests, but also address the contribution and significance of the different kinds of measures toward an overall attitudinal assessment.

5. Conclusion

In this paper we introduced a new digital app, the L'ART Research Assistant, which aims to assist researchers in conducting attitudinal and other studies on multilingual populations, especially where this involves a majority and a regional/minority/minoritised/heritage language. We discussed several aspects of research methodology in the field that can benefit from the opportunities offered by the adoption of such technology. The principal strengths highlighted were that adoption of this tool can improve the transparency and openness of

materials and procedures, the replicability and reproducibility of studies, and the consistency and comparability of results within and across different studies.

The tasks currently implemented in the app reflect the most common methodological needs in research on language attitudes, covering the collection of informed consent, comprehensive participant background information, questionnaire-based direct measures of attitudes via the AToL, speaker-evaluation paradigm measures of attitudes via the AGT (MGT/VGT), and a basic distractor task.

We demonstrated the use of the app and its tools through a case study of attitudes toward a majority and a minority language conducted across three bilingual populations, which showed how the benefits discussed materialise in practice: methods and protocols are transparent and shared easily and the results are readily comparable in analysis, enabling us to draw inferences both about differences across the populations studied and the methods employed. Wider adoption of the app, and contributions in the forms of further localisations and new tasks, could bring these benefits to bear on the wider research community in multilingualism, language attitudes, and language maintenance.

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Appendix A: MGT traits used across 5 studies

Trait	Lambert et al. (1960)	Echeverria (2005)	Soukup (2013)	Loureiro-Rodriguez et al. (2013)	Price & Tamburelli (2020)	Usage Count
confidence	self-confidence	confident	self-confident		confident	4
intelligence	intelligence	intelligent	intelligent	intelligent		4
progressiveness		progressive	conservative	conservative	traditional	4
sense of humour	sense of humour		good sense of humour	to have a sense of humour	good-humoured	4
trustworthiness	(trustworthiness)	trustworthy	trustworthy	trustworthy		4
ambitiousness	ambition	ambitious		ambitious		3
attractiveness	good looks	attractive		attractive		3
education		cultivated	educated	educated		3
industriousness		hard-working	industrious	hard-working		3
kindness	kindness	kind		kind		3
likeability	general likeability		likeable		popular	3
openness		open		open-minded	easy-going	3
amusingness		amusing		amusing		2
boringness				boring	boring	2
competence			competent	apt		2
coolness		"cool"			cool	2
funness	entertainingness				fun	2
fashionability				modern	fashionable	2
friendliness			friendly		friendly	2
honesty			honest		genuine	2

leadership	leadership	leader				2
naturalness			natural		natural	2
politeness			polite	polite		2
sociability	sociability			introverted		2
aggression			aggressive			1
amenability					goody-two-shoes	1
annoyingness					annoying	1
arrogance			arrogant			1
awkwardness					awkward	1
caringness				caring		1
cleverness			clever			1
character	character					1
coarseness			coarse			1
conformity					conformist	1
cosmopolitanity				cosmopolitan		1
dependability	dependability					1
dullness					dull	1
efficiency				efficient		1
emotionality			emotional			1
excitingness					exciting	1
fakeness					fake	1
rebelliousness					rebellious	1
generosity		generous				1
goodness		good				1
groundedness					down-to-earth	1
tallness	height					1
humility		humble				1
ignorance				ignorant		1
impropriety				improper		1
jestfulness					likes a laugh	1
judgmentalness					judgmental	1
lameness					lame	1
nerdiness					nerdy	1
pretentiousness					pretentious	1
pride		proud				1
refinedness				refined		1
relatability					relatable	1
relaxedness			relaxed			1
religiousness	religiousness					1
roughness			rough			1
rusticity				rustic		1
seriousness			serious			1
smugness					smug	1
strictness			strict			1
studiousness					book-worm	1
unrefinedness				unrefined		1
uptightness					uptight	1
vulgarity				vulgar		1
Totals	**15**	**17**	**22**	**25**	**30**	**109**

Appendix B: AGT traits in the L'ART Research Assistant

Trait	Status / Solidarity (presumed)	Status / Solidarity (analysed)	Valence (higher score is …)
amusingness	solidarity	(excluded)	negative
pretentiousness	solidarity	solidarity	negative
friendliness	solidarity	solidarity	positive
honesty	solidarity	solidarity	positive
likeableness	solidarity	solidarity	positive
naturalness	solidarity	solidarity	positive
trustworthiness	solidarity	solidarity	positive
ignorance	status	solidarity	negative
ambitiousness	status	status	positive
attractiveness	status	status	positive
competence	status	status	positive
coolness	status	status	positive
educatedness	status	status	positive
influentiality	status	status	positive
intelligence	status	status	positive
internationality	status	(excluded)	positive
open-mindedness	status	status	positive
politeness	status	solidarity	positive
Ratios	**11:7**	**1:1**	**5:1**

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"A glass half full" or "a breastless dwarf": Metaphorical talk in women's accounts of Turner syndrome

Kamila Ciepiela
University of Łódź, Poland

Abstract

This paper examines body-related metaphors used by Polish women to describe lived experiences associated with Turner syndrome (TS), and highlights the contribution this form of analysis can make to the study of health, emotional well-being, and social identity. Turner syndrome is a genetic aberration that affects females, and results in short stature, ovarian failure and a number of less typical body deformations; it often takes a long time to be appropriately diagnosed. Metaphor analysis is employed to analyze a data subset of four semi structured interviews audio recorded and translated from Polish into English. The analysis is carried out with metaphor operationalized as a framing device in discourse, whose main function is to impose a particular axiologically-charged construal of TS. Metaphorical concepts lying at the basis of the metaphors used were identified and grouped into four themes: (i) diagnosis and therapy; (ii) Turner syndrome (iii) appearance (iv) self-esteem and social positioning. The results of the analysis show that a range of composite metaphors develop on the basis of the BODY IS A PHYSICAL OBJECT as a primary metaphor but their occurrence depends on the salience of particular bodily symptoms of TS in individual women. Results are discussed with regard to the function and the utility of metaphor analysis in health, emotional well-being, and social identity research.

Keywords: body; conceptual metaphor; discourse; Turner syndrome

1. Introduction

This article examines metaphors employed by Polish women with Turner syndrome (TS) when they talk about the diagnosis and experiences of living with the syndrome. TS is a spectrum of phenotypic characteristics that results from deficiency of second sex chromosome genes. The most common symptoms include short stature and premature ovarian failure leading to infertility (Crenshaw and Bondy 2019).

TS unlike other illnesses or mental disorders is rarely discussed in humanities or social sciences, which might be an implication of a false supposition that females with TS, when

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provided with an adequate hormone therapy, should be able to lead full, productive lives, and thus they escape researchers' attention. The objective of this article is to uncover conceptualizations of TS by those who were born with that aberration, and to argue for the usefulness of metaphor analysis in healthcare and social identity research. TS is not treated as a medical case that can be objectively 'measured or weighed', but rather as a socio-psychological condition that triggers multiple conceptualizations in its bearers. Metaphor, in turn, is understood as a cognitive device that evokes particular frames against which perception, comprehension, and evaluation can be obtained (Hart 2010, 2014). It is hypothesized that the varied conceptualizations of TS stem from grounding metaphor in varied and shared physical experiences of the body variously affected by TS.

To my knowledge, the metaphors used by women with TS to describe their bodily experiences have not previously been examined. My objective is not to provide a comprehensive taxonomy of metaphors relating to these experiences; rather by examining a small number of metaphors in the context of existing research, my aim is to illustrate the value of metaphor analysis for researchers working at the interface of health, rare diseases and social identity.

2. Metaphor

One of central tenets of cognitive linguistics is that the structure and organization of language reflect the organization of human cognition which has a bodily basis (Lakoff and Johnson 1980, 1999; Lakoff 1993, 2014; Gibbs 2006ab; Bergen 2012; Tay 2014, 2017). In general terms, 'embodied cognition' means that, (i) 'bodily experiences have correlates in the brain's somatosensory system' (Lakoff 2014: 4), (ii) a body is essential for cognition (iii) bodily experiences serve as a basis for understanding abstract concepts that cannot be directly experienced or perceived. As for the first claim, in the neural theory of metaphor (Narayanan 1997; Lakoff 2009; 2014) metaphorical mappings are claimed to be stored as fixed neural circuits in the brain that are automatically activated in metaphor processing. The second claim entails that 'cognitive abilities and the content of a mind are both tightly linked to the physical structure of the body, at multiple levels – from the anatomical arrangement of the sensor/effector organs to the molecular and bioelectric states that store its information' (Levin 2021: 125). Thirdly, human reasoning and our conception of the world are structured by metaphoric associations which involve the perception of similarities or correspondences between entities and processes. Thus, metaphor is not considered rhetorical but primarily conceptual, and secondarily linguistic, gestural, and visual (Lakoff and Johnson 1980). It is a meaning-making device with which 'we can see, experience, think and communicate about one thing in terms of another' (Demjén and Semino 2017: 1). Consequently, the study of metaphors that are employed for communicating ideas via language is the study of 'the conceptual metaphor system for characterizing a domain of thought' (Lakoff 2014: 1).

3. Turner syndrome

Turner syndrome is neither a physical illness that causes agonizing pain nor is it a life-threatening condition that resists treatment. 'Most girls with TS are healthy and well-adjusted', […] 'some, [however], face special physical, emotional, social or learning challenges' (Rieser and Davenport 2019: 2), and the overall stigma associated with having TS (short stature and infertility) may 'exacerbate the degree to which women feel that their bodies do not conform to the unrealistic standards prescribed by their culture' (Cragg and Lafreniere 2010: 437), which can cause psychological pain.

One of the most acute problems that middle-aged and older women with TS may face is the lack of growth hormone therapy (GHT), and the resultant short stature. In Poland, the Ministry of Health only began to offer reimbursements for GHT for girls with TS in 2000 (Świątkiewicz-Mośny 2010); therefore, those who had been through puberty before that year never received GHT, since it is proved ineffective after puberty. As a result, the body height of these women is, on average, 20 centimeters shorter than the population average, and often does not exceed 140 centimeters. Thus, in context of TS, worth-studying would be how short stature is conceptualized by females with TS and how this primitive concept links with other primitives and primary metaphors to yield complex metaphors of femininity, beauty, social equality, exclusion, or prejudice.

Another issue that is often raised in research on TS is the gendered identity of the subjects affected by the syndrome. 'In genetic terms, these individuals are neither male nor female because the second, sex-determining chromosome is absent'. Phenotypically, however, individuals with TS 'develop as females because there is no Y chromosome to direct the fetal gonads to the male configuration' (Zadrożna 2013: 122). What is more, the dysgenesis of the ovaries, which in majority of cases leads to infertility, disqualifies a person as a potential biological mother. Thus, an analysis of metaphors of the self and social identity can reveal the social positioning of the women with TS, and the investments they make to agentively self-position in discourses of femininity, womanhood, and motherhood.

4. Metaphors in the patients' lived experience of TS

4.1. Methodology and data

The data for the analysis come from a subset of four interviews with women with TS (primary data set embraces ten interviews). All interviews were conducted in Polish and the audio was recorded; following this, they were transcribed verbatim with the use of Jeffersonian notation system (1984); selected parts where metaphors had been identified were translated to English. The interviews were semi-structured. First, the interviewees were asked to define Turner syndrome, and when the interview was closing, they were asked evaluative questions about the impact of TS on the real and possible (future) self that they could perceive. The aim of the opening question was to embed the talk in the discourse of Turner syndrome, while the closing questions targeted the core subject of the research, namely identity construction by TS

individuals. All participants provided informed consent. Sample characteristics are summarized in Table 1.

The method of analysis draws on an approach for metaphor identification and interpretation in qualitative research suggested by Schmitt (2005). It places particular emphasis on the idea of the 'metaphorical concept'. The analytical procedure included the following stages: (i) selecting topic of analysis (metaphors of bodily experience), (ii) reflecting on my own metaphors regarding bodily appearance, (iii) compiling data set (including passages that contain relevant metaphors), (iv) systematic analysis (coding metaphors with respect to underlying themes), (v) heuristics-based interpretation (interpretation of themes, concepts, and functions of metaphors) (Schmitt 2005).

Table 1: *Sub-sample characteristics (n = 4)*

Characteristics name	Specification	Number
Age range	27–29	2
	52–57	2
Karyotype	45X	4
Body height	120–140 cm	2
	150–160 cm	2
Relationships		
Previously in a relationship with a man		1
Currently in a relationship with a man		1
Currently single		2
Experience of hormone therapy		
GHT		2
HRT		4

4.2. Body grounded metaphors for TS

The pervasiveness of bodily metaphors in majority of the languages of the world is undeniable, and therefore it seems to naturally suggest itself. The body is often given a foundational status as it is claimed to provide the universal ground upon which our mind engenders figurative thought (Kövecses 2014; Vakhovska 2021). Although metaphorical mappings are usually one-way relations where the material body is a source domain for the immaterial life, body-based metaphors do not occur in isolation but in a variety of different and interlocking hierarchical structures (Kövecses 2020). In addition, body, being an instance of a generic concept 'physical object,' is characterized by a number of experiential dimensions: size, vertical and horizontal extension, weight, shape, texture, structure which can feed in a number of other higher-level concepts.

4.2.1. Results

I identified a number of different metaphorical concepts used to describe lived experiences of a woman whose body has been affected by TS. Resulting from the heuristic-based interpretation (Stage 5), metaphors were grouped into four thematic areas as follows: (i)

diagnosis; (ii) living with TS; (iii) appearance; (iv) self-esteem and social positioning (see Table 2). Because the analysis was based on a small data sample, single cases of metaphors were recorded in each of the themes that are subsequently characterized, drawing on existing literature to examine their meaning.

Metaphors are illustrated below with extracts from the interviews.

Table 2: *Overview of the metaphors clustered into four themes*

Themes	Diagnosis	Living with Turner syndrome	Appearance	Self-esteem and social positioning
Metaphors	Diagnosis as putting together puzzles Diagnosis as breaking a code Therapy as filling in a container	TS as an object hidden in a container	Beauty is body height as a valuable object Femininity is breasts as a valuable object Being human as average body height	Self-esteem as high vertical extension Social worth as a full container (The body as a container) Social worth as complete genome (The body as a container) Protection as being kept under a shade Mothering as having breasts

4.2.2. Analysis

(i) Diagnosis

Since TS is a relatively rare and random genetic aberration that occurs in about 1 in 2500 live female births (GARD 2016), its diagnosis is often startling, albeit long-awaited by women, who often notice certain bodily anomalies or peculiarities that can neither be attributed to genetic inheritance nor acquired physical damage. When women with TS spoke about the diagnosis, they tended to rely on the BODY IS A PHYSICAL OBJECT metaphor.

(1) *coś jej [lekarce] nie pasowało w tych wszystkich objawach*
'something did not fit in these symptoms'

(2) *prześwietlili mnie na wszystkie możliwe sposoby no i tym sposobem to się zaczęło układać w całość*
'they x-rayed me in all possible ways and that's how it started to fit the whole thing'

(3) *wszystko w moim ciele było takie enigmatyczne, ale ułożyłam jeden, drugi i trzeci puzel*
'everything in my body was enigmatic but I put together one, two and three puzzles'

(4) *diagnoza to było dla mnie takie wielkie odkrycie*
'the diagnosis was such a great discovery for me'

In (1), the human body is seen as an object whose structure can be predicted on the basis of its genetic design. Women make attempts to view their condition wholistically putting together

the individual symptoms and correlating the image with some widely-known diseases or syndromes. In TS, however, the individual parts of the structure do not fit, so the image of the body is puzzling (3). Nonetheless, upon closer examination and testing the professionals accurately diagnose the syndrome (2), and sometimes the patients themselves can identify it (3). A successful diagnosis conceptualized as a great discovery (4) implies that the target has been reached and the attributive adjective 'great' draws on the metaphor of size to highlight the gratification it brings after months or even years of living in uncertainty.

(ii) Turner syndrome

Conceptualizations of TS appear to have developed on the basis of the BODY IS A CONTAINER metaphor. Just like the contents of an opaque container cannot be seen from the outside, TS can be hidden in the body's genes.

(5) *nigdy w pracy nie puściłam pary z ust na temat mojego stanu*
'at work I never spilled a word about my condition'

(6) *To wszystko było zamknięte w moim wnętrzu, bo po mnie właściwie niewiele nie było widać*
'it was all locked in me, and you could hardly see much of it on me'

(7) *oni (przyjaciele) tego nie widzieli, ale ZT było we mnie, w moim ciele w mojej głowie*
'they [friends] could not see it but TS was always contained in my body and my mind'

(8) *to było takie tabu, nie było żadnych rozmów ani nic*
'it was such a taboo, there were no conversations or anything'

(9) *generalnie żyliśmy [rodzina] w ukryciu*
'we generally lived in hiding'

(10) *w końcu nie wytrzymałam i wszyscy dowiedzieli się co mi jest*
'at last I cracked and my condition was revealed'

(11) *głowa mi kipiała, musiałam ujawnić co mi jest*
'my mind was overflowing, I had to spill the information'

'Secret', in its basic sense, is defined by the Merriam-Webster Online Dictionary as something kept hidden or unexplained or, alternatively, as something kept from the knowledge of others, or shared only confidentially with a few. Slepian et al. (2019) note that secrecy can be conceptualized as speech inhibition during social interaction or as the commitment to conceal information. From the cognitive perspective, it can be argued that conceptualizations of secrecy are grounded in the experience of objects enclosed in an opaque space or a container. Keeping something secret is conceptualized as covering an object, or putting it in a container, so that other people cannot see it, whereas telling a secret is removing a cover from something, or opening a container and letting something out. The container can stand for either the body, or the mind, or the mouth while the secret is the object hidden in the container. The cover can be either the lips or any other body parts that do not let the object out.

Accordingly, TS can be construed as an object hidden in the container, in the sense that women with that condition do not talk freely about it, as expressed in (5), (8), (11), as well as in the sense that TS is not visible from the outside (6), (7). TS is fairly easy to conceal because in cases where hormone replacement therapy has been commenced in childhood, it is not articulated on the external body. The main deficiency, the lack of ovaries, is hidden inside the body and the knowledge of it remains concealed in the mind of the woman (7).

In (9) the concept of a container is expanded to cover home and family who share the secret. The secrecy of the information that one family member has TS evokes feelings of isolation and indirectly increases the experience of fatigue (Slepian et al. 2019). When the fatigue becomes unbearable, the secret is revealed. The woman comes out of the enclosed space and openly verbalizes her condition (10). Thus, in the BODY IS A CONTAINER metaphor, the container profiles either the whole body or a specific part of it (the abdomen, the mind or the mouth) while TS is an object hidden there. When the physical endurance of the container is exceeded it breaks and its contents (being afflicted with TS) is revealed.

(iii) Appearance

Metaphors that relate to bodily appearance can be summarized as the shorthands BEAUTY IS AVERAGE BODY HEIGHT, HUMANITY IS AVERAGE BODY HEIGHT, and FEMININITY IS BREASTS.

(12) *jak bym miała już te parę centymetrów więcej to już byłoby inaczej, szczególnie w relacjach z mężczyznami, którym nie podobam się przez wzrost*
'if I had a few centimeters more, it would make a difference, especially in relationships with men who do not like me because of my height'

(13) *myślą, że jesteśmy jak te Tolkienowskie karły, bez piersi chodzące*
'they think we are Tolkien's dwarfs, walking breastless'

The impact of short stature on the appearance and beauty of female body was a recurring issue when women spoke about their relationships with men. Generally, they attributed their failures in establishing closer intersexual relationships to the low height of their bodies. To put it simply, they openly claimed that very short women look unattractive to men and that they themselves had first hand experience of that attitude. This view also transpires in metaphors related to appearance. Example (12) is a linguistic realization of a composite metaphor, BEAUTY IS AVERAGE BODY HEIGHT AS A VALUABLE OBJECT. A decompositional analysis demonstrates that it is constructed out of more complicated combinations of primary and complex metaphors as well as cultural beliefs. Lakoff and Johnson (1999: 46) suggest that '[c]omplex metaphors are formed by conceptual blending'. In this case, the source domain concept is neither a simple BODY HEIGHT nor just a PHYSICAL OBJECT, but a blend of both, complemented with a cultural belief represented by BODY HEIGHT IS A DESIRABLE PHYSICAL OBJECT.

Another example of a composite metaphor that describes women's frustration with their bodies is (13). Here a deficient structure of the body schematically profiles very concrete aspects of the body with TS, i.e., its low height and the underdeveloped breasts. Women with

TS can be literally categorized as dwarfs since their height is significantly below average. Dwarfism is a medical term, so, there would be no metaphor here. The metaphorical use of 'dwarf', as found in many artistic representations, implies that a short person due to their bodily misshapenness is not a human being but a creature of a different race. This entails that a proper bodily shape and size are prerequisites for the categorization of a creature as a human being. This is reflected in the composite metaphor HUMANITY IS AVERAGE HEIGHT AS A VALUABLE OBJECT that women with TS employed when they spoke about their appearance. In (13) another quality of the TS body is expressed with the attributive adjective 'breastless' that not only points to the flaw in the body structure but also amplifies uncomfortable feelings of marginalization from the society's construction of femininity, a concept that women with TS have been subject to since birth (Crompvoets 2006). Breasts, a metonym of femaleness and BREASTS AS A VALUABLE OBJECT serve here as a source domain concept for a composite metaphor FEMININITY IS BREASTS AS A VALUABLE OBJECT.

(iv) Self-esteem and social positioning

Since body is the primary site where genetic deformations of Turner syndrome are marked, it can be predicted that its distorted physical dimensions will undermine the higher-level concepts related to social positions and esteem. Hence, metaphor choices can reveal the way one's social position is conceptualized as well as bring evaluative, persuasive, and ideological implications (Musolff 2016; Potts and Semino 2019).

(14) *żeby to poczucie własnej wartości już u niej nie spadło od samego początku*
'so that her self-esteem does not drop from the very *beginning*'

(15) *żebym miała to poczucie, że ta szklanka do połowy jest pełna a nie pusta*
'so that I felt that the glass was half full, not empty'

(16) *patrzą na taką z góry i po co mają taką przyjmować jak sobie mogą przyjąć taką z normalnym wzrostem*
'they look down at her wondering why they should hire her if they can hire the one with regular height'

In interviews, women with TS often spoke about their inferior social positioning, prejudice, and deprivation of employment opportunities. Generally, in the comprehension of the concept of social positioning a spatial dimension of vertical extension is activated. Spatial extension is exploited in metaphors termed orientational by Lakoff and Johnson (1980) since they arise from the fact that each of us is contained in a limited space by the surface of the body whose typical position is vertical. We also imagine other physical objects as limited by their surface. So, we structure reality by using an implicit metaphorical relation in which the affective abstract concepts of 'good' and 'bad' are spatially represented as 'up' and 'down', respectively (e.g., Crawford, Margolies, Drake, and Murphy; 2006; Meier and Robinson, 2004). 'Up' instantiated with a high level of a liquid in the container evokes positive feelings of satisfaction and fulfillment while a low level of a liquid provokes anxiety. Since quantity and height are claimed to share high-level conceptual structure (Ruiz de Mendoza 2021), the short stature triggers anxiety while growing tall brings contentment. Hence, metaphorical mappings

allow for the correlation of the low height with low self-esteem (14). To improve both the self-esteem and the social image of women with TS, the growth hormone therapy is supplied. In (15) the positive consequences of daily growth hormone supplementation are presented with a combination of the GOOD IS UP and the BODY IS A CONTAINER metaphors. The glass is the body being filled with an increasing amount of GH which causes the body to grow and to reach the average height in the population, which in turn, improves the woman's social-emotional well-being and social positioning.

Another example of expressions developed on the basis of the BAD IS DOWN metaphor correlates short stature with unequal treatment in the labor market (16). First of all, the low height that makes women with TS unable to perform certain tasks entails fewer job opportunities. Secondly, although their short stature does not impact their cognitive abilities or skills needed for a clerical job, it forms the basis for negative evaluation of their dispositions. Hence, the composite metaphor SOCIAL POSITIONING IS A LEVEL OF LIQUID IN A CONTAINER in which the body being the container and the liquid being the growth hormone (metonym of body height) correlates the short stature of women with TS and their low position on the job market.

The BODY IS A CONTAINER metaphor was also employed when women with TS spoke about their social identity constructed on the basis of the impaired karyotype and the loss of the second sex chromosome.

(17) *jestem inna, bo nie mam drugiego iksa*
'I'm different because I don't have the second X'

(18) *jestem gorsza, nawet nie mam śladów jajników*
'I'm worse, I don't even have traces of ovaries'

(19) *jestem gorsza, bo nie mogę mieć dzieci*
'I'm worse because I can't have (conceive) children'

The absence of one sex chromosome or ovaries in the body afflicted with TS can be taken literally; these are facts. Nonetheless, what can be observed in (17) and (18) is correlating incomplete genetic design with self-esteem and social roles. The body is not full because one sex chromosome is absent, and therefore the woman's self-esteem and social worth are low. Hence the primary metaphors BODY IS A CONTAINER and GENOME IS CONTENTS IN THE CONTAINER underlie the composite metaphor, SELF-ESTEEM IS A COMPLETE GENOME AS A DESIRABLE CONTENTS IN THE BODY AS A CONTAINER.

What is more, as a result of impaired genetic design, such body parts as ovaries or breasts that are taken to be metonymically female attributes have not developed. Breasts are strongly associated with two competing discourses of womanhood: the breast as a signifier of motherhood versus the breast as an object of sexual desire (Webb et al. 2019). Each of these discourses can be traced in (17)–(19). The double X karyotype, breasts, and ovaries that are the signifiers of motherhood are part of a metonymic FEMALE–MOTHER model where the prototype is a sub-category acting as a metonymic reference point (Langacker 1993) for the whole category and points to the deficiency of a woman with TS who can neither conceive nor nurture her child.

On the other hand, the breast can be a signifier of female sexuality (Webb et al. 2019). From this angle, it is an element of the BODY IS PHYSICAL OBJECT metaphor. As every object, the body has a structure which, in women, ideally includes two symmetrical breasts high-positioned on a slim, medium-height body. As women are routinely judged with regard to their breasts, when the breasts are absent or altered because of genetic aberration or disease, it can be deeply challenging for them to consider their actions, to navigate their sense of self, and to maintain high self-esteem, as is expressed in (19).

Another example of the body grounded metaphor is when the body as a physical object is located in a container. The BODY IS AN OBJECT IN A CONTAINER metaphor was employed when the women tried to explain the reasons why their condition of having TS was kept secret. Stigmatization and isolation are frequently conceptualized as relations between objects in space, which resonates with Leibniz' relational theory of space that consists solely in the relations among bodies, and is not (as Newton claimed) an entity existing in its own right (cf. Szwedek 2009). In (20) one object is in an enclosed space and the other is outside. Hence, what is spatial appears to be associated more with the order of the material objects of experience.

(20) *mama trzymała mnie pod kloszem, nie pozwalała mi zostawać w szkole po lekcjach ani chodzić na prywatki*
'mom kept me under a shade, she did not let me stay longer at school or go parties'

In (20), the metaphor grounded in the experience of space, depicts a girl with TS as an object enveloped in a glass container (in Polish pod kloszem – under a bell-glass) and other people outside. Those positioned outside can see the girl inside, but they cannot get into a direct contact with her. In this way, the information about TS, not articulated on the body, does not reach the public. Afifi, Olson, and Armstrong (2005) argue, the most of people's reasons for keeping secrets are a form of protection. Therefore, one possible explanation of the secrecy of TS is (self)-protection and defense from social threats (Vangelisti 1994).

Concerns about subsequent disclosures to third parties are particularly salient when the secret involves potentially stigmatizing information. Infertility, one of the two major symptoms of TS, can be regarded such information in a conservative society.

(21) *całe życie byłam outsajderką*
'I was an outsider all my life'

(22) *Następnego dnia przychodzę do szkoły to po prostu jak Mojżesz włożył laskę i morze się rozstąpiło tak dzieci się rozstąpiły*
'next day I get to school and just as Moses held out the staff and the sea parted, so the children parted'

The isolation metaphor of TS in (21) develops on the basis of a relationship between a woman with TS as a material object, and other members of the society as other objects in space. The woman locates herself beyond the boundaries of an imaginary bounded space emphasizing that it is her permanent position. On most occasions, (21) would be first taken metaphorically to imply that a person is different from others in terms of appearance, behavior or tastes. In the case of the experiences of women with TS, it can have literal meaning, too. In one of the interviews, a woman recalled herself spending school breaks in the school library where she

had peace and quiet while her classmates kept playing, shouting and running around behind the wall. Another woman said that she did not reveal that she had TS because she had an earlier history of stigmatization when she had disclosed that she suffered from another genetic disease. While (22) sounds like a literary metaphor derived from the biblical story, it has an experiential basis for the participant. It contains Polish verb 'rozstąpić' (split/ part) that entails moving in space to break one united group in two and make them stand along parallel lines forming a passageway. If an entity appears in there, just like the affected girl did, it is perceived as detached from either group. This experience of schoolmates parting is in a metonymic relationship with the event described in the biblical story of Moses, and a metaphor of isolation. In contrast to (20), the metaphorical meaning of isolation in (22) is constructed with the employment of the notion of a path, which manifests in a lonely journey along the path deprived of any amicable travel companions. Hence, being separated in space represents social isolation, and because it is the experience caused by TS, TS is construed as a cause of isolation.

4.2.3. Discussion and conclusions

The aim of this study was to explore the metaphors used by women diagnosed with TS, and to exemplify the advantages of metaphor analysis for health, disability, and social identity research. Given the analysis of a relatively small corpus, the objective was not to generate an exhaustive taxonomy of metaphors used to describe TS, but rather to illustrate the value of attending to metaphorical talk and the functions that metaphors might serve.

A general conclusion that can be drawn from the analysis is that the self-perceptions and other-constructed identities of the women with TS have an experiential basis in a non-normative female body where the body stands for the whole person, and the perceived difference in the bodily appearance is metaphorically mapped onto socio-emotional otherness. In most cases, the metaphors employed by the participants are highly conventional, which could be predicted given bodily experiences are pan-human. The most frequent experiential basis, the short stature, which physically prevents women from reaching objects from higher shelves, feeds in a number of other higher-level concepts that describe their diminished self-worth and low social position. This is seen in the negative valence of the metaphorical mappings. Among orientational metaphors LESS IS DOWN prevails. In the BODY IS A CONTAINER or BODY IS A PHYSICAL OBJECT metaphors, either the contents is insufficient or the structure is distorted. The biologically salient symptoms of TS (short stature and infertility) are considered to be the main reasons why women with TS are marginalized and prejudiced. To protect themselves from ridicule and social isolation, they rarely disclose their ailment, hidden in their body, either to friends or larger public, which exacerbates their feelings of loneliness and social seclusion. On most occasions where they are entangled in a complex web of social interdependencies, they perceive themselves as victims of TS and of the social order.

As for the advantages of metaphor analysis for health, disability, and identity research, metaphors, being devices for the expression of the unconscious, can reveal the issues that are not explicitly addressed in talk. For example, the issue that was not openly discussed in

interviews but became visible in metaphors was objectification. Oftentimes, women suggested with their use of metaphor that the life they lived was not under their control. Rather, they viewed themselves positioned at the recipiency end of agency–recipiency continuum (Bamberg 2011) whereas agency was ascribed either to the syndrome itself or to other members of the society (medical staff, family). Considering the negative self-image, equated with 'a breastless dwarf' or 'a half-empty glass' that was constructed by the participants despite the favorable outcomes of the hormone therapy whose primary aim is to ameliorate self-esteem and to enhance social welfare, the metaphor analysis can be a source of inspiration for the approaches to understanding self-perception and social-emotional challenges faced by women with TS. While it is safe to say that being shorter than others at some point in their life is a common experience, or that childlessness is frequent among women nowadays, a feeling of inferiority rooted in a child's original experience of a constitutionally distorted body, intensified by comparisons with peers is the core problem that did not surface in interviews but became apparent through the metaphor analysis.

The shared experience of women with TS connected with short stature and childlessness can explain why the metaphors for TS are mostly conventional. Nonetheless, since their bodies can be deformed in various respects and to varying degrees, infrequent innovative metaphors have been identified in the corpus (e.g. sea parting). What is more, different dimensions of the body as a physical object become salient in various situational contexts, and therefore they motivate different metaphorical mappings. For example, the concept of 'esteem' can develop on the primitive 'size' (dwarf), or 'spatial extension' (half-full glass), or 'structure'(breastless, no second X), or 'function' (infertility). 'Function' also underlies the concept of 'social role' (mother) while 'esteem' links with the concept of 'valence' which either draws on 'size' or vertical extension. Since only one metaphor can be active at any one time, the target domain cannot permanently take on the structure of a source domain. Therefore, metaphorical mappings between domains constructed by women with TS must be seen as being created temporarily as part of thought processes underlying interactional contexts.

5. Implications for further studies

The analysis of metaphorical mappings in this study aims to indicate some problems that are experienced by women with TS in Poland. Further research into the issues of socio-emotional functioning of women with TS would be valuable, particularly those employing methodology based around critical discourse analysis. Research might include a wider set of social contexts and expand beyond one specific culture.

Moreover, this study contains an analysis of metaphorical mappings that are derived from relatively short linguistic expressions grounded in a larger communicative context of semi-structured interviews. A more comprehensive analysis should embrace longer passages of texts, possibly small narratives that Musolff (2016, 2017) has problematized as 'metaphor scenarios' that organize source domains. A study of metaphors based on narrative scenarios may provide a tool for identifying the underlying sets of practices and beliefs which configure the people's ideological and moral schemas, but which may remain obscure in studies that analyze simple metaphorical mappings.

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APPENDIX (Broader original interview contexts for metaphors)

1-2 jak byłam dzieckiem to miałam taką lekarkę i coś jej [lekarce] *nie pasowało w tych wszystkich objawach*; to wysłała mnie na badania. No i na oddziale spędziłam miesiąc w Prokocimiu, no i co tu dużo gadać, *prześwietlili mnie na wszystkie możliwe sposoby no i tym sposobem to wyszło*

3 zespół Turnera to jest nakładanie się różnych dolegliwości, tak, że tu jest wiele konsekwencji i skutki się nakładają. To też nie jest tak, i to nie jest tak, że to się bierze tak, (…) że ja czekałam, że diagnoza spadnie z nieba, ale *wszystko w moim ciele było takie enigmatyczne, ale ułożyłam jeden, drugi i trzeci puzel*

4 przeczytałam w bilansie i tam były grupy różnych chorób i właśnie zespół Turnera; poczytałam o tym i stwierdziłam, że tak to się zgadza; i *ta diagnoza była wielkim odkryciem*, choć w sumie już wcześniej wiedziałam, że coś się dzieje

5 w pracy wiedzą, że jestem osobą niepełnosprawną gdyż pracuję siedem godzin, czyli o godzinę krócej, jako że osoby, które mają umiarkowany bądź yyy ciężki stopień niepełnosprawności mają prawo do siedmiogodzinnego dnia pracy, no i ja tak zostałam zatrudniona, więc te osoby wiedzą, że ja jestem chora, pracuję krócej, yyy wiedzą, że mam chorobę Addisona, gdyż im powiedziałam, żeby wiedziały, że przy wzywaniu karetki trzeba powiedzieć, że mam tą chorobę, żeby mi też od razu podano hydrokortyzon, ale *nigdy w pracy nie puściłam pary z ust na temat mojego stanu* to znaczy nie wiedzą, że mam ZT

6, 9 *generalnie żyliśmy [rodzina] w ukryciu*, to znaczy nie mówiliśmy nikomu, że ja mam Turnera, ale *to wszystko było zamknięte w moim wnętrzu, bo po mnie właściwie niewiele nie było widać* i tylko najbliższa rodzina wiedziała, to znaczy siostra i babcia i może ciocia

7 moje koleżanki to w ogóle o tym nie wiedziały, może najbliższe przyjaciółki, przynajmniej jedna z nich z tego co pamiętam to odkryły to przypadkiem oni (przyjaciele) *tego nie widzieli, ale ZT było we mnie, w moim ciele w mojej głowie*

8 nawet praktycznie nie miałam pojęcia o tej chorobie, co to jest, *to było takie tabu, nie było żadnych rozmów ani nic z moimi rodzicami*; ja myślałam, że to tylko wzrost i mówię mojej mamie, że ja się źle czuję po tych tabletkach; a to nie bierz [naśladuje głos matki]

-mhm

-to ja nie brałam, myślałam niepotrzebne no nie

10-11 to było w czasie przygotowań do światowych dni młodzieży i było takie omawianie przykazań i omawialiśmy przykazanie nie zabijaj, no i wtedy ksiądz mówił o aborcji no i po po po tym jakby kazaniu, chociaż to nie było kazanie, bo to nie było w trakcie mszy, no ale po, po nauce, o, po nauce można było zabrać głos *głowa mi kipiała, musiałam ujawnić, co mi jest* i ja zabrałam głos i powiedziałam, że ja mam coś takiego i że nie rozumiem dlaczego osoby chore są zabijane, gdyż potrafią bardzo dobrze funkcjonować w społeczeństwie iii (…) i są bardzo pożyteczni, *po prostu w końcu nie wytrzymałam i wszyscy dowiedzieli się co mi jest*

12 taak, jak ja coś zażartuję że coś dla siebie takiego mniejszego, to ta pani się uśmiechnie, ale już biegnie czegoś tam poszukać mniejszego, nie nie ma problemu

- czyli nie ma problemu? Z tego co opowiadasz to nie czułaś się nigdy napiętnowana

- bardziej może właśnie od mężczyzn, takie niestosowne uwagi, a *jak bym miała już te parę centymetrów więcej to już byłoby inaczej, szczególnie w relacjach z mężczyznami, którym nie podobam się przez wzrost*

13 ale ja wiedziałam wtedy, że jest ZT, ale nic nie wiedziałam o kariotypie i nic nie wiedziałam o chromosomach przecież. No i wyobrażałam sobie, i inni *przepraszam jakieś takie Tolkienowskie karły bez piersi chodzące*, no ale niekoniecznie skojarzyłam, że to o mnie chodzi, bo te opisy w podręcznikach w gimnazjum to są jakieś takie dziwne

14 -15 pod koniec pierwszej klasy zaczęli mówić, wytykać mnie i dokuczać, no to już trzeba coś było zrobić, *żeby to poczucie własnej wartości już u mnie nie spadło od samego początku* kiedy ono się kształtuje. Jak brałam hormon to mama mówiła, że jeszcze trochę i będzie dużo lepiej. Tak podbudowywała mnie tym komentarzem, żeby tego, co ktoś mówi nie brać do siebie *żebym miała to poczucie, że ta szklanka do połowy jest pełna a nie pusta*

16 zrobiły się te przemiany, języka rosyjskiego nie było już w szkołach yyy i tak ani renty, do pracy żadnej jakoś nie chcieli przyjąć. Duży problem jest jak się jest takim małym to tak patrzą z góry, *patrzą na taką z góry i po co mają taką przyjmować jak sobie mogą przyjąć z normalnym wzrostem*, nie?

17-19 jest gdzieś ta walka; trochę to właśnie jest tak, ja mam takie wrażenie, udowodnić, że nie jestem gorsza; no właśnie, *nie mam drugiego iksa - jestem gorsza; jestem gorsza, bo nie mogę mieć dzieci*. Przecież tyle kobiet nie chce mieć dzieci, a my *jesteśmy gorsze bo nie możemy mieć dzieci*

20 na przykład ja często musiałam pożyczać zeszyty w podstawówce, zresztą erm, mam wrażenie, erm, *mam wrażenie, że mama trzymała mnie pod kloszem*, aleee jaa nie miałam w podstawówce czy gimnazjum takich sytuacji, że na przykład biorę rower i jadę gdzieś na cały dzień ze znajomymi

21 jak były jakieś takie sytuacje jak urodziny u koleżanki to ja chodziłam czy one do mnie, były takie sytuacje, jak najbardziej, pożyczali mi zeszyty, ale *byłam taką outsajderką*, ale przede wszystkim miałam inne zainteresowania, trochę się to łączyło z tym zdrowiem z tego względu, że mnie często nie było w szkole i czasem kolegom się nie podobało myślę, że mam takie perfekcyjne oceny

22 jak oni zobaczyli te kanapki [bezglutenowe] to jeden idiota powiedział na całą szkołę, że mam HIV, bo nie wiedział czym to się je. Ja na początku zareagowałam jak ty, tylko się uśmiechnęłam, ale kiedy ja przychodzę na

drugi dzień i wchodzę do szkoły, a po prostu *jak Mojżesz włożył laskę i morze się rozstąpiło tak dzieci się rozstąpiły*, a jeden nie wytrzymał i krzyknął nie nie nie dotykaj jej bo ona ma HIV

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Largest-chunking and group formation: Two basic strategies for a cognitive model of linguistic processing

László Drienkó
SzSzC Jáky, Hungary

Abstract

The present study aims at shedding further light on how AGREEMENT GROUPS (AG) processing (e.g. Drienkó 2020a) and LARGEST CHUNK (LCh) segmentation (e.g. Drienkó 2018a) can be combined to model the emergence of language. The AG model is based on groups of similar utterances which enable combinatorial mapping of novel utterances. LCh segmentation is concerned with cognitive text segmentation, i.e. with detecting word boundaries in a sequence of linguistic symbols. Previous cross-linguistic research on French, English, and Hungarian texts (Drienkó 2020b) demonstrated that LCh segmentation is not efficient when words are the basic segmentation units and utterances are the target sequences. However, almost all utterance boundaries were identified at the expense of inserting relatively many extra boundaries. These extra boundaries delineated reoccurring fragments for building longer utterances. The present analysis of English mother-child data confirms previous findings that in spite of the relatively low efficiency of word-based LCh segmentation with respect to utterance boundaries, LCh segments can still prove to be useful word combinations for AG processing. Furthermore, compared with the previous experiments, the data suggest higher boundary precision (42%) and higher coverage (85%). These findings, on the one hand, support the claim that LCh fragments can be useful in linguistic processing (with AGs), and, on the other hand, are in line with a view that mother-child language facilitates processing more than other speech contexts.

Keywords: Cognitive computer modelling; segmentation; syntactic processing; language acquisition

1. Introduction

The AG language processing model, initially proposed by Drienkó (2014), adopts a distributional approach, relying on word distribution to group utterances. Harris (1951, 1952) pioneered distributional methods in linguistics, considering *contexts* for linguistic items. Kiss

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(1973) introduced a word categorisation model using cluster analysis, expanded by Redington et al. (1998). Finch et al. (1995) adopted a similar method to assign categories to word sequences, i.e. to phrases. Mintz (2003) formalized context using *frequent frames*, i.e. preceding and succeeding words, while Weisleder and Waxman (2010) explored, besides Mintz's *mid-frames*, the usefulness of *end-frames* for categorisation. Additionally, St. Clair et al. (2010) argued for *flexible frames*. Cameron-Faulkner et al. (2003) found framing effects in language acquisition, which findings were confirmed by cross-linguistic results in e.g. Stoll et al. (2009). AGs can be viewed as combinations of such framing contexts. Wang and Mintz (2010) claim that grammatical relations are more consistent within frequent frames than in bigrams, which accords well with our view that AGs represent linguistic relations. Bannard and Matthews (2008) suggest that children tend to store word sequences in memory during language acquisition. The organisation of such stored utterances into groups based on similarity is a key concern of the AG model.

Early work on speech segmentation is exemplified by Harris (1955) where statistical cues were used to predict linguistic unit boundaries. Saffran et al. (1996) demonstrated statistical information availability in language acquisition. Various other cues like syllable distribution and prosody also affect speech segmentation strategies (Mattys et al. 2005; Cutler et al. 1987; Cutler et al. 1988; Thiessen et al. 2007; Bagou et al. 2002). The LCh method, as proposed in Drienkó (2016a), offers a quantitative approach based solely on linguistic structure, taking no advantage of further cues like stress or metrical features.

The structure of the current study is organized as follows. Sections 1.1 and 1.2 offer a brief introduction to agreement groups and LCh segmentation. Section 1.3 addresses the issue of combining word-based LCh segmentation with AG processing, setting the context for our analysis consisting of three computer experiments. Section 2 presents the empirical results obtained from the experiments. Section 3 discusses the significance of the findings in relation to linguistic modelling. Section 4 provides concluding remarks summarizing the key points of the study.

1.1. Agreement Groups

The concept of *agreement groups* and *agreement groups coverage* has been explored in various studies as a distributional approach to modelling linguistic processing. Drienkó (2014) demonstrated that agreement groups, which are groups of 2-5 word long utterances differing from a base utterance by only one word, can account for a certain percentage of novel utterances in English mother-child speech. These AGs may facilitate categorization (lexical/syntactic, semantic) and could potentially serve as the basis for actual agreement relations. Similar findings were reported for Hungarian and Spanish in Drienkó (2013a). To handle longer utterances, the notion of *coverage* was introduced in Drienkó (2013b, 2015, 2016b). The coverage apparatus aims to identify 2-5-word long fragments within an input utterance and map them onto agreement groups. In the case of English mother-child utterances from the Anne files of the Manchester corpus (Theakston et al. 2001) in the

CHILDES database (MacWhinney 2000), the author found average coverage values of 78% and 83% for the *continuous* and *discontinuous* cases, respectively.

The central objective of the AG approach is to arrange the utterances of a linguistic corpus into groups differing in only one word from a given utterance. These AGs serve as the basic processing units of the model for mapping utterances. Novel utterances are mapped onto AGs of *familiar* utterances, viz. the utterances of a training corpus. An utterance can be mapped onto an AG if it can be obtained by choosing words from the subsequent columns of a corresponding hypothetical table for the AG, where each column represents an utterance position and contains all the words of the AG occurring in the corresponding position. For example, the agreement group AG1 in (1) licenses the novel utterances in (2), i.e. each utterance in (2) can be mapped onto AG1. For a given AG, the novelty of mappable utterances is graded in proportion to in how many words an utterance in question differs from the words of the 'base' utterance of the AG. Utterance *a boy laughs*, e.g. differs from the base utterance *the girl talks* in all the three positions – cf. the boldface words – while the other three utterances, *a girl laughs, the boy laughs* and *a boy talks,* involve only two positional differences. Note that novelty for a particular AG begins with two positional differences since the utterances within an AG already involve difference in one position from the base utterance.

(1) AG1
<u>the girl talks</u>
the girl **laughs**
a girl talks
the **boy** talks

(2) *a girl laughs*
the boy laughs
a boy talks
a boy laughs

Besides the immediate AG-mapping level, the AG model assumes a *coverage* mechanism that processes utterances as combinations of shorter utterances. The processing task of the coverage mechanism consists in trying to establish a COVERAGE STRUCTURE for an utterance by identifying 2-5-word long fragments in it that can be directly mapped onto AGs. Suppose we want to process utterance *a little boy laughs* and our store of AGs, besides AG1 in (1), also includes AG2 as shown in (3). We can obtain a corresponding coverage structure by identifying fragments *a boy laughs* and *little boy* which fragments can be mapped onto groups AG1 and AG2, respectively. Cf. Table 1. Note that the AG model allows for discontinuous mapping. Fragment *a boy laughs* is discontinuous in utterance *a little boy laughs* owing to the inserted word *little*.

(3) AG2
<u>big girl</u>
little girl
big **boy**

Table 1: *Coverage structure for 'a little boy laughs'*

a	***little***	**boy**	***laughs***	
a		boy	laughs	AG1 (discontinuous fragment)
	little	boy		AG2

We associate a 100% coverage value with coverage structures where each utterance position is covered, as in Table 1. However, there might be utterance positions that cannot be covered by AG-compatible fragments. As the coverage structure in Table 2 illustrates, the two groups AG1 and AG2 in our running example do not suffice to completely cover utterance *a little boy often laughs* due to the fact that no AG can be found for mapping any utterance fragment containing the word *often*. Thus, the coverage value for *a little boy often laughs* is 4/5 = .8 (80%) since four utterance positions of five are covered.

Table 2: *Coverage structure for 'a little boy often laughs'*

a	***little***	**boy**	**often**	***laughs***	
a		boy		laughs	AG1 (discontinuous fragment)
	little	boy			AG2

The AG model operates on two basic levels of linguistic processing. The first level involves direct mappings onto AGs for handling holophrases, shorter utterances, or *formulaic* expressions. The second level requires more computational effort as it involves finding legal (AG-compatible) fragments (Level 1 operation) and then selecting an optimal combination of fragments to ensure grammaticality. This duality is reflected in the coverage structures of utterances. Drienkó (2020a) discusses additional dualistic properties of the AG framework and highlights its relevance to research on cognitive linguistic processing. This includes topics such as generalization, categorization, a semantic/syntactic interpretation of the *less-is-more* principle in Newport (1990), its relationship to U-shaped learning (Strauss 1982) and "vocabulary spurt" (e.g., Ganger & Brent 2004), parallels with the dual-process model of Van Lancker Sidtis (2009), lateralization of formulaic and *analytical* speech (e.g., Sidtis et al. 2018), neurolinguistic processing (Bahlmann et al. 2006), and the processing of complex linguistic structures such as long-distance dependencies, crossing dependencies, or embeddings (also discussed in Drienkó 2016b).

1.2. Largest-Chunk segmentation

The Largest Chunk (LCh) segmentation algorithm as proposed in Drienkó (2016a, 2018) for inferring utterance fragment boundaries looks for locally maximal chunks that occur at least twice in a sequence of linguistic units, fundamentally, letters of the alphabet. Some elementary segmentation examples are listed as (4i)-(4iii). The input sequence (4i), *abcabc*, e.g. is segmented as *abc abc*, since the largest chunk that occurs twice is *abc*. In (4ii) there is only one

c, so the *ab* chunks are locally maximal. Example (4iii) illustrates how some *nested dependency* structures can be captured by LCh segmentation.

(4) i abcabc → abc abc
ii abcab → ab c ab
iii abcdefefcdab → ab cd ef ef cd ab

The segmentation results are interpreted in terms of four precision metrics: INFERENCE PRECISION (IP), ALIGNMENT PRECISION (AP), REDUNDANCY (R), and BOUNDARY VARIABILITY (BV). The definitions are given under (5). Note the interdependence of the precision values: IP × R = AP, since (cib/aib) × (aib/acb) = cib/acb.

(5) Inference Precision = cib/aib
(correctly inferred boundaries/all inferred boundaries)

Redundancy = aib/acb
(all inferred boundaries/all correct boundaries)

Alignment Precision = cib/acb
(correctly inferred boundaries/all correct boundaries)

Boundary variability = $\Sigma\Delta f_i$/aib
(the average distance, in characters, of an inferred boundary from the nearest correct boundary)

For a simplistic illustration of how Inference Precision is obtained consider the toy corpus of two utterances {*toby is, toby in*}. When the basic segmentation units are the letters of the text, the LCh algorithm outputs the segments *tobyi*, *s*, *tobyi*, and *n* as in (6). Since 2 boundaries are correct of all the 4 inferred boundaries – viz. the boundaries after *s* and *n* – Inference Precision is 2/4 = 0.5. Recall that IP is defined as the proportion of correctly inferred boundaries, *cib,* to all inferred boundaries *aib*. Cf. (5).

(6) tobyistobyin → tobyi s tobyi n

When segmentation is based on syllables, we anticipate higher precision values since no erroneous syllable-internal boundaries can be inferred. The LCh segments for our toy corpus {*toby is, toby in*} would be *to-by-*, *is-*, *to-by-*, and *in-*, cf. (7). Since all the four inferred boundaries are correct, IP = 4/4 = 100%.

(7) to-by-is-to-by-in- → to-by- is- to-by- in-

The LCh algorithm, as described in Drienkó (2017), was used to segment utterances in English, Hungarian, Mandarin, and Spanish. The algorithm achieved an IP range of 53% - 66% when segments were based on letters. However, when syllables were used as the basic units of segmentation, the IP values significantly improved. In Drienkó (2018a) the IP range for syllables was found to be 77% - 95%, with an average of 86%. This suggests that using syllables as units of segmentation leads to higher precision in boundary inference.

The LCh segmentation strategy aligns with Peters' (1983) approach to language acquisition, where learners extract large chunks from the speech stream and form the 'ultimate' units of language by segmenting and fusing relevant chunks. The results also

support a *less-is-more* interpretation (Newport 1990), indicating that less detail in utterance structure – syllables versus letters – may facilitate higher precision in boundary inference.

The LCh strategy allows for direct quantitative results based solely on the linguistic structure of the text, without relying on additional cues such as stress or metrical features. However, it is worth noting that LCh segmentation may be compatible with other cognitive strategies and can be aided by cognitive cues. In fact, Drienkó (2018b) reported that utterance boundary information enhances LCh segmentation, which aligns with research on infant word segmentation and, in particular, with the Edge Hypothesis of Seidl et al. (2006) suggesting that extraction of target words is facilitated by utterance boundaries.

1.3. Word-based largest chunks for Agreement Groups processing

The AG model assumes that language learners have access to clearly defined utterance boundaries in their training corpus. However, this assumption does not align well with real-life language acquisition, where learners are exposed to continuous speech without explicit boundary markers. Previous research suggests that word boundaries can be detected with high precision using the LCh strategy, particularly in the case of syllable-based segmentation (Drienkó 2017, 2018a). If we assume that language learners have a tool for detecting word boundaries, such as syllable-based LCh segmentation, it may be valuable to explore how this segmentation strategy can be useful when considering the word as the basic unit of text. It is possible that the strategy could identify recurring word combinations that correspond to phrases and utterances. These "phrases" (or speech fragments) could then be input to the group formation algorithm of the AG model. The resulting set of AGs could be used for syntactic processing of new utterances, conditioning a cognitive computer model for the emergence of language that relies on LCh segmentation, AG formation, and their associated mapping mechanisms.

Some cross-linguistic results were reported in Drienkó (2020b) testing the LCh+AG ("syntax out of a stream of words") approach against the short novel *Le Petit Prince (The Little Prince)* by Antoine de Saint-Exupéry in three languages: French, English, and Hungarian. It was concluded that LCh segmentation is not very efficient when words are the basic segmentation units and utterances are the target sequences. However, almost all utterance boundaries were identified at the expense of inserting relatively many extra boundaries. These extra boundaries delimited reoccurring fragments that could be used for producing coverage structures for longer utterances. The present study explores a different register, mother-child language, in order to see how linguistic context affects the insights that the combination of largest-chunking and AG formation yields.

In the experiments, the input corpus of utterances was transformed into a sequence of words by removing utterance boundaries, and the resulting word sequence was segmented using the LCh segmentation algorithm. The word combinations (largest chunks) obtained in the first stage were then used to generate AGs. Finally, these AGs were used to map utterances from a novel section (test set) of the original corpus, allowing for testing of coverage. It is important to note that, for computational reasons, utterance boundaries were included in the test set, which means that our

results may underestimate the model's coverage potential since word combinations spanning utterance boundaries were not considered. Additionally, to gain a more detailed understanding of the processing mechanisms, the corpus was divided into three parts, and three separate experiments were conducted. The results of these experiments are presented in Section 2.

2. The experiments

In our experiments we used the Anne files of the Manchester corpus (Theakston et al. 2001) in the CHILDES database (MacWhinney 2000). The Anne section of the corpus contains 68 files, 1a through 34b, each file consisting of the tapescript of a 30-minute mother-child session. The dataset was divided into three subsets – files 1a-11b, 12a-22b, 23a-32b – and coverage was measured separately for each. To obtain utterance fragments, we reduced the data subsets even further. We regarded each 60-minute mother-child session as a short text, i.e. a sequence of words without utterance boundaries, and segmented them via the LCh segmentation algorithm. However, for a given coverage experiment, segments from all its 60-minute sessions were considered. For instance, in Experiment 1 the first collection of segments came from files 1a and 1b, the second collection from 2a and 2b, etc., and the segments of all the eleven collections were used to form AGs. Coverage was then tested on file 12a, corresponding with the next 30-minute mother-child session. In Experiment 2 the first collection of segments came from files 12a and 12b, the last collection from 22a and 22b, and coverage was tested on file 23a. Finally, in Experiment 3, segments were obtained from sessions 23 through 32 and coverage was measured on file 33a.

2.1. Experiment 1

In Experiment 1, after merging *a* and *b* sessions, we obtained LCh segments from files 1 through 11. Table 3 shows the precision metrics for the segmentation procedure. Recall that Inference Precision (IP) represents the proportion of correctly inferred boundaries (cib) to all inferred boundaries (aib), i.e. IP = cib/aib, Redundancy (R) is computed as the proportion of all the inferred boundaries to all the correct (original) boundaries (acb), i.e. R = aib/acb, Alignment Precision (AP) is specified as the proportion of correctly inferred boundaries to all the original boundaries, i.e. AP = cib/acb, and Boundary Variability (BV) designates the average distance, in characters, of an inferred boundary from the nearest correct boundary. Cf. (5). Here we specifically include BV_{wo} for measuring the average of the distance from the nearest correct boundary in words, since the basic textual unit in the experiments of this study is the word.

Table 3: *LCh segmentation precision results for Experiment 1*

	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	Avr.
IP	0.472	0.496	0.496	0.487	0.474	0.475	0.430	0.435	0.460	0.389	0.463	**0.461**
R	1.623	1.484	1.482	1.437	1.615	1.632	1.783	1.770	1.577	1.951	1.593	**1.538**
AP	0.766	0.736	0.735	0.700	0.766	0.775	0.767	0.771	0.726	0.759	0.738	**0.749**
BV	4.863	4.417	4.407	4.652	4.608	4.832	5.162	5.430	5.234	6.027	4.747	**4.943**
BV_{wo}	1.045	0.922	0.925	0.979	0.966	1.006	1.069	1.121	1.083	1.266	0.978	**1.011**

Overall, we obtained 33179 segment tokens from the 11 sessions, 16519 of which were multiword segments, i.e. segments containing at least two words. The distribution of multiword segments with respect to their lengths measured in words is sketched in Figure 1.

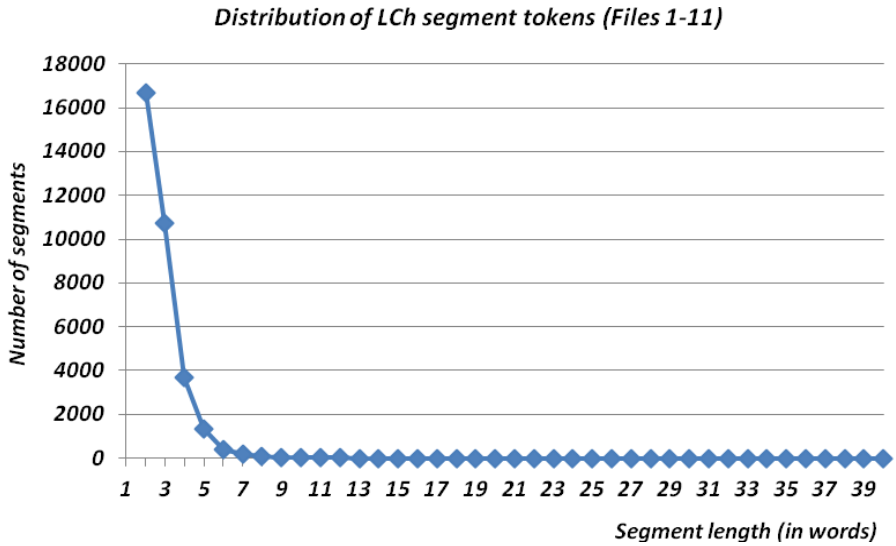

Figure 1: *The distribution of multiword LCh segments from files 1-11 with respect to their lengths*

Of all the 16519 multiword utterance fragments we selected those which contained at most five words, and these were used for the formation of AGs. The distribution of the 5905 two-to-five-word-long segment types in terms of their lengths measured in words is given as Figure 2. The number of words (types) that occurred in the 5905 segments was 953.

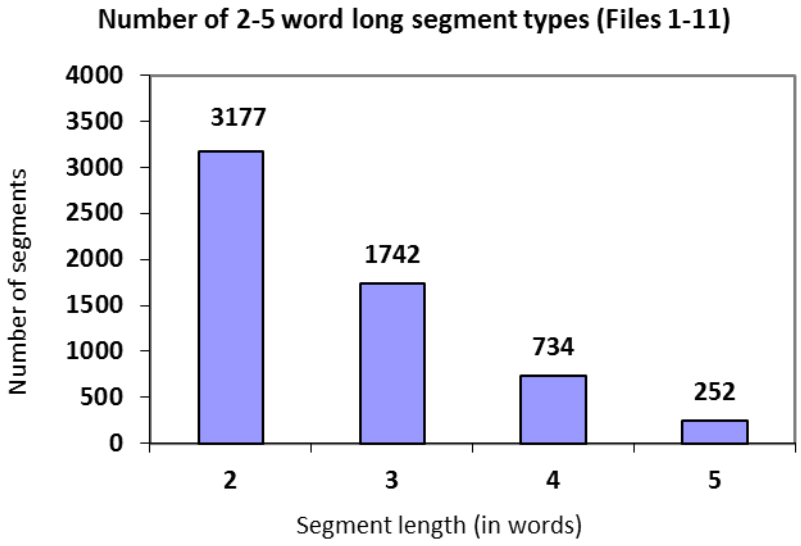

Figure 2: *The distribution of two-to-five-word-long LCh segment types from files 1-11 in terms of segment length measured in words*

Since each utterance fragment had its own group, there were 5905 AGs. The utterances in session 12a were used for testing the coverage potential of this 5905-group AG system. There were 565 utterance types in file 12a, 43 of which being one-word utterances. We applied the

coverage apparatus to the 522 multiword utterances in 12a. Via dividing the sum of the coverage values for the individual utterances in the test file by the number of utterances we obtain average coverage. The average coverage value for Experiment 1 was 457.3/522 = 87.6%. If we assume, in accordance with our word-based LCh segmentation procedure, that all words are "known" to the AG system, coverage becomes somewhat higher since one-word utterances in the test set can trivially be covered by themselves. Thus, by also taking the 43 one-word utterances into consideration, we get (457.3 + 43 = 500.3)/(522 + 43 = 565) = 88.5% as average coverage.

2.2. Experiment 2

In Experiment 2 the first collection of segments came from files 12a and 12b, the last collection from 22a and 22b, and coverage was tested on file 23a. After merging *a* and *b* sessions, we obtained LCh segments from files 12 through 22. Table 4 shows the precision metrics for the segmentation procedure. Recall that IP = cib/aib, R = aib/acb, AP = cib/acb, and BV designates the average distance, in characters, of an inferred boundary from the nearest correct boundary. BV_{wo} gives the average distance measured in words.

Table 4: *LCh segmentation precision results for Experiment 2*

	12	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	Avr.
IP	0.417	0.424	0.395	0.412	0.387	0.417	0.407	0.442	0.429	0.438	0.425	**0.417**
R	1.835	1.745	1.955	1.878	1.983	1.888	1.922	1.724	1.718	1.751	1.75	**1.747**
AP	0.764	0.741	0.773	0.773	0.767	0.787	0.782	0.762	0.738	0.767	0.743	**0.763**
BV	5.580	5.499	6.473	5.475	6.058	5.775	5.764	5.316	5.026	5.229	5.184	**5.580**
BV_{wo}	1.152	1.137	1.342	1.137	1.246	1.177	1.164	1.097	1.04	1.068	1.068	**1.11**

Overall, we obtained 35619 segment tokens from the 11 sessions, 17864 of which were multiword segments, i.e. segments containing at least two words. The distribution of multiword segments is sketched in Figure 3.

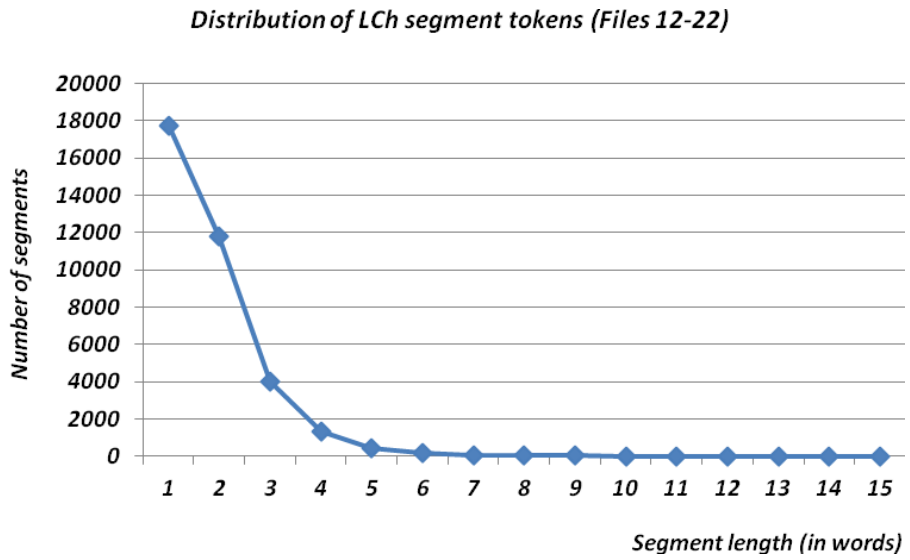

Figure 3: *The distribution of multiword LCh segments from files 12-22 with respect to their lengths*

Of all the 17864 multiword utterance fragments we selected those which contained at most five words, and these were used for the formation of AGs. The distribution of the 6197 two-to-five-word-long segment types is given as Figure 4. The number of words (types) that occurred in the 6197 segments was 1038.

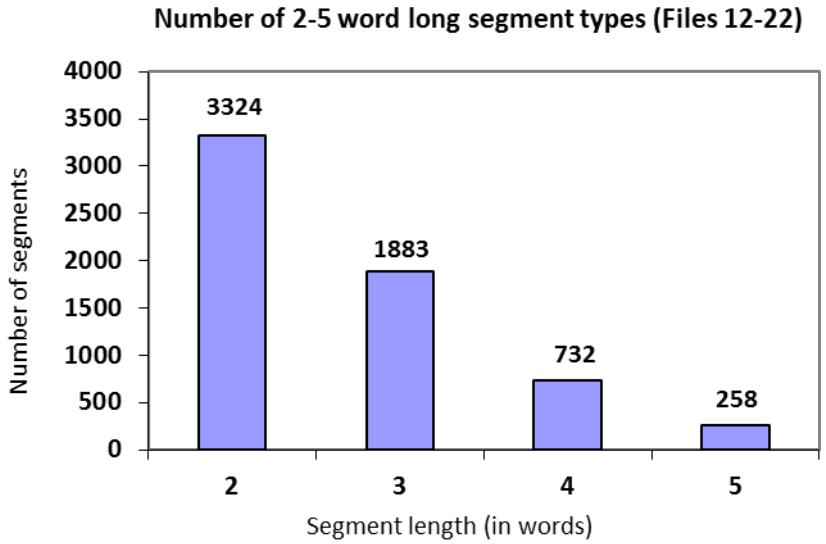

Figure 4: *The distribution of two-to-five-word-long LCh segment types from files 12-22 in terms of segment length measured in words*

The utterances in session 23a were used for testing the non-discontinuous coverage potential of the 6197 AGs. There were 526 utterance types in file 23a, 51 of which were one-word utterances. We applied the coverage apparatus to the 475-multiword subset of 23a. The average coverage value for Experiment 2 was 407.8/475 = 85.8%. If we take the 51 one-word utterances into consideration average coverage becomes (407.8 + 51 = 458.8)/(475 + 51 = 526) = 87.2%.

2.3. Experiment 3

In Experiment 3 we obtained LCh segments from files 23 through 32, after merging *a* and *b* sessions. Coverage was tested on file 33a. Table 5 shows the precision metrics for the segmentation procedure.

Table 5: *LCh segmentation precision results for Experiment 3*

	23	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	Avr.
IP	0.38	0.367	0.392	0.399	0.389	0.392	0.369	0.387	0.377	0.376	**0.383**
R	1.997	2.124	1.928	1.867	1.909	2.004	2.069	2.015	2.102	2.023	**2.01**
AP	0.759	0.780	0.755	0.745	0.742	0.785	0.763	0.781	0.793	0.760	**0.759**
BV	6.183	6.56	5.772	5.768	5.982	6.106	6.322	6.053	6.453	6.404	**6.293**
BV_{wo}	1.290	1.341	1.195	1.212	1.242	1.263	1.307	1.252	1.329	1.335	**1.312**

We obtained 34649 segment tokens from the 10 sessions, 16761 of which contained more than one word. The distribution of multiword segments is sketched in Figure 5.

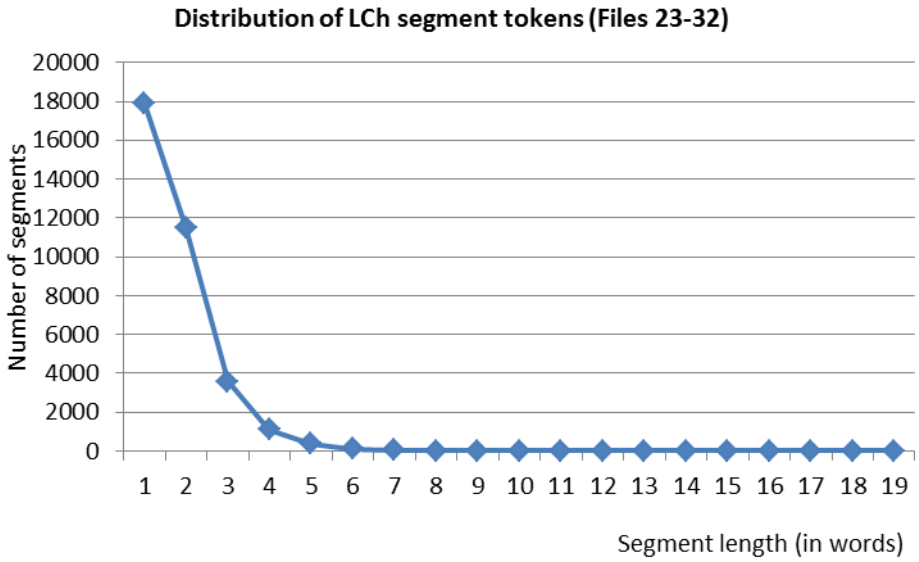

Figure 5: *The distribution of multiword LCh segments from files 23-32 with respect to their lengths*

Of all the 16761 multiword utterance fragments we selected those which contained at most five words, and these were used for the formation of AGs. The distribution of the 5805 two-to-five-word-long segment types is given as Figure 6. The number of words (types) that occurred in the 5805 segments was 1065.

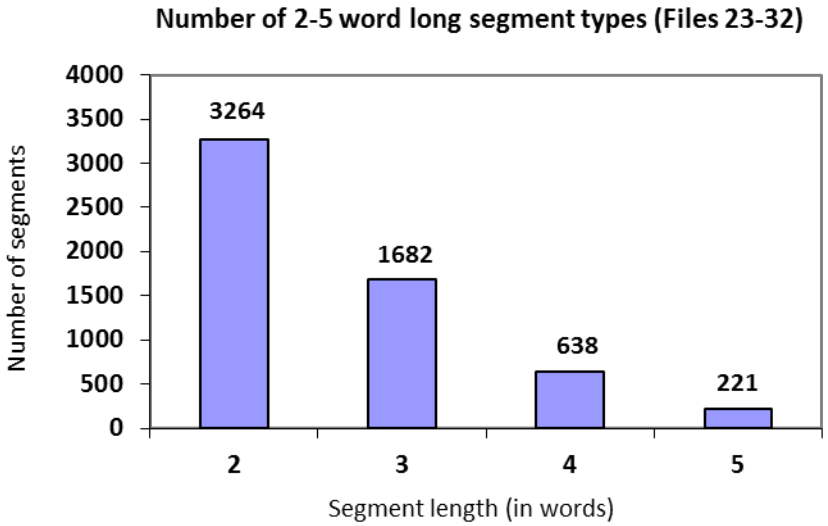

Figure 6: *The distribution of two-to-five-word-long LCh segment types from files 23-32 in terms of segment length measured in words*

The utterances in session 33a were used for testing the non-discontinuous coverage potential of the 5805 AGs. There were 515 utterance types in file 33a, 49 of which were one-word utterances. We applied the coverage apparatus to the 466-multiword subset of 33a. The average coverage value for Experiment 3 was 375.15/466 = 80.5%. If we take the 49 one-word utterances into consideration average coverage becomes (375.15 + 49 = 424.15)/(466 + 49 = 515) = 82.4%. Table 6 presents the average results from all the three experiments.

Table 6: *Overall average segmentation precision and coverage results*

	Datasets			
	1-11	**12-22**	**23-32**	**Average**
Avr. IP	0.461	0.417	0.383	0.420
Avr. R	1.538	1.747	2.01	1.765
Avr. AP	0.749	0.763	0.759	0.757
Avr. BV	4.943	5.580	6.293	5.605
Avr. BV_{wo}	1.011	1.11	1.312	1.144
Average coverage	0.876	0.858	0.805	0.846

3. Discussion

The Inference Precision values show that the proportion of correctly inferred boundaries of all inferred boundaries is about 40%, 42% overall. This suggests that the LCh segmentation mechanism, as compared with former findings (e.g. Drienkó 2017, 2018a), is only moderately robust when words are the basic units for segmentation and utterance boundaries are to be inferred. Nevertheless, the other precision parameters reveal significant features of the LCh strategy that condition the emergence of useable word combinations for syntactic processing. First of all, the distance of an erroneously inferred boundary is, on average, merely 1.144 words (5.605 characters) from the nearest correct utterance boundary, i.e. by shifting the erroneous boundary ca. one word to the left or to the right we reach a correct utterance boundary. Secondly, Alignment Precision is relatively high. The 75.7% average value indicates that about three quarters of the original utterance boundaries are correctly identified. Perhaps most importantly, the relatively high AP value is achieved via inserting extra boundaries. These additional boundaries are incorrect with respect to utterance edges. However, they mark out reoccurring word sequences that can be used as building blocks for utterances. The 1.765 average Redundancy value shows that roughly twice as many boundaries are inferred as would be strictly necessary to identify the original utterances.

The coverage results of our experiments, averaging 84.6%, are fairly impressive, especially when compared to the relatively low IP values. The fact that, on average, over 80% of an utterance can be covered by fragments output by the LCh module of the processing system indicates that LCh segmentation may be a promising mechanism for providing useful word combinations, or "phrases", i.e. building blocks for syntactic processing. In fact, the 84.6% average value is higher than our previous result, 78%, obtained with the 2-5-word-long utterances in the training corpus (Drienkó 2013b), which indicates that LChs provide a comparable, or even better basis for AG processing. The high coverage value also suggests that the formation of groups, AGs in particular, can be a successful strategy for creating a syntactic mapping apparatus. Thus, our results would be in line with a usage-based model of the

emergence of linguistic capacities supported by two fundamental cognitive strategies – LCh segmentation and the formation of AGs.

Compared with the *Le Petit Prince* experiment in Drienkó (2020b), the data here suggest higher boundary precision and higher coverage: 42% and 85%, respectively, versus 16% and 45% in the former experiments. Cf. Table 7. Thus, besides drawing attention to largest-chunking and AGs, our findings also highlight the role of mother-child language in facilitating linguistic processing.

Table 7: *Comparison of the results with those from the Le Petit Prince experiment*

	Le Petit Prince The Little Prince Kis herceg **Average**	**Anne** **Average**
Avr. IP	0.16	0.420
Avr. R	5.6	1.765
Avr. AP	0.9	0.757
Avr. BV	17.02	5.605
Avr. BVwo	–	1.144
Avr. cov. (cont.)	0.45	0.846
Avr. cov. (discont.)	0.54	–

4. Conclusions

The primary objective of the present paper was to explore the viability of combining word-based LCh segmentation with AG processing. We reported empirical results from experiments with CHILDES mother-child data. It was found that word-based segmentation is not robust for inferring utterance boundaries, IP is around 40%. Nevertheless, the majority of utterance boundaries can be found, AP ≈ 76%, via inserting redundant boundaries, R ≈ 1.76. The resultant wealth of segments conditions the emergence of utterance components, or building blocks, that can be organised into AGs. Thus LCh segments prove to be useable word combinations for linguistic processing. As reflected in the coverage values, such building blocks can account for, on average, some 80% of the test utterances, which makes our approach a promising processing framework. Thus, the 'LCh+AG' approach can be regarded as a usage-based model of the emergence of linguistic capacities based on two fundamental cognitive strategies, LCh segmentation and AG formation. As the present results are quantitatively superior to previous findings from literary texts, besides drawing attention to largest-chunking and AGs, our findings also highlight the role of mother-child language in facilitating linguistic processing. In the experiments only non-discontinuous fragments were allowed for AG coverage. Previous research (Drienkó 2015, 2020b) suggests that discontinuous fragments

improve coverage results. Consequently, the 84.6% average coverage value that we report here might have been higher if discontinuous fragments had also been considered.

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Post-verbal agreement and obligatory presence of particle *to* in Polish dual copula clauses

Rafał Jurczyk
WSB Merito University, Poland

Abstract

This paper addresses the obligatory particle *to* in Polish dual copula clauses (DCCs) with post-verbal agreement and two 3rd person nominative expressions with φ-feature(s) mismatch. It argues that *to* must be present because the syntax cannot successfully establish the φ-Agree relation between T and the post-verbal nominative expression (NP_{NOM2}). Two crucial premises are adopted. One is Zeiljstra's (2012) Upward Agree which requires i-features to c-command u-features and, hence, necessitates the closest NP_{NOM} to T to SpecTP-move. The other is Vangsnes's (2002) obligatory TP identification by the Tense- (provided by T) and φ-features (provided by NP_{NOM} controlling agreement) to anchor the subject to the eventuality denoted by the complex predicate Pred' [*be* NP_{NOM2}] (Jurczyk 2021). The examination shows that T-NP_{NOM2} φ-Agree in DCCs under consideration cannot be established as SpecTP-movement of NP_{NOM2} is illegitimate; NP_{NOM2} if formally and syntactically part of Pred' and is also farther from T than NP_{NOM1}, the pre-verbal nominal expression. Consequently, T's φ-features remain unvalued, which makes TP formally unidentified. However, since some of T's NP_{NOM2}-specified features are specified as those on NP_{NOM1}, T attracts NP_{NOM1} to value them whereas features bearing NP_{NOM2}'s specification get valued as default and lexicalised as the least-marked form in terms of feature specification (following Szucsich 2007), i.e., $to_{[i\text{-}neut]}$. It is thus concluded that the obligatory presence of *to* is a means of formally identifying TP in case any of T's NP_{NOM2}-specified φ-features cannot be successfully valued by the T-NP_{NOM2} Agree relation.

Keywords: Polish dual copula clauses; post-verbal agreement; TP identification; pronominal clitic *to*

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1. Introduction[1] [2]

In Polish verbal copula clauses, *be* usually agrees with NP_{NOM1} as in NP_{NOM1} *be* NP_{INSTR2} structures ((1)), clauses with 1st and 2nd person NPs_{NOM} surrounding *be* ((2)-(3)), or DCCs with 1st and 2nd person initial nominative pronouns ((4)).[3]

(1) *Ci zawodnicy są drużyną piłkarską.*
these players-NOM-3PL-VIR are-3PL team-INSTR-3SG-FEM football-INSTR-3SG-FEM
'These players are a football team.'

(2) *Ja jestem ty.*
I-NOM-1SG am-1SG you-NOM-2SG
'I am you.'

(3) *Ty jesteś ja.*
you-NOM-2SG are-2SG I-NOM-1SG
'You are me.'

(4) *Ja / Ty to jestem / jesteś gawędziarz.*
I-NOM-1SG / you-NOM-2SG COP am-1SG / are-2SG storyteller-NOM-3SG- MASC
'I/You am/are a storyteller.'

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[1] Abbreviations: NP_{3NOM} – third person nominative expression, NOM – nominative, GEN – genitive, DAT – dative, ACC – accusative, INSTR – instrumental, MASC – masculine, FEM – feminine, NEUT – neuter, VIR – virile, N-VIR – non-virile, SG – singular, PL – plural, COP – pronominal clitic *to*, i – interpretable feature(s), u – uninterpretable feature(s).

[2] NPs_{3NOM} in Polish DCCs may show gender-number misalignment ((i)), gender misalignment ((ii)), or φ-features matching ((iii)).

(i) *Te tereny to była puszcza.*
these areas-NOM-3PL-N-VIR COP was-3SG-FEM forest-NOM-3SG-FEM
'These areas were a forest.'

(ii) *Ona to było niezłe ziółko.*
she-NOM-3SG-FEM COP was-3SG-NEUT good-3SG-NEUT weirdo-NOM-3SG-NEUT
'She was a weirdo.'

(iii) *Marek to był muzyk.*
Marek-NOM-3SG-MASC COP was-3SG-MASC musician-3SG-MASC
'Mark was a musician.'

[3] There seems to be speaker variation regarding the acceptability of examples like (2)-(3), for unlike the present author, Reviewer 1 does not tolerate them. They, nevertheless, crop up in different sources as grammatical. Example (i) comes from Bondaruk (2013: 149), and (ii) is from the National Corpus of Polish (www.nkjp.pl).

(i) *Ja jestem ty.*
I-NOM-1SG am-1SG you-NOM-2SG
'I am you.'

(ii) *Ja jestem ty - ty jesteś ja!*
I-NOM-1SG am-1SG you-NOM-2SG you-NOM-2SG are-2SG I-NOM-1SG
'I am you – you are me!' (IJPPAN_k70A024)

In DCCs with two NPs_{3NOM} and gender or gender-number mismatch, however, agreement is post-verbal and requires the particle *to*. If *to* is dropped in (5), the only way to make it grammatical is for NP_{NOM1} to φ-Agree with *be* and for NP_{NOM2} to assume instrumental case ((6)).

(5) *Ta okolica to *była / były*
this neighbourhood-NOM-3SG-FEM COP *was-3SG-FEM / were-3PL-N-VIR
obrzeża miasta.
outskirts-NOM-3PL-N-VIR of-city
'This neighbourhood was the outskirts of the city.'

(6) *Ta okolica była / *były*
this neighbourhood-NOM-3SG-FEM was-3SG-FEM / *were-3PL-N-VIR
*obrzeżami miasta / *obrzeża miasta.*
outskirts-INSTR-3PL-N-VIR of-city / outskirts-NOM-3PL-N-VIR of-city
'This neighbourhood was the outskirts of the city'

The issue of why this requirement holds, has so far received very little attention. It is only cursorily mentioned in Bondaruk (2019: 112, fn.9) for whom post-verbal agreement seemingly depends on the presence of *to* because equatives, copular constructions expressing identity between two XPs surrounding the copula (Higgins 1979) and characterised by pre-verbal agreement (Bondaruk 2013), necessarily show post-verbal agreement when accompanied by *to*.[4]

(7) *On to kiedyś *był / była ona.*
he-NOM-3SG-MASC COP once was-3SG-MASC / was-3SG-FEM she-3SG-FEM
'He used to be her.'

Here, we claim that the obligatory presence of *to* in Polish DCCs under consideration results from derivational issues concerning the T-NP_{NOM2} φ-Agree relation. Following Zeiljstra's (2012) Upward Agree whereby i-features must necessarily c-command u-features, and taking T in DCCs under consideration to carry NP_{NOM2}-matching uφ-features, we show that T-NP_{NOM2} φ-agreement cannot be established as it requires the movement of the farther NP_{NOM} which is not a grammatical-logical subject, the step violating Relativised Minimality and resulting in the illicit NP_{NOM2} > NP_{NOM1} > *be* word order. Nevertheless, T's uφ-features have to be valued anyway as they are required, along with the T-feature provided by T, to formally identify TP in the sense of Vangsnes (2002), namely, to anchor the subject argument to the state-of-affairs denoted by the VP/event structure (here, Pred'). We therefore argue that having the same value on the two NPs_{3NOM}, T's $uperson_3$-feature is valued by NP_{NOM1} once T attracts it to SpecTP whereas the remaining gender- and/or number-features carrying

[4] Bondaruk supports her claim highlighting that NP_{NOM2} controls agreement also in Russian equatives involving the pronominal *èto* ('$that_{neut}$'/'it_{neut}') and the verbal copula *byt'* ('to be'):

(i) *Šaxmaty - èto *byli / było / była ego strast'.*
chess-NOM-PL that/it were-PL / was-3SG-NEUT / was-3SG-FEM his passion-3SG-FEM
'Chess was his passion.'

NP_{NOM2}'s specification are valued as default (following Szucsich 2009) and lexicalised as the morpho-phonologically least marked form in terms of its feature specification, i.e., $to_{[i\text{-}neut]}$. *To* is thus a formal backup option to identify the TP-projection whenever (some of) T's φ-features cannot be valued. This observation simultaneously implies that another property should be associated with optional *to*, cropping up in DCCs with NP_{NOM1}-agreement, i.e., those either involving two NPs_{3NOM} with matching φ-features or two non-third person NPs_{NOM}. Following Seres and Espinal's (2019) examination of the Russian pronominal form *èto* ('$that_{neut}$'/'it_{neut}'), we associate this property with the presentational function, having to do with expressing the semantic connection between the pre-verbal and post-verbal NP_{NOM}.

The paper is organised as follows. Section 2 briefly outlines technical assumptions on which our examination is based. Section 3 is the main point of the paper, focussing on determining the status of *to* and, hence, the reason for its obligatory presence in DCCs with NP_{NOM2}-controlled agreement (Sub-section 3.1). Some space is also devoted to discussing the role of *to* in DCCs with NP_{NOM1}-controlled agreement (Sub-sections 3.2 and 3.3). Section 4 concludes the paper.

2. Post-verbal agreement and particle *to* in Polish DCCs: Preliminary considerations

Here, we briefly outline technical assumptions essential for developing the account on the correlation between NP_{NOM2}-agreement and obligatory presence of *to* in Polish DCCs with two NPs_{3NOM}. The material presented here is illustrative; the details on how these notions work on actual linguistic data, and how they jointly conspire to mandate post-verbal agreement and *to* in the construction under consideration, are offered in Section 3.

2.1. Predication

We take Polish DCCs to encode predication through Pred(ication)P(hrase) with a syntactically and semantically complex [$_{Pred'}$ *be* NP_{NOM2}] predicate (following Rothstein 2004: 44-45, 259).[5] Pred' is inherently unsaturated, instantiating a Fregean function that must be completed by a saturated expression capable of standing on its own, i.e., a subject (NP_{NOM1}).[6] The incomplete status of Pred' is a syntax-semantic primitive. Syntactically, it holds because the saturation of Pred' obtains whether verbs assign thematic roles (lexical verbs, e.g. **visited John*, '*'=ungrammaticality) or not (e.g. the verbal copula *be* in **is a tall man* or raising verbs like *seem* in **seems that John is late*). Semantically-wise, it holds because unlike lexical verbs that introduce the eventuality and its property simultaneously (e.g. the verb *read* introduces the eventuality whose property is 'reading'), *be* introduces the eventuality whereas its property only crystallises once *be* combines with its complement (Rothstein 2004: 289), producing

[5] See Bailyn and Citko (1999), Citko (2008), Bondaruk (2012, 2013, 2019) for alternative approaches to predication in Polish copular clauses.

[6] For details, consult Frege (1891/1960), Mahjabeen (2012), Rothstein (2004).

Pred'. Pred' then merges with NP_{NOM1}, deriving PredP, the step establishing predication whereby NP_{NOM1} is ascribed the property of Pred'.

(8) $[_{PredP}\ NP_{NOM1}\ [_{Pred'}\ \textit{be}\ NP_{NOM2}]]$

Because PredP is syntactically asymmetrical (following Kayne's 1994 Linear Correspondence Axiom, LCA), NP_{NOM1} is always identified as a grammatical-logical subject, i.e., predestined to occupy SpecTP (NP_{NOM2} is invariably part of the complex predicate Pred').[7] The formation of PredP along the lines just outlined obviates the Relativised Minimality problem (Rizzi 1990) typical for 'inversion accounts' (Moro 1997, Mikkelsen 2005, den Dikken 2006, Shlonsky and Rizzi 2018, Bondaruk 2019, Hartmann and Heycock 2019a, 2019b) where NP_{NOM2} can SpecTP-move too, the operation that should be blocked by NP_{NOM1} intervening between T and NP_{NOM2}.[8]

2.2. (Upward) Agree

We take the configurational relationship between T and NPs_{NOM} to follow uniformly 'upstairs' according to Zeiljstra's (2012: 17) Upward Agree, summarised in (9a)-(9c) below.

(9) Agree: α can Agree with β iff:
a. α carries at least one uninterpretable feature and β carries a matching interpretable feature.
b. β c-commands α.
c. β is the closest goal to α

Contra Chomsky (2000, 2001), in Upward Agree the Probe no longer has to c-command the Goal, the requirement now being that Agree terminates when i-features c-command u-features. Hence, SpecTP-movement of the subject is no longer triggered by the troublesome EPP-feature (as in e.g. Bondaruk 2013, 2019). (In Chomsky 2000, 2001, Agree is the only feature-valuation mode, so subject-movement needs an independent trigger). In the Upward Agree model, the T-NP_{NOM1} Agree relation terminates only after T attracts NP_{NOM1} to SpecTP so that NP_{NOM1}'s iφ-features can value T's uφ-features in a c-command configuration ((9b)). This is especially important as it allows us to conflate NP_{NOM1}'s now formally motivated, obligatory SpecTP-movement, with Vangsnes's (2002: 60) obligatory anchoring of the subject

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[7] Assuming a simplified version of LCA (López 2009: 239):

(i) *Linear Correspondence Axiom*
Take X, Y, non-terminal nodes that dominate the terminals x, y, respectively. Assume that X c-commands Y, while Y does not c-command X (asymmetric c-command). Then x precedes y.

let X=NP_{NOM1}, Y=NP_{NOM2}, x=*ja* 'I', y=*profesor* 'professor'. Then, X c-commands Y, but Y does not c-command X, so x precedes y. Note that X also precedes *be* which is Y's sister when the two merge together. Accordingly, the sequence *ja jestem professor* ('I am a professor') will be PF-linearised as *ja* > *jestem* > *profesor* where '>' means 'precedes'.

[8] The term 'inversion accounts' pertains to approaches arguing that specificational copular clauses are inverted predicational ones via the movement of the lower (predicative) nominal (NP_{NOM2}) rather than the subject (NP_{NOM1}) to SpecTP. Several proposals were advanced to circumvent the problem with the movement of the lower nominal. See e.g. Mikkelsen (2005), Shlonsky and Rizzi (2018), or den Dikken (2006). Cf. also fn.13.

with respect to the state-of-affairs denoted by the verb (here, Pred'), another important notion addressed in Sub-section 2.3. The other convenience of adopting Upward Agree is that it bypasses problems with multiple Agree couched within Chomsky's Downwards Agree model as in Bondaruk (2019: 127) where T probes both NP_{NOM1} and NP_{NOM2} and values their u-case features as nominative. More specifically, T lacks any intrinsic property motivating *multiple* Agree given that T-NP_{NOM1} Agree, apart from valuing NP_{NOM1}'s u-case feature, also values T's uφ-features so T's needs have now been satisfied. That NP_{NOM2} still needs to value its case feature thus rather implies Goal-centred multiple Agree (Zeiljstra 2012: 7). Accordingly, in Upward Agree the two NPs_{NOM} carrying u-case features (here, the uT(ense)-feature after Pesetsky and Torrego 2004) count as Probes (Chomsky's 2000, 2001 Goals) due to (9a) and Agree upwards with T to value their uT-features against T's interpretable counterpart.[9]

Apart from the Upward Agree approach, we also assume that φ-features may probe independently (cf. e.g. Sigurðsson and Holmberg 2008, Hartmann and Heycock 2019b, Coon and Keine 2021 for Icelandic and Faroese). Unlike in the above works, however, independent probing only constitutes a last resort option when the 'default', i.e., 'collective' probing mode, whereby all the Probe's uφ-features are valued against the Goal's iφ-features, becomes impossible on formal/derivational grounds (see Sub-section 3.1 for details).

2.3. T(P) identification

We assume after Vangsnes (2002) that a functional projection F must be identified by a constituent carrying at least one feature relevant for F. The functional projections relevant here are Vangsnes's (2002: 60) σ and τ, namely, Agr(SP) and TP which we annotate collectively as TP.[10] According to Vangsnes, the former must be identified by at least one of the following features: deixis, Case and person, and the latter by at least one of the following: tense, number. Replacing the feature deixis, immaterial here, with the feature gender (the combination of NP_{NOM2}-agreement and obligatory *to* concerns DCCs with two NPs_{3NOM} manifesting person, number and gender) as well as dispensing with the case-feature which equals the T(ense)-feature, TP will thus be identified by the following features: Tense, provided by T, and person, number, gender, provided by NP_{NOM1}.

As for why TP needs to be identified, we follow Vangsnes (2002: 60) in that TP is the projection where the state-of-affairs denoted by the verb is anchored with respect to time (in this respect, cf. also Boeckx 2008: 152-155) and then, with respect to the subject. Since we are dealing here with DCCs, the state-of-affairs will not be denoted by the (lexical) verb, but as already indicated (Section 2.2), by the complex predicate Pred'. It is thus Pred' that will be

[9] Case valuation technicalities are of secondary importance here, but adopting Upward Agree, Pesetsky and Torrego's (2004) proposal can be applied straightforwardly as in other approaches the nominative case feature is either uninterpretable on the Probe and the Goal (Chomsky 1995) or absent on T (Chomsky 2000, 2001).

[10] Vangsnes (2002) disambiguates between the two as he examines Icelandic Transitive Expletive Constructions (TECs) and distribution of different subject types therein. Icelandic TECs are often taken as hosting expletives in SpecAgrSP and subjects in SpecTP (e.g. Vangsnes 2002). This distinction is immaterial here.

anchored with respect to time once PredP merges with T and *be*'s uT-feature is valued by T's iT-feature (following Biberauer and Roberts 2010). Next, the state-of-affairs denoted by the temporally modified Pred' will be anchored with respect to the subject (NP_{NOM1}) once T attracts it to SpecTP to have its uφ-features valued (see Section 3 for details). We take this final step to instantiate the establishment of what Hinzen (2009) terms 'propositional thought', the construct in which the subject is asserted or denied, with the help of temporal modification, the property of the predicate (Woodard 2018: 43), namely, assigned the value 'truth' or 'false'.

2.4. Particle 'to'

We follow Bondaruk's (2019) proposal where *to* represents a pronominal clitic (on distribution of Polish clitics see e.g. Witkoś 1998) since it can be pre- or post-verbal (square brackets), the variation subjected to PF-movement.[11]

(10) *Bolek* [*to*] *(jest)* [*to*] *uczeń.*
Bolek-NOM COP is COP student-NOM
'Bolek is a student.'

As for its placement, we follow Citko (2008), claiming that *to* is base-generated in T. We motivate our stance by examples like (10) where *be* is optional (round brackets) in the present tense, and (11) where it is obligatory (asterisk) in the past and future.

(11) *Bolek* *to* *(*był/będzie*) *uczeń.*
Bolek-NOM COP was/will-be student
'Bolek was/will be a student.'

Following our earlier observations (Jurczyk 2021), we treat past and future DCCs as carrying the past and the future tense specified for the verbal +V- and nominal +D-features, which necessitate the presence of the verbal and the pronominal copula. The present tense feature is specified as [+D, (+V)] so *be* is optional. Our reasoning reverberates Benmamoun (2008: 125), for whom the Hebrew pronominal copula which agrees in number and gender with the subject but lacks tense marking, manifests the nominal feature(s) +D, number, gender of the present tense. Accordingly, Hebrew present tense copular clauses as in (12) may do without the verbal copula.

(12) *dani* *(hu)* *rofe.*
Dani SG-MASC doctor
'Dani is a doctor.'

We propose that Polish *to* plays the same role, manifesting the present tense's nominal feature. Unlike in Hebrew, however, we assume that the formal guise of this feature in Polish is [+D, gender] for reasons to be discussed in Sub-section 3.1.

[11] The functional status of the Polish particle *to* is a highly debatable topic. See Rutkowski (2006), Citko (2008), Błaszczak and Geist (2001), or Tajsner (2015) for different takes on *to*.

2.5. Post-verbal agreement and its derivational consequences

We take rightward agreement direction in DCCs to explicate Béjar and Kahnemuyipour's (2017: 485) person sensitivity/constraint given in (13) below (NP_1=pre-copular NP, NP_2=post-copular NP).

(13) a. If NP_1 is 1st or 2nd person, then it can and will agree thereby blocking NP_2 agreement
b. Only if NP_1 is 3rd person, will NP_2 agreement be possible

Person sensitivity defined in (13a)-(13b) captures the correlation between φ-feature specification and agreement direction in Polish copular constructions. Examples (14)-(20) illustrate.

(14) $[T_{[u\varphi]}\ NP_{NOM[1SG]}\ \textit{być}\ NP_{NOM[2SG]}]$ =(2)
$\leftarrow$

(15) $[T_{[u\varphi]}\ NP_{NOM[2SG]}\ \textit{być}\ NP_{NOM[1SG]}]$ =(3)
$\leftarrow$

(16) $[T_{[u\varphi]}\ NP_{NOM[1SG]}\ \textit{to być}\ NP_{NOM[3SG\text{-}MASC]}]$ =(4)
$\leftarrow$

(17) $[T_{[u\varphi]}\ NP_{NOM[2SG]}\ \textit{to być}\ NP_{NOM[3SG\text{-}MASC]}]$ =(4)
$\leftarrow$

(18) $[T_{[u\varphi]}\ NP_{NOM[3SG\text{-}FEM]}\ \textit{to być}\ NP_{NOM[3SG\text{-}NEUT]}]$ =(ii, fn.2)
$\rightarrow$

(19) $[T_{[u\varphi]}\ NP_{NOM[3SG\text{-}FEM]}\ \textit{to być}\ NP_{NOM[3PL\text{-}N\text{-}VIR]}]$ =(5)
$\rightarrow$

(20) $[T_{[u\varphi]}\ NP_{NOM[3PL\text{-}N\text{-}VIR]}\ \textit{to być}\ NP_{NOM[3SG\text{-}FEM]}]$ =(i, fn.2)
$\rightarrow$

Post-verbal agreement crops up only in DCCs involving two NPs_{3NOM} which differ in gender ((18)) or in gender and number ((19)-(20)). Because in such DCCs each subject effect is taken care of by a different argument, SpecTP-movement by NP_{NOM1} and verbal agreement by NP_{NOM2}, we adopt other authors' claims (e.g. Bondaruk 2013, 2019 and Tajsner 2015 on Polish, Béjar and Kahnemuyipour 2018, Hartman and Heycock 2016, 2017, 2019b, 2022, Sigurðsson and Holmberg 2008 on Romance and Germanic) that both NPs_{NOM} are manipulated/targeted by the syntax during the derivation. To this end, we follow Jurczyk (2021) and propose that there are two Agree relations, the T-NP_{NOM1} one and the *be*-NP_{NOM2} one, initiated separately by the T and *be* Probes.

3. Obligatory pronominal clitic *to* in Polish DCCs with post-verbal agreement: Examination

Here, we determine factors behind the mutually inclusive and obligatory presence of *to* and NP_{NOM2}-agreement in Polish DCCs. To this end, in Sub-section 3.1 we scrutinise, resting on assumptions from Section 2, the derivational history of DCCs with NP_{NOM2}-agreement, i.e., those whose two NPs_{3NOM} either differ in the gender specification or in the gender-number specification. As a follow up to this, in Sub-sections 3.2 and 3.3 we also examine DCCs where *to* is optional: those with two NPs_{3NOM} showing φ-features matching and those with only one or no NP_{3NOM}, i.e., involving either one first person and one second person NP_{NOM} or one non-

third person and one third person NP_{NOM}. The purpose is to find out whether different distributional patterns of *to* in these three types of DCCs could, nevertheless, point to a one universal property of the pronominal clitic *to* in all these constructions.

3.1. Derivation of DCCs with two NPs_{3NOM} showing φ-feature(s) mismatch

DCCs in which two NPs_{3NOM} differ either in the gender or in the gender-number specification are crucial for examining the reasons pertaining to the mutual co-presence of post-verbal agreement and the pronominal clitic *to*, for as already noted, only in this type of DCCs is *to* obligatory. The representative examples of the said DCCs are (5) and (ii, fn.2), repeated as (21) and (22), respectively. We take both (21) and (22) to follow the same derivational scenario.

(21) *Ta okolica to były obrzeża miasta.*
this neighbourhood-NOM-3SG-FEM COP were-3PL-N-VIR outskirts-NOM-3PL-N-VIR of-city
'This neighbourhood was the outskirts of the city.'

(22) *Ona to było niezłe ziółko.*
she-NOM-3SG-FEM COP was-3SG-NEUT good-3SG-NEUT weirdo-NOM-3SG-NEUT
'She was a weirdo.'

The first derivational step of (21) and (22) is (23), the merger of *be* and NP_{NOM2} which results in the formation of the complex predicate Pred'.

(23) $[_{Pred'}$ be $NP_{NOM2}]]$

In (23), the *be*-NP_{NOM2} Agree relation takes place. The verbal copula is non-defective, equipped with (the full set of) uφ-features reflecting the iφ-features on NP_{NOM2}.[12] Since this Agree relation can take place without violating any derivational constraints (e.g. Relativised Minimality), *be*'s uφ-features probe collectively downwards (see below for argumentation) and are valued against NP_{NOM2}'s iφ-features. As a result, verbal agreement is controlled entirely by NP_{NOM2} (cf. Bondaruk 2019 for the same premise), the stance we base on the fact that it is manifested uniformly in clauses with only one NP_{NOM} and in DCCs with two NPs_{NOM}. Examples (24)-(25) illustrate.[13]

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[12] In Citko (2008), *be* is devoid of all φ-features in bi-nominative copular clauses, i.e., defective, because it cannot assign/value instrumental case to NP_2. In Tajsner (2015), it is also defective, but only lacking the person feature, thus agreeing with NP_{NOM2} in number and gender only (cf. also fn.13).

[13] Alternatively, person, number and gender could be separate Probes and/or heads targeting different Goals, conforming to Rutkowski's (2006) claim that NP_{NOM2}-controlled agreement in Polish DCCs is restricted to number and gender (with person agreeing with NP_{NOM1}), and to phrase structure advocated by Sigurðsson and Holmberg (2008) in (i). In (i), person and number are separate heads and numbers represent potential landing sites for an NP_{NOM}, thus creating different agreement configurations. In Hartmann and Heycock (2019b) for instance, person agreement with NP_{NOM2} and number-agreement with NP_{NOM1} in a specificational clause obtains if NP_{NOM2} lands in [2] (recall that Hartman and Heycock 2019b adopt the 'inversion account' whereby

(24) *Te* *samochody* *były* *Marka.*
these-NOM-3PL-N-VIR cars-NOM-3PL-N-VIR were-3PL-N-VIR Mark-GEN-3SG-MASC
'These were Mark's cars.'

(25) *Ta* *okolica* *to* *były*
this-NOM-3SG-FEM neighbourhood-NOM-3SG-FEM COP were-3PL-N-VIR
obrzeża *miasta.*
outskirts-NOM-3PL-N-VIR of-city
'This neighbourhood was the outskirts of the city.'

The *be*-NP_{NOM2} Agree relation is shown in (26) whereas (27)-(28) illustrate its formal manifestation on the relevant parts of examples (21)-(22).

(26) $[_{Pred'}$ be$_{[u\text{-person, u-number, u-gender}]}$ >>> AGREE >>> $NP_{NOM2[i\text{-person, i-number, i-gender}]}$

(27) $[_{Pred'}$ były$_{[3pl, n\text{-vir}]}$ obrzeża miasta$_{[3pl, n\text{-vir}]}]$

(28) $[_{Pred'}$ było$_{[3sg, neut]}$ niezłe ziółko$_{[3sg, neut]}]$

NP_{NOM2} moves across NP_{NOM1} in specificational, i.e., 'inverted' predicational clauses). This is because in [2] NP_{NOM2} is closer for the person Probe, i.e., c-commanded by it (assuming Downward Agree as Hartmann and Heycock 2019b) than NP_{NOM1}, but not for the number Probe (it is directly above it).

(i) $[_{PnP}$ [1] $[_{Pn'}$ Pn $[_{NrP}$ [2] $[_{Nr'}$ Nr $[_{TP}$ [3] $[_{T'}$ T $[_{VP}$ [4] $[_{V'}$ *be* $[_{FP}$ NP_{NOM1} $[_{F'}$ F $NP_{NOM2}]]]]]]]]]$

The cartography in (i) could be applied to Polish, with the additional separate gender Probe somewhere below person. However, unlike German, Dutch, Faroese, or Icelandic, Polish lacks, to the best of our knowledge, an extensive scrutiny on variability of agreement patterns in bi-nominative copular clauses. Postulating additional functional projections thus seems an ad hoc solution. Another problem concerns [2], the only position deriving 'person-first'- and 'number-gender(in Polish)-second' agreement. Given the commonly assumed (e.g. Mikkelsen 2005, Shlonsky and Rizzi 2018, Bondaruk 2019) fixed Information Structure of specificational clauses (topic-initial and focus-final) and, hence, taking NP_{NOM2}'s SpecNrP-movement to be driven by its topic-related property, it is unclear what would motivate NP_{NOM1}-movement to [2] in predicational clauses. If Nr attracts NP_{NOM2} in specificational clauses due to the optional topic-feature but NP_{NOM1} due to some other feature (possibly EPP and/or edge feature), then SpecNrP-movement is clearly an instance of 'anything goes', similar to the requirement that SpecTP host *some* lexical material (Holmberg 2000, Cardinaletti 2004). This, in turn, raises the question of NrP's ultimate (semantic) relevance, i.e., the role it plays in determining the interpretation of two different NPs_{NOM} in two different copular clauses, each showing a different organisation of Information Structure. Most importantly, however, nothing seemingly requires movement to *any* of the positions above in the first place, especially if assuming Downward Agree, the only formally-motivated Probe-Goal operation.

Instead, one could assume the models advocated by Coon and Keine (2021) and Bondaruk (2019). Although the two differ considerably, their crux is that person and number are still separate Probes, but located under T (and/or *v*/V), with person probing before number, thus again agreeing with the higher NP_{NOM}, and number (along with gender in Polish) agreeing with the lower NP_{NOM}. The problem is that apparently, there are DCCs with two NPs_{3NOM} as in (ii), where *be* clearly agrees with NP_{NOM1} in number and gender, so person cannot probe first.

(ii) Hitler to był jedna osoba
Hitler-NOM-3SG-NOM COP was-3SG-MASC one-3SG-FEM person-3SG-FEM
'Hitler was one person.' (IJPPAN_PolPr_GKa01908)

The reason this Agree relation follows downwards (contra to what we assumed in Sub-section 2.1) is because it does not satisfy the subject requirement - NP_{NOM2} must remain post-verbal as it is part of Pred' (cf. Sub-section 2.1). Thus, it is not subject to requirement (9b) that the Goal's i-features c-command the Probe's u-features. Observe also that one cannot assume T to agree with NP_{NOM2} instead of *be* since when T merges with PredP, NP_{NOM2} is not the closest Goal to T as examples (29)-(30) illustrate. Thus, even if T were to agree with it, NP_{NOM2} would have to SpecTP-move ((9b)), deriving the illicit NP_{NOM2} > NP_{NOM1} > *be* word order.

Going back to our examination, the next derivational step involves the merger of NP_{NOM1} with Pred', deriving PredP. This is schematised in (29), with (30)-(31) showing how it is reflected in examples (21)-(22).

(29) $[_{PredP}\ NP_{NOM1}\ [_{Pred'}\ \textit{be}\ NP_{NOM2}]]$

(30) $[_{PredP}$ ta okolica$_{[3SG\text{-}FEM]}$ $[_{Pred'}$ były$_{[3PL\text{-}N\text{-}VIR]}$ obrzeża miasta$_{[3PL\text{-}N\text{-}VIR]}]]$

(31) $[_{PredP}$ ona$_{[3SG\text{-}FEM]}$ $[_{Pred'}$ było$_{[3SG\text{-}NEUT]}$ niezłe ziółko$_{[3SG\text{-}NEUT]}]]$

Next, T merges with PredP, with two Agree relations following. In one, T agrees with *be* and the two value their uV- and uT-features, respectively. This step makes Pred' anchored with respect to time, i.e., temporally modified (Sub-section 2.3). In the other, NP_{NOM2} and NP_{NOM1} probe upwards to value their uT-features against T's iT-feature (Sub-section 2.2). Crucially, this is also the moment we take to require the presence of *to* in DCCs under consideration. Our reasoning is as follows. In clauses such as the (mono)transitive (24) or bi-nominative ones (2)-(3), TP identification results from the syntactic manipulation of one nominative argument (in the former case) or the higher one (in the latter), by T. Hence, T probes and then attracts NP_{NOM1} to SpecTP from where NP_{NOM1}'s iφ-features value T's uφ-features by virtue of (9b). In other words, a single nominative argument participates in two TP-based operations, SpecTP-movement and φ-feature valuation, which produce two subject effects, the initial *nominative argument* that *controls agreement*. This is schematised in (32) which represents example (24) ('1' on T signals its agreement in φ-features with NP_{NOM1}).

(32) $[_{TP}\ NP_{NOM1}\ [_{T'}\ T_{[\varphi 1]}\ [_{PredP}\ t_{NPNOM1}\ [_{Pred'}$ be $NP_{GEN}]]]]$

Assume now, in accordance with our previous assumptions (Sub-section 2.5), that in DCCs with non-canonical, NP_{NOM2}-agreement, each NP_{3NOM} is responsible for the separate subject effect, namely, NP_{NOM1} for SpecTP-movement and NP_{NOM2} for φ-feature valuation. For TP identification to obtain, T thus has to engage in the syntactic manipulation of two nominative arguments. In this respect, let us then propose that in such DCCs T's φ-features match those on NP_{NOM2} whereas NP_{NOM1} SpecTP-moves.[14] This may seem problematic as in our approach it is *be* that agrees with NP_{NOM2}, which means that NP_{NOM2}'s φ-features would have to crop up on

[14] This proposal differs from that we assumed in Jurczyk (2021) where T's φ-features match those on NP_{NOM1} and *be*'s φ-features reflect those on NP_{NOM2}. In Jurczyk (2021), the two matchings instantiated two Agree relations, the T-NP_{NOM1} one and the *be*-NP_{NOM2} one, advanced to dispense with the problematic EPP-driven SpecTP-movement of NP_{NOM1} and to simultaneously derive NP_{NOM2}-controlled agreement.

T 'indirectly'. This contrasts with approaches adopted in other works on Polish (Bondaruk 2013, Tajsner 2015), Germanic (e.g. Hartmann and Heycock 2019b, 2022, Sigurðsson and Holmberg 2008) or Armenian and Persian (Béjar and Kahnemuyipour 2017, 2018) where NP_{NOM2}'s φ-features are always manifested on the Probe (T or *be*) as a result of the Agree relation between the two. Nevertheless, assuming that Vangsnes's (2002) formal identification of TP for reasons stated in Sub-section 2.3 holds universally, namely, that apart from the T-feature provided by T, TP must also be identified by φ-features of an argument that controls verbal agreement, then the presence of NP_{NOM2}'s φ-features on T is actually expected regardless of what agrees with NP_{NOM2} (T or *be*). Imposing the above considerations on the derivational step at which T merges with PredP, we obtain (33)-(34) reflecting examples (21) and (22) (strikethrough marks successful valuation of features).

(33) $T_{[iT,\ uV,\ u3PL\text{-}N\text{-}VIR]}\ [_{PredP}\ NP_{NOM1[i\text{-}3SG\text{-}FEM,\ uT]}\ [_{Pred'}\ be_{[iV,\ uT,\ u\text{-}3PL\text{-}N\text{-}VIR]}\ NP_{NOM2[i\text{-}3PL\text{-}N\text{-}VIR,\ uT]}]]]$

(34) $T_{[iT,\ uV,\ u\text{-}3SG\text{-}NEUT]}\ [_{PredP}\ NP_{NOM1[i\text{-}3SG\text{-}FEM,\ uT]}\ [_{Pred'}\ be_{[iV,\ uT,\ u\text{-}3SG\text{-}NEUT]}\ NP_{NOM2[i\text{-}3SG\text{-}NEUT,\ uT]}]]]$

As (33)-(34) show, the only remaining Agree relation involves T which carries uφ-features, and the Probe carrying the iφ-features that T needs. However, T's φ-features reflect those on NP_{NOM2} and so T-NP_{NOM2} Agree is impossible as it would violate point (9c) pertaining to Upward Agree technicalities from Sub-section 2.2, i.e., Relativised Minimality, resulting in the movement of the farther nominative argument. Furthermore, recall from Sub-section 2.1 that NP_{NOM1} is the only nominative argument annotated syntactically (by Kayne's 1994 LCA) to SpecTP-move (NP_{NOM2} is syntactically and semantically part of the complex predicate Pred'). Nevertheless, since NP_{NOM2}'s person-feature in (33) and its person- and number-features in (34) have the same specification as those on NP_{NOM1}, namely, $person_3$ and $person_3$-$number_3$, respectively, we will assume after a number of scholars (e.g. Bondaruk 2012, Tajsner 2015, Sigurðsson and Holmberg 2008, Coon and Keine 2021, Hartmann and Heycock 2019a, 2019b, 2022, Béjar and Kahnemuyipour 2017, 2018, 2023), that those features on T can actually be satisfied by NP_{NOM1}. If so, only T's number- and gender-features in (33) and the gender-feature in (34) will have to be valued somehow. Since they cannot be valued by the T-NP_{NOM2} Agree relation for reasons stated above, we will take them to be valued as default in the sense of Szucsich (2007) (but cf. also Preminger 2014 and López 2004 for similar proposals), namely, lexicalised by means of a morphologically least marked form in terms of its featural specification. In the case under consideration, we will conflate this least marked morphological property with the pronominal clitic *to*, associating it with the minimal φ-structure [i: gender(neut)], following in this respect Seres and Espinal's (2019) considerations on the Russian pronominal particle *ėto*.[15] The merger of *to* under T is thus an auxiliary but

[15] In Seres and Espinal (2019), *ėto* has this minimal φ-structure because it is a morpho-syntactically neuter invariant pronoun and, hence, defective in terms of its φ-feature composition. Though we do not associate Polish *to* with the pronominal constituent here, it is similar to Russian *ėto* in the sense discussed here, namely, morpho-phonologically identical to the third person singular neuter (demonstrative) pronoun *to* ('$this_{neut}$'/'it_{neut})'. A similar point is noted in Bondaruk (2019: 118, fn.17) where *to* is taken to be homophonous with the (demonstrative) pronoun.

also an obligatory means of formally identifying TP given that T's uφ-features cannot be valued by the interpretable ones on NP_{NOM2}.[16]

[16] Reviewer 1 proposes that *to* is present so that it marks NP_{NOM1} as Topic, the merger of *to* under Top being then followed by NP_{NOM1}'s SpecTopP-movement. A similar proposal has, in fact, been advanced by Rutkowski (2006) who takes NP_{NOM1} as base-generated in SpecTopP, with *to* filling the SpecTP position. Despite certain differences between the two approaches, it is, nevertheless, doubtful that NP_{NOM1} is a Topic, for as shown in Bondaruk (2019: 116), NP_{NOM1} can bind subject-oriented anaphors ((i)) or control PRO ((ii)), the properties which suggest that it occupies an A-position.

(i) *Marek$_i$* *to* *jest* *swój$_i$* *najlepszy* *przyjaciel.*
Marek-NOM COP is refl.cl best friend-NOM
'Mark is his own best friend.'

(ii) *Mimo* *częstego* *PRO$_i$* *słuchania* *wielu* *gatunków* *muzyki*
in-spite-of frequent listening many kinds music
Marek$_i$ *to* *jest* *zapalony* *fan* *rock'a.*
Marek-NOM COP is great fan-NOM rock
'In spite of frequent listening to many types of music, Mark is a great fan of rock.'

Reviewer 1 also notes that some DCCs with two NPs_{3NOM} and gender mismatch do not allow NP_{NOM2}agreement ((iii)) unlike others ((iv) or (7) above). The question then is how to account for this discrepancy.

(iii) **On* *to* *kiedyś* *była* *gawędziara.*
he-NOM-3SG-MASC COP once was-3SG-FEM storyteller-NOM-3SG-FEM
'He was once a storyteller.'

(iv) *To* *miasto* *to* *kiedyś* *była* *wioska.*
this-NOM-3SG-NEUT city-NOM-3SG-NEUT COP once was-3SG-FEM village-NOM-3SG-FEM
'This city was once a village.'

A tentative solution we would like to propose is that this discrepancy is not formally/syntactically rooted but semantically-based. More specifically, DCCs as in (iii), i.e., predicative, are subject to a particular instance of 'human > animate > inanimate' hierarchy effects (cf. e.g. Silverstein 1976) whereby a (human) animate NP_{NOM1} specified for one semantic gender cannot be ascribed a property of a (human) animate NP_{NOM2} specified for another semantic gender. This would explain the difference between (iii) and (iv) (the NPs_{NOM} in the latter example are inanimate) and between (iii) and (7) ((7) is an equative DCC so the relation between the two NPs_{NOM} is identificational and not predicational). It would also account for the grammaticality of examples like *Wanda to było stare babsko* (lit. Wanda-FEM was-NEUT old-NEUT bag-NEUT, 'Wanda was an old bag.') or (ii) from fn.2 whose two NPs_{NOM2}, *babsko* ('bag') and *ziółko* ('weirdo'), differ in gender from NPs_{NOM1} but only grammatically, semantically-wise referring to feminine entities just as NPs_{NOM1} do. Observe, however, that whilst NP_{NOM1}-agreement does not seem, at least to our judgments, to improve (iii), example (v), coming from the National Corpus of Polish, allows it despite manifesting the same state-of-affairs as (iii). This could suggest that speaker-individual grammars or some other, perhaps syntactic or semantic issues may be at play here, although proving or disproving this premise and, hence, determining the theoretical/empirical adequacy of the above account would require a much more detailed scrutiny. We leave this issue for a future examination.

(v) *Baśka* *to* *była* *taki*
Baśka-NOM-3SG-FEM COP was-3SG-FEM such-NOM-3SG-MASC
chłopak *w* *spódnicy.*
boy-NOM-3SG-MASC in skirt-INSTR-3SG-FEM
'Baśka was a tomboy.' (IJPPAN_k0RLG346)

The impossible to establish T-NP_{NOM2} φ-Agree relations and the resulting from them 'valuation-as-default' procedures are schematised in (35)-(36), reflecting examples (21) and (22), respectively. Strikethrough marks features valued as default and underlining marks the aftermath of this valuation.

(35) $[_{T'}\ T_{[u\text{-}3PL\text{-}N\text{-}VIR]}\text{-}\underline{to}_{[i\text{-}NEUT]}\ [_{PredP}\ NP_{NOM1[i\text{-}3SG\text{-}FEM]}\ [_{Pred'}\ be\ NP_{NOM2[i\text{-}3PL\text{-}N\text{-}VIR]}]]]$

(36) $[_{T'}\ T_{[u\text{-}3SG\text{-}NEUT]}\text{-}\underline{to}_{[i\text{-}NEUT]}\ [_{PredP}\ NP_{NOM1[i\text{-}3SG\text{-}FEM]}\ [_{Pred'}\ be\ NP_{NOM2[i\text{-}3SG\text{-}NEUT]}]]]$

At this point, there is one more Agree relation to be established, for as (35)-(36) show, T still has the uperson-feature or uperson- and unumber-features to value. As already implied, this valuation may, in each case, involve T and NP_{NOM1} since the relevant features on NP_{NOM1} and NP_{NOM2} bear the same specification. In order to value its $uperson_3$-feature in (35) and $uperson_3$- as well as $unumber_3$-features in (36), T attracts NP_{NOM1} to SpecTP, thus satisfying all the requirements induced by Upward Agree in (9): (i) the T-NP_{NOM1} Agree relation is triggered by at least one uninterpretable feature on the Probe ((9a)), (ii) NP_{NOM1}'s relevant iφ-feature(s) c-commands T's uφ-feature(s) from the SpecTP position ((9b)), (iii) NP_{NOM1} is the closest nominative argument to T that SpecTP-moves. This is shown in (37)-(38) for the two examples under consideration.

(37) $[_{TP}\ NP_{NOM1}\ [_{T'}\ T_{[u\text{-}3PL\text{-}N\text{-}VIR]}\text{-}\underline{to}_{[i\text{-}NEUT]}\ [_{PredP}\ t_{NPNOM1[i\text{-}3SG\text{-}FEM]}\ [_{Pred'}\ be\ NP_{NOM2[i\text{-}3PL\text{-}N\text{-}VIR]}]]]$

(38) $[_{TP}\ NP_{NOM1}\ [_{T'}\ T_{[u\text{-}3SG\text{-}NEUT]}\text{-}\underline{to}_{[i\text{-}NEUT]}\ [_{PredP}\ t_{NPNOM1[i\text{-}3SG\text{-}FEM]}\ [_{Pred'}\ be\ NP_{NOM2[i\text{-}3SG\text{-}NEUT]}]]]$

We associate this operation with the derivational moment when TP ends up being formally identified since all the features required for this identification have now been provided and satisfied: the T-feature by T, the φ-features provided by NP_{NOM2}, with some of them ultimately satisfied by default valuation lexicalised as *to*, and some satisfied by NP_{NOM1}.

In this sub-section, we have shown that in DCCs with post-verbal agreement and two NPs_{3NOM} characterised by φ-feature(s) mismatch *to* is always obligatory as it constitutes an auxiliary means of identifying the functional TP projection which would otherwise be impossible given that T is unable to value its uφ-features against those on NP_{NOM2} at a distance. In Sub-section 3.2 below, we examine whether this reasoning extends to DCCs with two NPs_{3NOM} that share the same φ-features specification.

3.2. Derivation of DCCs with two NPs_{3NOM} showing matching φ-features

As examples (39)-(40) show, DCCs with two NPs_{3NOM} sharing the same φ-feature specification differ from those with two NPs_{3NOM} displaying φ-feature(s) mismatch in that they can drop the particle *to*.[17]

[17] Since *to* is optional in such DCCs, its reverse distribution in examples (39)-(40) is also available and fully licit.

(39) *Marek* *to* *był* *muzyk.*
Marek-NOM-3SG-MASC COP was-3SG-MASC musician-NOM-3SG-MASC
'Mark was a musician.'

(40) *Oni* *byli* *prawdziwi* *komuniści.*
they-NOM-3PL-VIR were-3PL-VIR real-NOM-3PL-VIR communists-NOM-3PL-VIR
'They were real communists.' (PELCRA_1303919961002)

Consider first example (40) as here the situation appears quite straightforward. Since *to*'s presence has been shown to crucially depend on post-verbal agreement, its absence in (40) implies that agreement is entirely NP_{NOM1}-controlled. Hence, unlike in (21)-(22) where T had to syntactically manipulate NP_{NOM1} and NP_{NOM2} to formally identify TP, in (40) it only manipulates NP_{NOM1} for that purpose as illustrated in (41).

(41) $[_{TP}\ NP_{NOM1[i\text{-}3PL\text{-}VIR]}\ [_{T'}\ T_{[iT,\ uV,\ u\text{-}3PL\text{-}VIR]}\ [_{PredP}\ t_{NPNOM1}\ [_{Pred'}\ be_{\ uT,\ iV,}\ NP_{NOM2[i\text{-}3PL\text{-}VIR]}]]]$

After T merges with PredP and enters into the Agree relation with *be*, thus valuing its uV-feature and *be*'s uT-feature, it now has its uφ-features to value which reflect those on NP_{NOM1}. In compliance with constraint (9b) of Upward Agree, T attracts NP_{NOM1} to SpecTP so that the latter's iφ-features c-command the former's uφ-features - the only configuration that allows feature-valuation to converge. Note that since NP_{NOM1} participates in two TP-based operations, SpecTP-movement and φ-feature valuation, it will manifest two 'subject effects', being an initial nominative argument that controls agreement. Example (41) then represents the derivational moment when all features required to formally identify TP have been provided and satisfied: the T-feature by T, and the φ-features by NP_{NOM1}. Notice further that since TP identification necessitates NP_{NOM1}'s φ-features, the absence of the pronominal clitic *to* is actually expected in examples such as (40). Since T-NP_{NOM1} φ-Agree relation can be established without any problems, satisfying all the Upward Agree requirements (9a)-(9c), no NP_{NOM1}'s φ-feature will ever remain unvalued on T, which excludes the necessity of initiating the auxiliary means of TP identification, i.e., valuation-as-default ultimately lexicalised as the pronominal particle *to*.

Consider now a more problematic case, i.e., DCCs with two NPs_{3NOM} showing φ-features matching. As already shown, they can also do without the pronominal clitic *to*, which means that just as example (40) has been conflated with NP_{NOM1}-controlled agreement, its counterpart with an overt *to* repeated in (42) should be, by virtue of our earlier considerations, taken to involve NP_{NOM2}-controlled agreement, just as examples (21)-(22) or (39) from above. After all, both (39) and (42) involve the initial NP_{3NOM} so they meet Béjar and Kahnemuyipour's (2017) person sensitivity/constraint requirement (13b) from Sub-section 2.5 for NP_{NOM2}-driven agreement.

(i) *Marek* *był* *muzyk.*
Marek-NOM-3SG-MASC COP musician-NOM-3SG-MASC
'Mark was a musician.'

(ii) *Oni* *to* *byli* *prawdziwi* *komuniści.*
they-NOM-3PL-VIR COP were-3PL-VIR real-NOM-3PL-VIR communists-NOM-3PL-VIR
'They were real communists.'

(42) *Oni* *to* *byli* *prawdziwi* *komuniści.*
they-NOM-3PL-VIR COP were-3PL-VIR real-NOM-3PL-VIR communists-NOM-3PL-VIR
'They were real communists.'

Thus, we basically expect NP_{NOM2}-agreement whenever such examples involve *to*, and NP_{NOM1}-controlled agreement otherwise. The problem with this assumption is two-fold. First, it is impossible to determine, given the same φ-feature specification of the two NPs_{3NOM}, which NP_{NOM2}'s feature(s) in (42) agree with *be* and then, which one(s) remain unvalued on T, leading to the 'valuation-as-default' operation and the lexicalisation of *to*.[18] Second, given the observation in Sub-section 3.1, namely, that post-verbal agreement *necessarily* requires *to* as a formal means of valuing T's NP_{NOM2}-related φ-features and, hence, identifying TP, the apparent optionality of *to* in examples like (39)-(40) is unexpected.[19] Consider then an alternative. Since *to* is obligatory *only* in DCCs where NP_{NOM2}-controlled agreement is morpho-phonologically manifested, assume that only in such DCCs will the presence of *to* point to post-verbal agreement. This would mean that the optional presence of *to* in DCCs with two NPs_{NOM} matching in φ-features would perhaps serve some other purpose (to which we go back in Sub-section 3.3). There is one crucial observation that makes us lean towards this proposal, namely, the fact that whereas DCCs such as (39)-(40) involve two NPs_{3NOM} just as DCCs in (21)-(22), the distribution of the pronominal particle *to* they show aligns them with DCCs to be discussed in Sub-section 3.3 which show canonical, pre-verbal agreement.

Based on the above considerations, we are going to assume that DCCs as in (39) and (42) show pre-verbal agreement just as those in (40), namely, T again attracts NP_{NOM1} to SpecTP, the step that values T's features and, at the same time, formally identifies TP (T again provides the iT-feature whereas the iφ-features come from NP_{NOM1}. This is schematised in (43) which refers to example (42).

(43) $[_{TP}\ NP_{NOM1[i\text{-}3PL\text{-}VIR]}\ [_{T'}\ T_{[iT,\ uV,\ u\text{-}3PL\text{-}VIR]}\text{-}to_{[i\text{-}NEUT]}\ [_{PredP}\ t_{NPNOM1}\ [_{Pred'}\ be_{uT,\ iV}\ NP_{NOM2[i\text{-}3PL\text{-}VIR]}]]]$

In the above examination, it has been concluded that DCCs with two NPs_{3NOM} that share the same φ-feature specification follow the derivational scenario whereby agreement is pre-verbal, determined by NP_{NOM1}. This contrasts with DCCs which involve two NPs_{3NOM} that show φ-features misalignment and, coupled with the fact that the status of *to* in the former

[18] Alternatively, we could follow Bondaruk (2012) in that T Agrees with NP_{NOM1} in person and with NP_{NOM2} in number and gender or follow a somewhat similar idea in Tajsner (2015) whereby *be* is person-defective. Hence, it would again only agree with NP_{NOM2} in number and gender (in this respect, cf. also Rutkowski 2006). Though we remain open to this possibility, we leave it here for reasons discussed below (but cf. fn.19).

[19] In relation to that and to the remarks in fn.18, it could perhaps be assumed that the presence or absence of *to* in DCCs as in (39)-(40) does indeed signal NP_{NOM2}- or NP_{NOM1}-controlled agreement, respectively. The choice of either derivational mode could then instantiate the use of speaker-individual (sub)grammars, just as assumed in Hartmann and Heycock (2019b) in relation to speaker-variation regarding the acceptability/availability of NP_1 and NP_2 agreement in Icelandic, German and Faroese bi-nominative copular constructions. We leave this proposal for future study as its adoption should rest on a detail-oriented, quantitative and corpus-based study of agreement direction patterns in Polish DCCs, which is not the purpose of this paper.

DCCs is optional, suggests that the presence of *to* in clauses such as (43) must serve some other purpose than the formal identification of TP. We tackle the purpose of the optional presence of *to* in Sub-section 3.3 below where we address DCCs showing canonical, pre-verbal agreement, i.e., those with either one or no NP_{3NOM}.

3.3. Derivation of DCCs with one or no NP_{3NOM}

As examples (44)-(46) illustrate, the distribution of the pronominal clitic *to* in DCCs with one or no NP_{3NOM} resembles that in DCCs with two NPs_{3NOM} and matching φ-features, namely, *to* can be dropped without causing ungrammaticality.

(44) *Ja* (*to*) *jestem* *ty.*
I-NOM-1SG COP am-1SG you-NOM-2SG
'I am you.'

(45) *Ty* (*to*) *jesteś* *ja.*
You-NOM-2SG COP are-2SG I-NOM-1SG
'You are me.'

(46) *Ty* (*to*) *byłeś* *wariat.*
You-NOM-2SG COP were-2SG madman-NOM-3SG-MASC
'You were a madman.'

This optionality correlates with NP_{NOM1}-agreement, which is predicted given Béjar and Kahnemuyipour's (2017) person sensitivity whereby the presence of either first or second person NP_{NOM1} blocks NP_{NOM2}-agreement (cf. Sub-section 2.5). This is shown in (47)-(48).

(47) *Ja* (*to*) *jestem* / **jesteś* *ty.*
I-NOM-1SG COP am-1SG are-2SG you-NOM-2SG
'I am you.'

(48) *Ty* (*to*) *byłeś* / **był* *wariat.*
You-NOM-2SG COP were-2SG was-3SG-MASC madman-NOM-3SG-MASC
'You were a madman.'

Accordingly, the derivation of DCCs in (44)-(46) follows the same way as in DCCs with two NPs_{3NOM} that share the same φ-feature specification. Thus, T φ-Agrees with NP_{NOM1} after attracting it to SpecTP in accordance with constraint (9b) of Upward Agree, the derivational step resulting in two subject effects (the initial nominative argument that controls verbal agreement) and formal identification of TP by means of T's iT-feature and NP_{NOM1}'s iφ-features. This derivational moment is schematised in (49), which pertains to example (44).

(49) $[_{TP}\ NP_{NOM1[i\text{-}1SG]}\ [_{T'}\ T_{[iT,\ uV,u\text{-}1SG]}\text{-}(to)_{[i\text{-}NEUT]}\ [_{PredP}\ t_{NPNOM1}\ [_{Pred'}\ be_{uT,\ iV,}\ NP_{NOM2[i\text{-}2SG]}]]]]$

Since agreement direction and the resulting derivation of such DCCs seems rather straightforward, let us then readdress the question posed in Sub-section 3.2, namely, what determines the optional presence of *to* in DCCs with pre-verbal agreement in general. Recall

that this purpose cannot be the same as in DCCs with NP_{NOM2}-controlled agreement, for in DCCs with NP_{NOM1}-agreement all of T's φ-features are always valued once NP_{NOM1} is attracted to SpecTP, which means that the valuation-as-default operation need not take place.

At this point, we would like to propose that apart from the TP-identifying function of *to* which shows up in DCCs with NP_{NOM2}-agreement, *to* also serves the presentational function in the sense that Seres and Espinal (2019) (cf. also Padučeva 1985 for a similar proposal) assume for the Russian neuter pronoun *èto* ('$that_{neut}$'/'it_{neut}'). In a nutshell, they argue that in bi-nominative copular clauses of the general structure $[_{TopP}\ [NP_1]\ [_{PredP}\ [èto]\ [_{Pred'}\ [be]\ [NP_2]]]]$, NP_1 is an aboutness topic (what the sentence is about, cf. e.g. Lock 1996, Krifka 2007) whereas PredP corresponds to the predicate/comment which provides the information about/defines the topic.[20] The pronoun *èto*, on the other hand, is a presentational device, introducing the identity referred to by NP_2 and then associating it with the one introduced by NP_1. We will assume that the same holds for Polish DCCs involving two NPs_{3NOM} with the same φ-feature specification and those with one or no NP_{3NOM}. More specifically, NP_{NOM1}, which in our approach represents the grammatical-logical subject that SpecTP-moves, is also the aboutness topic, the claim we base on Mokrosz's (2022) observation that Polish subjects and topics appear to share the aboutness property:[21]

(50) *Kiedy* *Jan*$_i$ *uderzył* *Piotra*$_j$ *pro*$_{i/*j}$ *był* *pijany.*
when John-NOM hit Peter-ACC was drunk
'When John hit Peter, he was drunk.'

(51) *Piotr*$_i$*?* *Kiedy* *Jan*$_j$ *go* *uderzył* *pro*$_{i/*j}$ *był* *pijany.*
Peter-NOM when John-NOM him hit was drunk
'Peter? When John hit him, he was drunk.'

In (50)-(51) *pro* is able to pick up the aboutness property from the subject in the previous clause ((50)) and from the discourse topic ((51)), i.e., it can either have the same referent as *Jan* ('John') or *Piotr* ('Peter'). As for the comment/predicate status of Pred', it follows rather straightforwardly from the remarks in Sub-section 2.1 where it was assumed to ascribe some property to NP_{NOM1}. Coupled with the above proposal that *to* serves the presentational function, let us then see how this function is established in a bi-nominative DCCs with NP_{NOM1}-agreement. We illustrate this on example (46).

First, *be* merges with NP_{NOM2}, producing the complex predicate Pred'. Because in the example under consideration NP_{NOM2} *wariat* ('madman') expresses some property, i.e., predicates some truth value(s) applicable to the set of all madmen, it is of type <e,t>.[22] The

[20] As can be seen, Seres and Espinal (2019) base-generate NP_1 in SpecTopP rather than in SpecTP as assumed here, but this will not hinge on our examination.

[21] In Mokrosz (2022), it is actually the aboutness-*feature* that the subject and topic share as she postulates the presence of the functional Aboutness Phrase to which (object) arguments specified for the [aboutness topic]- and [D(iscourse)-linking]-features move. This distinction is irrelevant for our considerations. See Rizzi (2018) or Rizzi and Shlonsky (2007) for further arguments that subjects show the aboutness property.

[22] Unlike Seres and Espinal (2019), we do not associate *be* with the $f(x) = x$ identity function (but cf. the discussion below) which returns the same value as its input, i.e., NP_{NOM2}. This is because Seres and Espinal

representation following the arrow shows, in a simplified form, the interpretation that this syntactic structure receives in the semantic component(s).

(52) $[_{\text{Pred'}}$ be wariat$_{<e,t>}]$ → [be wariat]: $_{<e,t>}$

With the merger of NP_{NOM1} and Pred' and then the merger of T with PredP, we end up with (53) at which point *to* is merged which denotes a two-place <e,<e,t>> relation between entities/individuals, i.e., the function that maps an individual onto a function from individuals into truth values. It takes the entity denoted by NP_{NOM1} which, in the case of example (46) is referential (<e>), and returns a one-place function which relates/combines this entity with the second entity <e,t> denoted by NP_{NOM2}.[23] Note that because at step (53) NP_{NOM1} has not yet moved to SpecTP where it will be interpreted, the function takes as input the variable x to be left behind in SpecPredP. It will be replaced by the denotation of *ty* ('you_{2SG}') once NP_{NOM1} SpecTP-moves.

(53) $[_{T'}$ T-to$_{<x,<e,t>>}$ $[_{\text{PredP}}$ Ty$_{<x>}$ $[_{\text{Pred'}}$ be wariat$_{<e,t>}]]]$ → [to [Ty [be wariat]]]: $_{<x,<e,t>>}$

In the final derivational step in (54), T attracts NP_{NOM1} to SpecTP where it becomes interpreted and anchored with respect to the state-of-affairs denoted by the temporally modified Pred'. This results in the variable x being replaced by the denotation of *Ty* ('you_{2SG}'). The aftermath of these two operations is the formation of a (predicational) bi-nominative DCC in which the initial referential nominative argument NP_{NOM1}, now interpreted as the grammatical-logical subject of the sentence, introduces an entity that is then associated, by means of the presentational two-place function of *to*, with a new entity introduced by the post-verbal predicative nominative argument, NP_{NOM2}. The resulting structure thus receives the value <t>, i.e., 'truth'.

(54) $[_{TP}$ Ty$_{<e>}$ $_{T'}$ T-to$_{<e,<e,t>>}$ $[_{\text{PredP}}$ t$_{Ty}$ $[_{\text{Pred'}}$ be wariat$_{<e,t>}]]]$ → [Ty [to [be wariat]]]: $_{<t>}$

We assume the establishment of the presentational relation to follow the same path in specificational DCCs as in (55), the only difference being that NP_{NOM1} now introduces an <e,t> type entity whereas NP_{NOM2} denotes the <e> type entity.

(55) *Mój* *kolega* *to* *jest* *Marek.*
my-NOM friend-NOM COP is Marek-NOM
'My friend is Mark.'

The same would also hold of equative DCCs as in (56), yet because this type of copular sentences expresses the identity between NP_{NOM1} and NP_{NOM2}, we assume after Seres and Espinal (2019) that in such cases *be* also introduces the identity function *f(x) = x* mapping the

only focus on Russian definitional generic (copular) sentences which express the identity/identificational relation between two nominative, kind-referring expressions.

[23] In Seres and Espinal (2019), the order in which arguments are fed into this function is reversed given the structure these authors assume for bi-nominative copular clauses, i.e., $[_{\text{TopP}}$ $[NP_1]$ $[_{\text{PredP}}$ [*èto*] $[_{\text{Pred'}}$ [be] $[NP_2]]]]$, with *èto* base-generated in SpecPredP below NP_{NOM1} but above NP_{NOM2}.

identity introduced by NP_{NOM2} onto itself. This mapping is shown in a simplified form in (57), with the following steps of the establishment of the presentational relation reflecting those for (46) and (55).

(56) *Kardynał Karol Wojtyła to jest Papież Jan Paweł II.*
cardinal Karol Wojtyła-NOM COP is Pope Jan Paweł II-NOM
'Cardinal Wojtyła is Pope John Paul II.'

(57) $[_{Pred'}$ $be_{f(e) = (e)}$ Papież Jan Paweł $II_{<e>}]$ → [be Papież Jan Paweł II]: $_{<e>}$

With regards to the above remarks, a question would be in order though, namely, whether *to* in DCCs with NP_{NOM2}-controlled agreement, already associated with an auxiliary means of formally identifying TP, could also introduce the presentational function as in DCCs with NP_{NOM1}-controlled agreement. Despite the presence of *to* in the former DCCs being obligatory, determined by formal requirements (cf. Sub-section 3.1), and optional in the latter DCCs, this assumption seems reasonable in view of examples such as (58).

(58) *Marek to jest dobry lekarz /* dobrym lekarzem.*
Marek-NOM COP is good-NOM doctor-NOM good-INSTR doctor-INSTR
'Mark is a good doctor.'

As claimed in Bondaruk (2013), such copular constructions with the instrumental NP_{NOM2} predicate and the overtly manifested *to* are grammatical, yet only if the latter represents an emphatic marker and not the pronominal copula.[24] This is, as we surmise, expected given the fundamental difference between the nominative case on the one hand and the remaining, non-nominative cases on the other. Whereas the former case exposes an object in the state of being (e.g. *jest miasto*, '(there) is a town/city', Kopczyński 1778: 43) or names/enumerates those objects (Kempf 2007: 20), the non-nominative, oblique case forms expose an object in a grammatical relation to another object in an action/eventuality denoted by a verb (Kempf 2007: 20). That in (58) *to* cannot introduce the presentational function is thus because the two NPs are not named/enumerated and, hence, no identificational relation can be established between them in the sense that NP_1 could be interpreted, i.e., identified or presented as NP_2

[24] Similar observations are found in Swan (1993: 154-156), who points out that the case form of NP_{NOM2} depends on the presence of *to*, i.e., whenever *to* is present, NP_{NOM2} takes the nominative case, but assumes the instrumental case otherwise (grammatical annotations of examples (i)-(iii) are Swan's).

(i) *Wróbel to (jest) ptak.*
sparrow-NOM-SG-M that is bird-NOM-SG-M
'A sparrow is a bird.'

(ii) *Wróbel jest ptakiem.*
sparrow-NOM-SG-M is bird-INS-SG-M
'A sparrow is a bird.'

(iii) **Wróbel jest ptak.*
sparrow-NOM-SG-M is bird-NOM-SG-M
'A sparrow is a bird.'

(following here Seres and Espinal's 2019: 23 argumentation). Instead, the two NPs find themselves in a grammatical relation of predication whereby the non-nominative NP_2 predicates, along with *be*, some property on the nominative NP_1, the grammatical-logical subject of the sentence.[25] If so, *to*'s presence, whether obligatory or not, is expected to serve the presentational purpose in all DCCs with two nominative arguments regardless of their φ-features composition and agreement direction.

To recapitulate, it has been proposed that apart from formally identifying the TP projection, *to* is also a presentational device, establishing the identificational relation between two NPs. This property is characteristic of all DCCs regardless of their φ-specification and stems from the fact that both NPs are in the nominative, the case form that names/enumerates entities, thus placing them in a semantically 'symmetrical' relation of identification, whereby the entity introduced by NP_{NOM1} is identified or related/presented as the entity introduced by NP_{NOM2}.

4. Concluding remarks

This paper attempted to account for the interlaced presence of post-verbal agreement and the pronominal clitic *to* in DCCs with two NPs_{NOM} manifesting gender or gender-number misalignment. To this end, several assumptions were made. First, the structure of predication is $[_{Pred}\ NP_{NOM1}\ [_{Pred'}$ be $NP_{NOM2}]]$ (Jurczyk 2021), comprising a grammatical-logical subject NP_{NOM1} and a syntactically/semantically complex predicate Pred' [be NP_{NOM2}]. Second, the T-NP_{NOM} φ-Agree proceeds upwards (Zeiljstra 2012), being successfully accomplished once i-features c-command u-features. This basically necessitates that NP_{NOM} move to SpecTP as it is only from SpecTP that NP_{NOM}'s iφ-features c-command T's uφ-features. Third, TP must be formally identified (basing here on Vangsnes 2002) by the features tense (provided by T) and person, number, gender (provided by NP_{NOM} that controls agreement) in order to anchor the subject argument with respect to the state-of-affairs denoted by VP/event structure (here, Pred'). Following these assumptions, it has been shown that in DCCs with two NPs_{3NOM} and

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[25] This does not mean that predication is absent in DCCs with two NPs_{NOM}. Nevertheless, the naming/enumerating property of the nominative case seems to contribute to differences in the status of predication in examples with two nominative arguments as opposed to those with only one nominative argument. Klemensiewicz (1926), for instance, observes that the predicate in *być* + NP_{NOM} clauses defines the subject whereas the predicate in *być* + NP_{INSTR} describes it (Klemensiewicz 1926: 127).

(i) *Piotr jest stolarz, ale u mnie przez ten rok cały musi być kołodziejem.*
Peter-NOM is carpenter-NOM but at me for this year all must be cartwright-INSTR
'Peter is a carpenter but at my place he must be a cartwright this year.'

Whereas the nominative 'definitional' predicate *stolarz* ('carpenter-NOM') only provides the subject with the properties related to its very nature and, hence, stable, the instrumental 'describing' predicate *kołodziejem* ('cartwright-INSTR') ascribes more subjective, temporary properties, less related to the nature of the subject. In other words, the nominative predicate 'carpenter' denotes Peter's usual profession and the instrumental 'cartwright' implicates the temporary status of Peter's job.

NP_{NOM2}-controlled agreement the T-NP_{NOM2} φ-Agree relation is impossible to obtain, the step requiring the movement of NP_{NOM2} which is not the grammatical-logical subject of the sentence and, hence, violating Relativised Minimality. This causes a number of interrelated derivational issues as the lack of NP_{NOM2}'s SpecTP-movement leaves T's φ-features unvalued which, in turn, makes TP formally unidentified. To circumvent these problems, it has been proposed that T's uφ-features having the same specification on the two NPs_{3NOM}, namely, person and/or number, can be valued by NP_{NOM1} once T attracts it to SpecTP whereas the remaining gender and/or number features bearing NP_{NOM2}'s specification are valued as default and lexicalised as the morpho-phonologically least marked form as regards its feature specification, i.e., $to_{[i\text{-}neut]}$ (in line with Szucsich's 2007 reasoning). It has thus been concluded that *to*'s obligatory presence in DCCs with NP_{NOM2}-agreement has to do with formally identifying TP whenever some φ-features bear the specification of NP_{NOM2}, the argument that cannot Spec-TP-move in order to establish the Agree relation with T. This, in turn, allowed us to conflate the optional *to* in DCCs with two NPs_{3NOM} and matching φ-features or DCCs with first or second person NP_{NOM1} with NP_{NOM1}-agreement, but at the same time suggested that the merger of *to* in such DCCs, apart from formally manifesting the TP projection, also serves some other function. Resting on Seres and Espinal's (2019) remarks on the Russian pronominal *ètо* ('$that_{neut}$'/'it_{neut}'), it has been claimed that this function is presentational, applied to relate/present the entity introduced by NP_{NOM1} as the entity introduced by NP_{NOM2}, i.e., to place the two nominative arguments in a semantically symmetrical, identificational relation.

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Laying in a new course? A bibliometric analysis of L2 vocabulary research 1988-92

Paul Meara
Swansea University & University of Oxford, UK

Abstract

This paper uses an author co-citation analysis to examine the research on L2 vocabulary acquisition published in 1992. Two analyses are presented. The first analysis provides a context for the 1992 data. It looks at work that was being cited in a five year window covering 1988-92. The second analysis is a more detailed account of the 1992 research on its own terms.

Keywords: L2 vocabulary acquisition; vocabulary research; bibliometric; author co-citation

1. Introduction

This paper is the twelfth in a series of studies in which I have attempted to map out the way L2 vocabulary research has developed over the last 50 years (e.g. Meara 2023). These reports are based on the research outputs identified in the Vocabulary Acquisition Research Group Archive (VARGA) database (Meara n.d.) The present report takes this historical overview a step further by focussing on the research published in 1992. At first glance, 1992 looks like a good year for L2 vocabulary acquisition research. After a relatively stable period with low levels of output, 1992 shows a significant increase in the number of publications appearing and the number of authors engaging in the field. As we will see, however, these obvious signs of growth are not straightforward to interpret. The report begins with an overview of the research published in the five-year window 1988-92, and continues with a more detailed, exploratory account of the 1992 publications.

The analyses that follow use the Author Co-citation method developed by Small (1973). Small's methodology is described in detail in Appendix A for the benefit of readers who are not yet familiar with the approach used in these reports. In brief, the analyses focus on the authors cited in the bibliographies of a list of papers published in the relevant time frame, and identify sets of authors who are frequently cited together. Usually a small number of very

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strong co-citation clusters emerge from this approach, and we take these clusters to be indications of important research themes in the dataset. The maps developed for this report will follow the same format as last year's report, where I used spanning trees, showing only the strongest links between the sources being cited. Readers of this series of reports will realise that the data sets we are describing are becoming increasingly complex as time goes on, and much more difficult to map in a helpful, intuitive way. The spanning tree approach provides a possible solution to this problem.

2. Part 1: The 1988-1992 data set

We begin by describing the superficial characteristics of the research published in a five year window covering 1988-92. These characteristics are summarised in Table 1, alongside the 1987-91 data for comparison purposes. The table shows that there is very little movement between these two windows. The 1988-92 corpus is very slightly smaller than the 1987-91 corpus and has a slightly larger number of contributors. As usual, most of the contributors identified make just one contribution to the corpus – the 1988-92 figure (81%) shows a small increase over the 1987-91 figure (77%). A small group of authors contribute more than a single item: in 1987-91, 15 authors contributed at least six items to the corpus, but this figure falls slightly in 1988-92, with only 12 contributors authors meeting this criterion.

Table 1: *The basic characteristics of the 1987-91 and the 1988-1992 research outputs*

	1987-91	**1988-92**
Total outputs	636	628
Unique authors	600	633
Prolific authors (6+ contributions)	15	12
Authors making a single contribution	488	512

Table 2 lists the most prolific authors in the 1988-92 data. This prolific author list is slightly smaller than the 1987-91 list. Four authors have dropped out of the list (Galisson, Beheydt, Gass and Hartmann), and one new author (Arnaud) has appeared in the list.

Table 2: *The prolific authors in the 1988-92 research outputs (Prolific here is defined as a contribution to at least six outputs)*

	1987-91	**1988-92**
10+	Meara (22) Laufer (14) Carter (11) Zimmerman (11)	Meara (21) Laufer (18) Vermeer (10)
9	Vermeer	
8	Broeder McCarthy Palmberg	Broeder
7	Galisson Johns	Carter Johns McCarthy Nation Zimmerman
6	Appel Beheydt Gass Hartmann Nation	Appel Arnaud Palmberg

The analysis that follows uses the author co-citation method developed by Small (1973) (see Appendix A). By convention, not all outputs are included in author co-citation analyses. Book chapters and papers published in journals are included, but other types of output (monographs, theses, computer programs, and so on) are not. The rationale for these

exclusions is that book chapters and journal papers tend to have a consistent approach to citation of other people's work, while the other types of output often take a different approach to citing their bibliographical sources. These different practices distort the statistical trends in the data. Theses, for example, usually reference enormous numbers of sources, whereas journal papers are typically more sparing in their approach. The next step in our analysis therefore involves pruning the corpus to generate a smaller data set that consists of journal articles and book chapters. The results of this pruning process are reported in Table 3. The table shows a small increase in the number of eligible outputs in the 1988-92 data set, and a similarly small increase in the number of authors contributing to the data set.

Table 3: *The main characteristics of the 1987-1991 and the 1988-1992 data sets*

	1987-91	**1988-92**
Number of outputs in the data set	455	464
Number of authors contributing to the data set	406	421
Number of sources cited in the data set	4738	5210

The table also shows the number of unique authors that these papers cite. This figure is surprisingly large. As usual, most of the people being cited in the 1988-92 data set are cited in only a single paper (3377 cases or 64% of the total), but a small number of cases are cited much more often and more consistently. Table 4 shows the distribution of these citation patterns.

Table 4: *The number of cases cited N times in the 1988-92 data set*

FREQ	**75+**	**74**	**73**	**72**	**71**	**70**	**69**	**68**	**67**	**66**	**65**	**64**	**63**	**62**	**61**
Cases	1	1													
FREQ	**60**	**59**	**58**	**57**	**56**	**55**	**54**	**53**	**52**	**51**	**50**	**49**	**48**	**47**	**46**
Cases							1					1	1		1
FREQ	**45**	**44**	**43**	**42**	**41**	**40**	**39**	**38**	**37**	**36**	**35**	**34**	**33**	**32**	**31**
Cases		1	1					2	1			4	2	3	2
FREQ	**30**	**29**	**28**	**27**	**26**	**25**	**24**	**23**	**22**	**21**	**20**	**19**	**18**	**17**	**16**
Cases	1		3	4	6	5	3	6	4	5	9	5	10	11	9
FREQ	**15**	**14**	**13**	**12**	**11**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
Cases	11	18	23	21	21	30	31	40	67	80	100	208	333	757	3377

Table 5 lists the most frequently cited authors in this data set. This table shows that the most cited authors list is very stable across 1987-91 and 1988-92. The most cited author in 1988-92 is Nation, cited in 76 outputs (16% of the total). Two authors who figured in the 1987-91 list (Faerch and Levenston) do not appear in the 1988-92 list. Only one new author appears in the 1998-92 list (Lockhart).

Table 5: *The authors cited in at least 40 of the items in the 1988-92 data set*

1987-91	1988-92
Meara (77)	Nation (76)
Nation (69)	Meara (74)
Carter Richards (49)	Carter (54)
Levenston (47)	Krashen (49)
Faerch (45)	Laufer(48)
Krashen (44)	Richards (46)
Laufer (41)	Sinclair (44)
Sinclair (40)	Lockhart (43)

The analysis that follows is based on the co-citations among the most frequently cited authors in the 1988-92 data set. Clearly, it is not feasible to analyse in detail the connections between all 5210 authors in the data, and in order to keep things simple, it is normal practice in author co-citation studies to work with the 100 or so most frequently cited authors. The data in Table 4 suggest that we can get close to this conventional figure if we adopt an inclusion threshold of 16 citations in the data set. This threshold gives us a list 103 authors. In our analysis of the 1987-91 data set we adopted an inclusion threshold of 15 citations, and 98 authors met this threshold. The 1988-92 data set is therefore very comparable to the 1987-91 data set in size, but slightly more demanding in its threshold (114 authors in the 1988-92 data set are cited 15 times or more). These characteristics are summarised in Table 6.

Table 6: *The main characteristics of the 1987-91 and the 1988-92 data sets*

	1987-91	1988-92
Inclusion Threshold	15	16
Authors included	98	103
New Authors		18
Lost Authors	13	

Table 6 also shows that there is a relatively small amount of churn between the two data sets. Thirteen authors who appear in the 1987-91 data set no longer meet our inclusion threshold (Atkins, Beheydt, R Brown, Carton, Fries, Jain, Lado, Lorge, Phillipson, Selinker, Stein, Tarone and Tomaszczyk), while 18 new authors appear in the 1988-92 data set (Chen, Coltheart, Durgunoglu, Johns, Kolers, Macnamara, Magiste, McClelland, Meyer, Morton, Potter, Rey, Roediger, Ruddy Schwanenflugel, Sim, So and von Eckardt). Some of these authors are returners from earlier data sets (Kolers, Macnamara, Coltheart) but others are genuinely new, and will be discussed in more detail in Section 3 of this report.

The co-citations among the 103 most highly cited authors in the 1988-92 data set were mapped using the Gephi software package. (Bastian, Heymann and Jacomy 2009). Co-citations which appear only once in the data set are ignored: Gephi identifies 2114 co-citation links that appear in the data set at least two times. In our earlier reports we simplified the co-citation data by setting an arbitrary strength threshold for inclusion. This made the resulting maps easier to read and interpret, but it makes comparisons between data sets more difficult to handle. In the analysis that follows, we asked Gephi to generate a spanning tree map, based

on the strongest co-citations within the data set. This approach is more consistent than the arbitrary threshold approach that we used in our earlier reports. The methodology for building spanning trees is explained in more detail in Appendix C.

Figure 1 shows the basic mapping of the 1988-92 data set. This map shows the 103 authors who are cited at least 16 times in the data set. Each author appears as a node in the map; the size of a node indicates how many other nodes it is connected to.

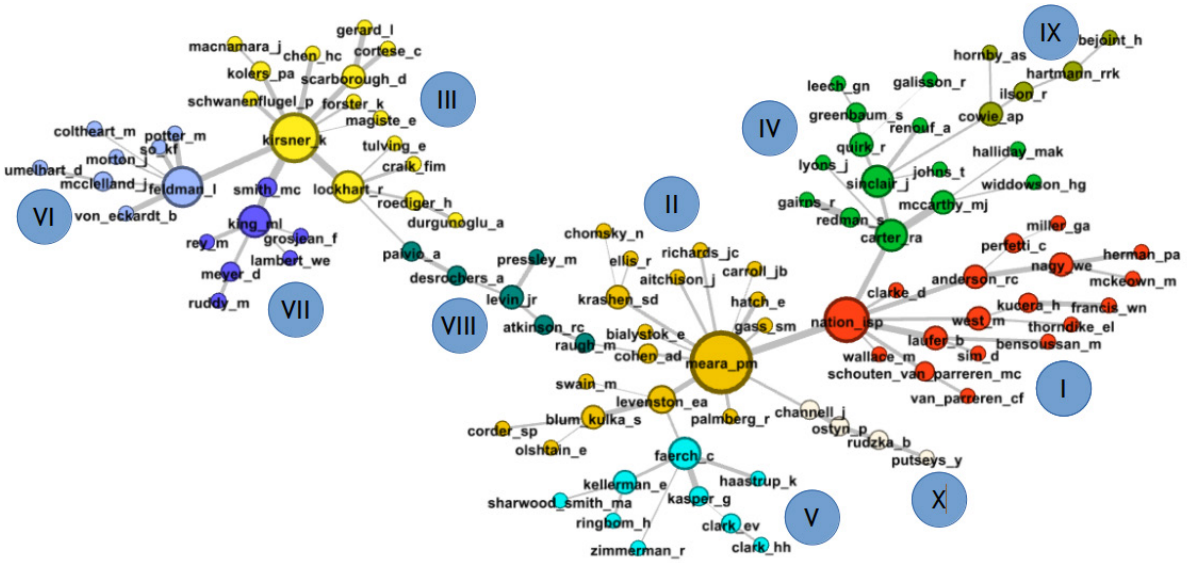

Figure 1: *A spanning tree map of the 1988-92 data set. 103 nodes with at least 16 citations in the data set. Colours indicate the ten thematic clusters identified by Gephi. Nodes are sized according to how many connections they have with other nodes.*

Based on the strongest connections between these authors, Gephi finds 10 clusters in this map:

Cluster I, focussed on Nation, with 18 members, is the largest cluster in the map. There are a number of sub-themes here. West, Kucera & Francis, and Thorndike are a set of word frequency counts; Nagy, Anderson, Herman and McKeown are a group of L1 reading specialists whose work is highly cited by the other members of this cluster reflecting an interest in L2 reading processes. Both these subclusters have appeared in our earlier maps.

Cluster II, focussed on Meara, with 17 members, seems to be comprised of authors whose work is mainly concerned with Second Language Acquisition in general, rather than L2 vocabulary acquisition in particular. This work has strongly influenced the L2 vocabulary research. Particularly noticeable here is the subcluster of authors based in Israel (Levenston, Blum-Kulka, AD Cohen and Olshtain.

Cluster III, focussed on Kirsner (15 members), is a group of psycholinguists whose work mainly deals with formal models of word recognition in bilinguals.

Cluster IV, focussed on Sinclair and Carter (12 members), contains a set of linguists whose main interest lies in descriptions of English and corpus linguistics. This cluster is particularly associated with the Universities of Birmingham and Nottingham.

Cluster V, focussed on Faerch, is a group of (predominantly Scandinavian) applied linguists whose work is mainly concerned with transfer between a bilingual's L1 and other

languages that they are learning. This cluster also contains two members who are best known for their work on L1 acquisition (EV Clark and HH Clark).

Cluster VI, focussed on Feldman, is a second group of psycholinguists interested in bilinguals. This cluster is less focussed on word recognition than are the members if cluster III. Coltheart, for example is a dyslexia specialist, and Morton was publishing papers that developed a model of L1 word recognition.

Cluster VII, is really focussed on Kirsner, and should be seen as an extension of Cluster III. This cluster is generally interested in the linguistic behaviour of bilinguals.

Cluster VIII is a group of six psychologists who are interested in imagery and mnemonics and their applications to L2 vocabulary acquisition.

Cluster IX is a small group of applied linguists with interests in dictionaries and the way L2 speakers use them.

Cluster X identifies the four authors of a series of textbooks that develop a componential analysis approach to L2 vocabulary teaching.

Table 7 summarises the main features of this map, and provides comparison figures for the equivalent map covering the 5 year window 1987-91.

Table 7: *The main clusters in the 1988-92 data set*

cluster	1987-91	1988-92
I	Vocabulary teaching and reading (21)	Vocabulary learning theory (18)
II	Lexical error and transfer (16)	Vocabulary teaching and reading (17)
III	Vocabulary learning theory (16)	Bilingual word recognition (15)
IV	Performance of bilinguals (14)	Corpora and Discourse (12)
V	Corpora and Discourse (13)	Lexical error and transfer (9)
VI	Dictionaries and their use (7)	Psycholinguistics (9)
VII	Imagery and Mnemonics (6)	Performance of bilinguals (7)
VIII	Semantics and Collocation (4)	Imagery and Mnemonics (6)
IX		Dictionaries and their use (5)
X		Applications of Semantics (4)

Broadly speaking, the two maps are very similar: the clusters in the 1987-91 map are easily recognizable in the 1988-92 map, but there are some subtle shifts in the structure of the field which suggest that the field has not yet solidified. The 1988-92 map contains more clusters than the 1987-91 map, and the new clusters are on the whole smaller than the earlier ones. Bilingual word recognition (Cluster III in 1988-92) seems to be a new research theme. Lexical error and transfer seems to be declining in importance. There is also some movement in the membership of the clusters.

The 1988-92 map seems to fall naturally into three sectors. Clusters III, VI and VII make up a set of psycholinguistic sources. Clusters IV and IX make up a set of formal linguistic sources. Clusters I, II, V and X form the main L2 vocabulary acquisition sources. Cluster VIII, the mnemonics and imagery cluster provides an interesting set of links between the psycholinguistics clusters and the rest of the network.

Despite the familiarity of this overall structure, a number of less obvious changes can be found in the data set. These mainly concern the key co-citation links in the 1988-92 data set. Table 8 lists the strongest links in this data set, and the strongest links in the 1987-91 data set for comparison.

Table 8: *The strongest co-citation links in the 1987-91 and the 1988-92 data sets*

1987-1991	1988-92
Faerch ~ Kasper 34	Kirsner ~ Smith 32
Carter ~ McCarthy 32	Carter ~ McCarthy 32
Gairns ~ Redman 32	Gairns ~ Redman 32
Nation ~ Meara 30	Kirsner ~ Lockhart 30
Levenston ~ Blum-Kulka 28	King ~ Smith 29
Levenston ~ Meara 27	Meara ~ Nation 29
Faerch ~ Haastrup 24	Laufer ~ Nation 27
Channell ~ Ostyn 23	Faerch ~ Kasper 26

The main point to note here is the disappearance of four very strong co-citation links from the 1987-91 list (Levenston ~ Blum-Kulka, Levenston ~ Meara, Faerch ~ Haastrup and Channell ~ Ostyn) and the unexpected entry of Kirsner, Lockhart, King and Smith into the 1988-92 list. These last names are co-authors of a 1984 paper that set a methodological agenda for a series of studies using lexical decision tasks. It is not clear why this paper has emerged from obscurity at this time. Kirsner emerges as a major hub in the 1988-92 data set, but to some extent, this may be an artefact of the way we are treating multi-authored papers. Each time Kirsner is cited in the data set, he is also co-cited with his co-authors, and this gives him a prominence that perhaps needs to be interpreted with caution. We will discuss this problem further in Section 3 of this report. A more straightforward feature worth noting is the continued dominance of the L2 vocabulary research by Nation and Meara, and the first appearance of Laufer in the strongest co-citations list. Carter and McCarthy still appear as significant foci in the linguistics cluster, but overall this cluster appears to be less influential than it was in the 1987-91 map.

3. Part2: The 1992 data in more detail

We now turn to a more detailed analysis of the research published in 1992.

Figure 2 shows the distribution of output types in this year, compared with the outputs identified for 1991. The figure shows that there is a very large increase in the number of outputs in 1992. This increase mostly comes in the form of chapters in books rather than papers published in journals. The number of books and monographs dealing with L2 vocabulary actually fell in 1992, compared with 1991. Table 9 lists the four outputs that fall into this category.

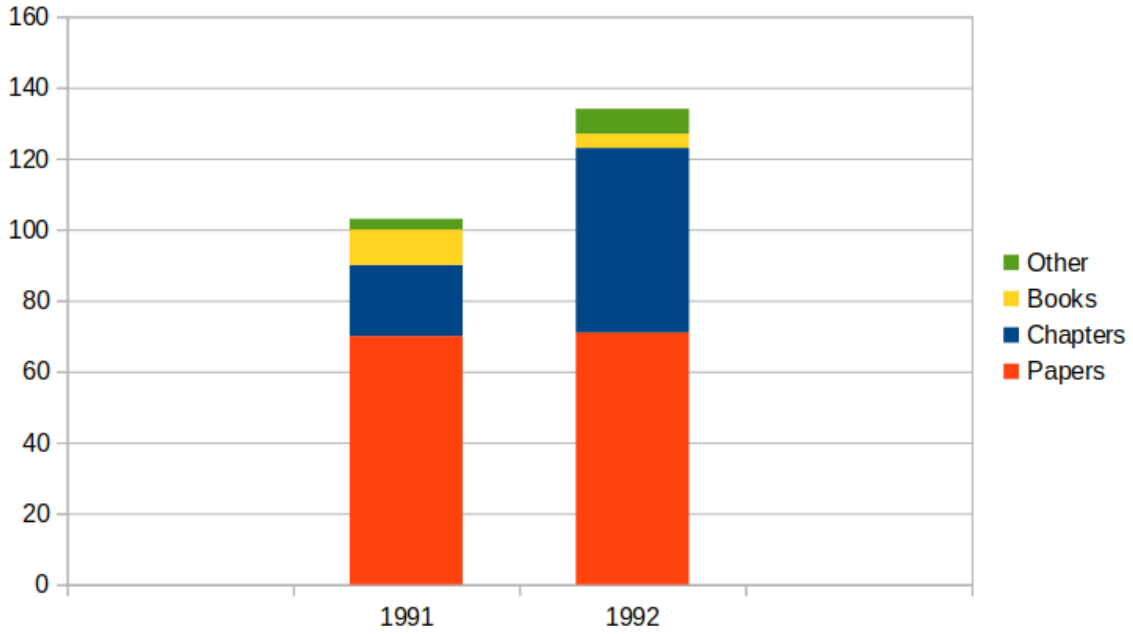

Figure 2: *The 1992 research output by type*

Not included in Table 9 is a massive volume edited by **R. J. Harris** *Cognitive processing in bilinguals* (Harris 1992). This collection contains 33 papers, about half of which deal directly with the way bilingual speakers process words. These papers are included separately in the data set for 1992, and the impact of Harris' book is considered further in the discussion section.

Table 9: *Monographs and edited volumes published in 1992*

Arnaud, P. & H. Béjoint (eds.) *Vocabulary and Applied Linguistics*. London: Macmillan. 1992.
Meara, P. M. Vocabulary in a second language. Vol. 3. *Reading in a Foreign Language*, 9(1992) whole volume.
Picoche, J. *Précis de lexicologie française. L'étude et l'enseignement du vocabulaire.* Paris: Nathan. 1992.
Sánchez Lobato, J. & B Aguirre Beltrán *Léxico fundamental del español: Situaciones, temas y nociones. Glosario multilingüe.* Madrid: SGEL. 1992.

Notes

Arnaud & Bejoint is an edited collection of 17 papers delivered at a conference in Lyon in 1991. Most of these papers are included as separate entries in the 1992 dataset. These entries mainly deal with dictionaries for L2 speakers and some psychological aspects of L2 vocabulary acquisition.

Meara is an annotated bibliography covering material on vocabulary acquisition published between 1960 and 1990. The volume contains some 350 entries, plus a brief glossary, and a short introduction.

Picoche is a textbook that introduces a distinctively French approach to lexicology. Most of this book is concerned with developing Sausurre's idea of the linguistic sign, but part of chapter 2 deals with the pedagogy of vocabulary. This chapter contains some notes on active and passive vocabulary, an account of the *Trésor de la langue française*, a good account of the *Français fondamental* research, and a discussion of the relationship between word frequency and *mots disponibles* – words that readily come to mind in the context of every day tasks. This section ends with a brief account of lexical statistics.

Sánchez Lobato & Aguirre Beltrán is a list of about 2250 Spanish words that seem to have been elicited on the basis of a *Français Fondamental* type investigation. The words are arranged into 15 topics and a set of exercises is provided for each topic. Translations of the 2235 words are provided in English, French and German.

Table 10 is a list of doctoral theses published in 1992. The VARGA database does not systematically monitor theses, so this list may underestimate the amount of work of this type that became available in 1992. The theses listed here are important enough to have been cited in subsequent years, and they hint at research centres and authors which may be influential in the future.

Table 10: *Doctoral theses awarded in 1992*

Crutcher, R. J. *The effect of practice on retrieval of foreign vocabulary learned using the key-word method.* PhD University of Colorado, Boulder. 1992.

Griffin, GF *Aspects of the psychology of second language vocabulary list learning*. PhD thesis, Warwick University. 1992.

Jiménez Catalán, R. M. *Errores en la producción escrita del inglés y posibles factores condicionantes.* Madrid: Universidad Complutense de Madrid. 1992.

Lee, L. *The effect of instructional method and learning style on Spanish vocabulary learning in college students.* Doctoral dissertation. University of Texas, Austin. 1992.

Sanaoui, R. *Vocabulary learning and teaching in French as a second language classrooms*. PhD Thesis. University of Toronto. 1992.

Siramard, Y. *Combining extensive reading and intensive vocabulary study in a Japanese university.* Doctoral dissertation, Temple University Tokyo. 1992.

The 1992 outputs also include a number of unpublished reports and working papers that are not included in the data set analysed later. These include:

Goodfellow, R. CALL and lexical RECALL. Open University CITE Report. No 164. 1992.
This report is a general discussion of the role computers might play in the teaching of vocabulary. These points are illustrated with a discussion of STORYBOARD. Goodfellow briefly reports two informal studies of EFL learners doing processing tasks with decontextualised vocabulary.

Hall, C. J. Making the right connections: vocabulary learning and the mental lexicon. Puebla, Mexico. ERIC Document Reproduction Service ED 363 128. 1992. The status of this report is unclear. It seems to anticipate some later publications dealing with Hall's Parasitic Model of vocabulary acquisition,

Krohn, D. *Grundwortschätze und Auswahlkriterien. Metalexikographische und fremdsprachendidaktische Studien zur Struktur und Funktion deutscher Grundwortschätze.* Göteborg: Acta Universitas Gothoburgensis. 1992.
I was unable to obtain a copy of this work.

Meara, P. M. *EFL Vocabulary Tests*. Swansea University. (ERIC Document Reproduction Service No. ED 362 046)**.** 1992. A set of experimental vocabulary size tests.

Nagy, W., G. Garcia & B. Hancin-Bhatt Cross-language transfer of lexical knowledge: bilingual students' use of cognates. *Technical report No.558. 1992.* I was unable to obtain a copy of this internal report.

Schmidt, K-H. & P. Metzler *Wortschatztest (WST).* Weinheim: Beltz Test. 1992. I think this is a computer program.

A total of 185 authors can be identified in this data set, nearly double the number of authors identified in the 1991 data set. Table 11 reports the number of authors contributing to multiple outputs.

Table 11: *The number of authors contributing to N outputs in 1992*

N outputs	8	7	6	5	4	3	2	1
Cases in 1992				1	2	1	18	163
Cases in 1991					1	2	5	91
Lotka's estimate	3	3	5	7	10	18	41	

As usual, most of the increase in in the number of outputs appearing in 1992 comes from authors who contribute to just a single output, but we can also note a large jump in the number of authors contributing to two outputs. Once again, the most prolific author is Laufer (5 outputs). Arnaud and Meara contribute to 4 outputs each, and de Groot contributes to 3 outputs. 18 authors contribute to two outputs: Béjoint, Doctor, Fernández, Grainger, Harrington, Hartmann, Heredia, Hulstijn, Klein, Leffa, Löschmann, McLaughlin, Oller, Pearson, Thomas, Umbel, Vermeer and Wang.

Béjoint is best known for his work on dictionary use. **Grainger** is a psychologist based in Paris who works on formal models of bilingual lexicons. Together these two authors identify important strands in French vocabulary research. **Harrington's** work is focussed on working memory in bilinguals. In 1992 he was based at the University of California in Santa Cruz. **Hartmann**'s work is concerned with L2 dictionary use. **Leffa**'s two papers deal with electronic glosses. A new feature in this data set is the presence of authorial teams in the prolific author list. **Heredia and McLaughlin** make up a team based in California and working on bilingual memory processes. **Doctor and Klein** were a South African team, also working on formal models of bilingual lexicons. **Umbel, Pearson, Oller and Fernández**, based at the University of Miami, are mainly interested in the development of vocabulary in Spanish speaking children in Florida. **Wang and Thomas**'s work deals with mnemonic imagery strategies This group is also based in Florida.

Table 11 also reports an estimate of how many prolific authors we would expect to find in a data set where 163 authors contribute to only a single output. (See Appendix B for details of this analysis.) We have noted in previous reports that the L2 vocabulary research is heavily dominated by one-off studies, and surprisingly deficient in authors who make more than one contribution to the annual data sets. This trend seems to continue into 1992.

It is worth noting here that almost all of the prolific authors in 1992 are new: only Laufer and Meara also appeared as prolific authors in 1991. Table 12 shows the extent of this churn.

Table 12: *Prolific authors in 1991 and 1992 (here "prolific" means more than one contribution to the data set)*

1991	1992
Laufer Meara Bogaards Scholfield Gruneberg Kelly Mondria Stevens	**Laufer Meara** Arnaud Béjoint de Groot Grainger Harrington Hartmann Hulstijn Leffa Löschmann Vermeer Doctor & Klein, McLaughlin & Heredia, Thomas & Wang, Pearson, Umbel, Oller & Fernández

3.1. The data sources

The VARGA database (Meara n.d.) identified 119 outputs published in 1992 that were eligible for inclusion in the analysis that follows. A small number (10) of these outputs were not traceable, and these items are listed in Table 13.

Table 13: *Items published in 1992 that I was unable to obtain copies of*

Abe, H. & T. Matsui. An analysis of verbs of utterance. In Y. Shimizu (ed.) *Lexical development of Japanese ESL students*. Dokkyo University: Association for English Language Teaching. 1992.

Akagawa, Y. Can pre-reading activities over-ride Japanese students' poor knowledge of vocabulary? *JACET Bulletin* 23(1992), 1-20.

Grönholm, M. Lexikal strategier hos svenskspråkiga elever vid inlarning av finska. [Lexical strategies of Swedish speaking students learning Finnish.] In M. Axelsson & A. Viberg (eds.) *Forsta forskarsymposiet om Nordens sprak som andrasprak.* Stockholm: 1992.

Heredia, R., M. S. Weldon & B. McLaughlin Conceptually driven vs. data driven processes in bilingual memory: one or two systems. *PALM*, 7(1992), 255-278.

Lahuerta Martínez, C. Adquisición del vocabulario: Aproximación al estudio de la función de las claves lingüísticas en el proceso de interpretación del vocabulario durante la lectura de textos ingleses. In F. Etxeberria & J. Arzamendi (eds.) *Bilinguismo y Adquisición de Lenguas.* Bilbao: Servicio Editorial Universidad del Pais Vasco. 1992, 353-363.

Löschmann, M . Wortschatzarbeit: kommunikativ-integrativ, interkulturell, kognitiv. In U. Jung (ed.) *Praktische Handreichungen für Fremdsprachenlehrer.* Frankfurt/M.: Verlag Lang. 1992, 311-319.

Löschmann, M. Arbeit am Wortschatz. In U. Jung (ed.) *Praktische Handreichung für Fremdsprachenlehrer.* Frankfurt/Main: Verlag Lang. 1992, 311-319.

Patris, J.& N. Vasnick Comment aborder les fautes lexicales en classe? *Enjeux* 26(1992), 46-55.

Porquier, R. Construction de la référence spatiale dans l'intéraction exolingue. [Constructing spacial reference in cross-language interaction.] In R. Bouchard, J. Billiez, J-M. Colletta, V. de Nucheze & A. Millet (eds.) *Acquisition et enseignement/apprentissage des langues.* Grenoble: LIDILEM. 1992.

Most of these items are chapters in books not held in UK libraries. The remaining 109 outputs, (65 journal articles and 44 book chapters) make up the dataset that is analysed in the report that follows. For space reasons, I have not listed all the items in this paper. However, interested readers can identify these included items by accessing the VARGA database at https://www.lognostics.co.uk/varga and entering the search terms **1992 {JA}** and **1992 {CH}.**

3.2. The analysis

Next we look in detail at who is being cited in this data set, and more specifically at the co-citation patterns that emerge from the analysis.

This analysis identifies 2033 unique authors cited in the papers that make up the 1992 data set. The corresponding figure for 1991 was 1486, so we have a substantial increase in the number of authors being cited. As usual, the vast majority of these authors are cited only once, but we have a number of authors who are more frequently cited in the data set. The full distribution is shown in Table 14.

Table 14: *The number of authors cited N times in the 1992 data set*

N	**20**	**19**	**18**	**17**	**16**	**15**	**14**	**13**	**12**	**11**
authors	1		1	2	3	1	2	1	6	6
N	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
authors	3	11	8	11	20	31	47	112	256	1511

The most frequently cited authors in this data set are Kirsner (cited in 20 papers), Kolers (cited in 18 papers), Lockhart and MC Smith (cited in 17 papers), Feldman, King and Nation (cited in 16 papers each), von Eckhardt (cited in 15 papers) and Potter and HC Chen (cited in 14 papers) each. Only one of these authors (Nation) appeared in the 1991 list of most cited authors: citations of Nation increased from 13 in 1991 to 16 in 1992. Nearly all of the highly cited sources in 1991 received fewer citations in 1992, despite the increase in the number of papers in the data set. The two exceptions are Laufer (cited 11 times in 1991 and in 1992), and Krashen (cited 8 times in 1991 and 12 times in 1992). It is difficult to see this as anything other than significant shift away from L2 vocabulary research (see Table 15).

Table 15: *The most cited authors in 1991 and their citations in the 1992 data set*

	Meara	**Carter**	**Laufer**	**Richards**	**Atkinson**	**Gairns**	**Redman**	**Aitchison**	**Krashen**	**McCarthy**	**Pressley**
1991	15	12	11	11	10	9	9	8	8	8	8
1992	12	8	11	6	6	2	2	5	12	4	6

For the next step in our analysis, we eliminate the authors who are only infrequently cited, and work with a reduced set of highly cited sources. Conventionally, we work with around 100 highly cited sources, but readers may remember that our analysis of the 1991 data involved a rather smaller figure than this. In 1991, we identified 78 authors who were cited at least five times in the data set, and, for the purposes of comparison, it would be useful for us to identify in the 1992 data set a group of influential authors of around this size. Table 14 indicates that there are 76 authors who are cited at least six times in the 1992 data set, and the analysis that follows will be based on this subset of the full data set. Table 16 shows the main characteristics of this group of highly cited authors, compared with the equivalent group that we identified in the 1991 data set. The higher inclusion threshold for the 1992 data set reflects the fact that the 1992 data sets includes a larger number of outputs than the 1991 data set.

Table 16: *The general features of the 1991 and 1992 data sets*

	1991	**1992**
Authors included	78	76
Inclusion Threshold	5	6
New Authors		48
Lost Authors	50	

Figure 3 shows a mapping based on the co-citation links between the 78 most frequently cited authors in the 1992 data set. The figure shows co-citation links between the authors who appear at least four time in the data set. Weaker links have been eliminated in the interests of simplicity. In spite of this simplification, the map clearly illustrates the problems that arise

when we have a very high level of co-citation between the sources. It is almost impossible to tease out what is going on in the two larger clusters in this figure.

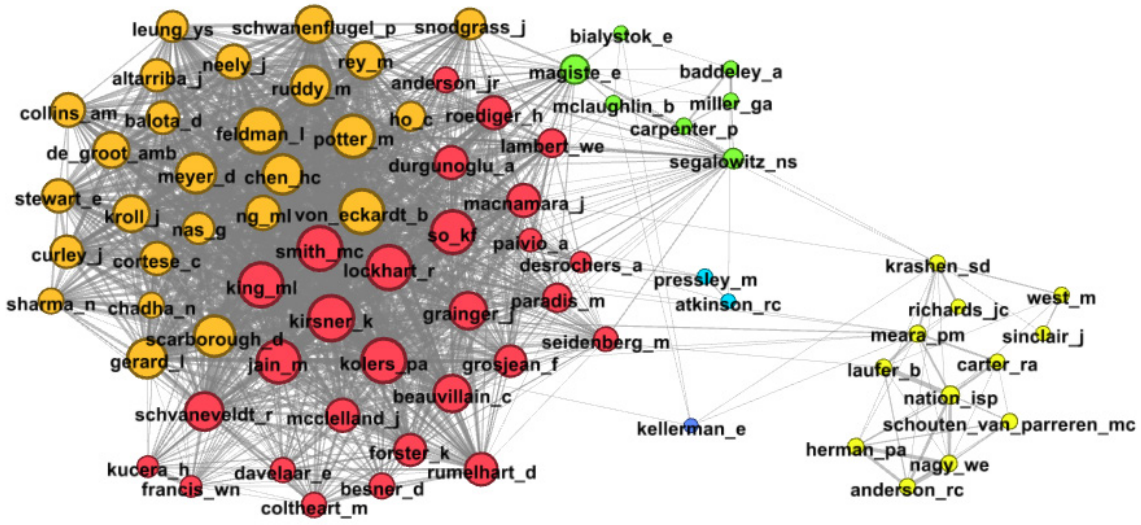

Figure 3: *A map of the co-citations between the 78 most cited authors in the 1992 data set*

This map looks very different from any of the maps that have appeared in this series of reports so far, but in spite of this, it is relatively straightforward to interpret. We have two clusters of authors, shown in red and orange, mainly populated by psycholinguists, and very tightly interlinked by their co-citations. These two clusters account for 56 (72%) of the nodes in the data set. We have a third cluster of psycholinguists, shown in green, who are slightly detached from the two larger clusters, and we have a cluster of 12 applied linguists (shown in yellow). This last cluster has very few co-citation links with the rest of the network: Only Krashen, Meara and Laufer are directly linked to other clusters, and these links are very weak. We also have a cluster consisting of two authors who specialise in the applications of mnemonics (Pressley, RC Atkinson) and a cluster with only one member (Kellerman), who provides some unexpected links between the other clusters.

The main feature to note here is the way that the psycholinguistic research has very suddenly come to dominate the field as a whole, and to a large extent eclipsed the research of applied linguists. In our earlier maps, the psycholinguistics research appeared to be fairly marginal, and most of the cutting edge research could be aligned with research that was more oriented towards linguistic descriptions. Here, the situation appears to be reversed: what we have previously referred to as the "mainstream L2 vocabulary research" has suddenly become marginalised.

The second feature to note here is the huge number of sources appearing in 1992 who did not figure in the 1991 data set. This churn is summarised in Table 17. Fifty authors who were significant in 1991 have disappeared from the 1992 significant author list, while 48 new authors have emerged. Only 28 authors – about a third of the total – have a presence in both the 1991 list and the 1992 list. The changes are listed in Table 17, and they will be discussed in more detail later.

Table 17: *Changes in the composition of the 1991 and 1992 data sets*

Lost authors from 1991 (50 sources)
AITCHISON_J BECK_I BENSOUSSAN_M BERRY_J CARROLL_JB CHANNELL_J COHEN_AD CRAIK_FIM CURTIS_M DELANEY_H FAERCH_C GAIRNS_R GALISSON_R GOODMAN_KS GREENBAUM_S HAASTRUP_K HALL_JW HATCH_E JOHNS_T KELLY_P LEECH_GN LEVENSTON_EA LEVIN_JR LYONS_J MARSLEN_WILSON_W MCCARTHY_MJ MCCORMICK_C MCDANIEL_M MCKEOWN_M MILLER_GE OBLER_LK OLLER_J OLSHTAIN_E PALMBERG_R PEARSON_P PERFETTI_C QUIRK_R RAUGH_M REDMAN_S RINGBOM_H SHARWOOD_SMITH_MA SHIFFRIN_R STERNBERG_R SVARTVIK_J SWAN_M TULVING_E VAN_PARREREN_CF WATERS_G WILSON_KP ZIMMERMAN_R
Authors appearing in 1991 and 1992 (28 sources)
ANDERSON_RC ATKINSON_RC CARTER_RA DESROCHERS_A FORSTER_K FRANCIS_WN HERMAN_PA KELLERMAN_E KING_ML KIRSNER_K KRASHEN_SD KUCERA_H LAMBERT_WE LAUFER_B LOCKHART_R MAGISTE_E MEARA_PM MILLER_GA NAGY_WE NATION_ISP PAIVIO_A PRESSLEY_M RICHARDS_JC RUMELHART_D SCHOUTEN_VAN_PARREREN_MC SINCLAIR_J SMITH_MC WEST_M
New Authors appearing in 1992 (48 sources)
ALTARRIBA_J ANDERSON_JR BADDELEY_A BALOTA_D BEAUVILLAIN_C BESNER_D BIALYSTOK_E CARPENTER_P CHADHA_N CHEN_HC COLLINS_AM COLTHEART_M CORTESE_C CURLEY_J DAVELAAR_E DE_GROOT_AMB DURGUNOGLU_A FELDMAN_L GERARD_L GRAINGER_J GROSJEAN_F HO_C JAIN_M KOLERS_PA KROLL_J LEUNG_YS MACNAMARA_J MCCLELLAND_J MCLAUGHLIN_B MEYER_D NAS_G NEELY_J NG_ML PARADIS_M POTTER_M REY_M ROEDIGER_H RUDDY_M SCARBOROUGH_D SCHVANEVELDT_R SCHWANENFLUGEL_P SEGALOWITZ_NS SEIDENBERG_M SHARMA_N SNODGRASS_J SO_KF STEWART_E VON_ECKARDT_B

The density of the co-citation links within the two largest clusters in Figure 3 makes it difficult to see the fine detail of the co-citation patterns in this part of the map. However, Figure 4 provides a simpler mapping in which most of the weaker links in the map have been pruned so that we are left with a spanning tree where each node is directly linked only to its strongest co-citation partner. This visualisation is directly comparable with the 1991 spanning tree that appeared in our last report.

The first point to note here is the emergence of three new hubs in the 1992 data set: Kirsner, Kolers and Chen. Kirsner had a relatively small role in the 1991 maps, but is clearly dominant in the 1992 map, a rise to dominance that can only be described as dramatic. Kolers has not been a significant influence for some time. He was an important figure in some of our earlier maps, but most of his work was published in the 1960s and 70s, and he does not appear to have published any relevant papers after 1980. Again, his importance in the 1992 map comes as a surprise. Chen appears to be a complete newcomer to the list of significant influences. He published a series of experimental studies in 1989 (Chen & Ng 1989 and Chen & Leung 1989). Chen has not figured in our previous maps, so his appearance as a major influence in 1992 is surprising too. The big losers in 1992 are Nation, Meara and Carter. These three authors were identified as significant influences in the 1991 map, but they fail to achieve this status in 1992. The biggest loser in 1992 is Meara, a very significant influence in 1991, but here reduced to a relatively minor role. Meara's co-citation link with Kirsner is one of the weakest links in the entire network (there are only two co-citations linking these two sources). This link plays an important role in preventing the network from falling into two separate networks, however.

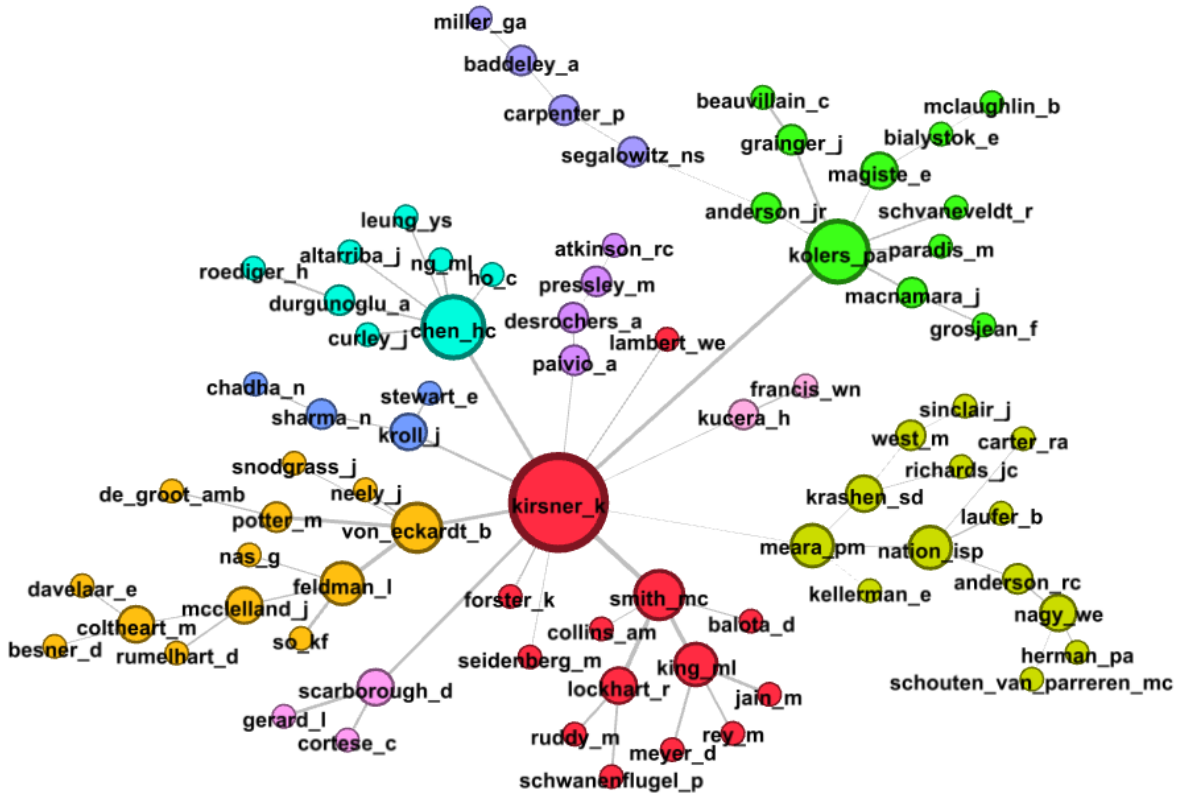

Figure 4: *A spanning tree analysis of the 1992 data set*

Table 18 lists the strongest co-citation links in the 1992 data set. As usual, the equivalent data from 1991 is included for the purposes of comparison. The strongest links in 1992 are much stronger than the equivalent links in 1991 and none of the strongest links in 1991 figure in the 1992 list. Tellingly, some of the authors who appear in the 1991 strong links list do not have any presence in the 1992 map (Gairns & Redman, McCarthy, Aitchison, Raugh, & Atkinson, Levin). This looks like a serious change in direction for the field as a whole.

Table 18: *The strongest co-citation links in the 1991 and 1992 data sets*

Link Weight	1991	1992
17		Kirsner~Smith
16		Lockhart~Smith
15		King~Smith Feldman~Smith
14		Potter~von Eckardt Kirsner~Kolers
13		Kirsner~von Eckardt
		Gerard~Scarborough Kirsner~Scarborough
		Jain~King Feldman~So
9	Gairns~Redman	
7	Carter~Meara Carter~McCarthy	
	Carter~Aitchison	
6	Nation~Schouten-van Parreren	
	Laufer~Nation Raugh~Atkinson	
	Nation~Meara Levin~Pressley	
	Kucera~Francis	

Only three of the strongest links that we identified in 1991 appear in the 1992 map: Kucera and Francis are co-cited slightly more often in 1992 than they were in 1991; Laufer and Nation, likewise are cited slightly more often in the new data set; Meara and Nation are co-cited slightly less often in the new data set (only four times).

The data in displayed in Figure 4 were submitted to a formal analysis using the Gephi program. The analysis identified 10 clusters in this data set:

Cluster I (14 members and dominated by Kirsner) is a group of psycholinguists whose main interest is formal models of lexical storage in bilinguals. The key source here is a 1984 paper co-authored by Kirsner, Smith, Lockhart, King and Jain.

Cluster II (13 members focussed on von Eckardt) is a second group of psycholinguists interested in formal models of lexical storage in bilinguals. The key source here is another 1984 paper co-authored by Potter, So, von Eckardt and Feldman.

Cluster III (13 members focussed on Meara and Nation) is a much reduced set of authors whose main concern is L2 vocabulary learning, with a particular emphasis on L2 reading.

Cluster IV (11 members focussed on Kolers) is another group of psychologists working on bilingual performance. This cluster is less focussed on formal models than Cluster I and Cluster II are.

Cluster V (8 members focussed on Chen) largely consists of people who have co-authored papers with Chen. Chen is particularly interested in Chinese, while Durgunoglu and Roediger work with French speakers.

Cluster VI (4 members focussed on Kroll) seems to be distinguished from the other psycholinguistic groups by a methodological interest in translation.

Cluster VII (4 members) is a set of authors who deal with imagery and mnemonics.

Cluster VIII (4 members) is a set of authors interested in memory processes and skilled reading. The key author here is Norman Segalowitz, an active researcher in the 1970s and 1980s, a very significant figure in Canada, but only rarely cited in the applied linguistics research in Europe at this time.

Cluster IX (3 members, focussed on Scarborough). The members of this cluster are particularly interested in cognate effects in laboratory studies of word recognition.

Cluster X with 2 members is a standard word frequency count.

These clusters are listed in Table 19. This table also identifies the main clusters that emerge in the 1991 spanning tree map. The new list of clusters is heavily dominated by authors who work on formal models of L2 storage. *Imagery and Mnemonics*, an important cluster in 1991, has been reduced to a small cluster with four members. The L1 reading skills cluster, the *Corpora and Discourse* cluster and the *Descriptive Approaches to English* cluster have all collapsed and become absorbed into an all-purpose L2 vocabulary cluster, where they are represented by Carter and Sinclair. We will explore this collapse further in the discussion that follows.

Table 19: *The clusters identified in the 1991 and 1992 data sets*

Cluster	1991	1992
I	Vocabulary Acquisition and Transfer (14)	Formal models of lexical storage (14)
II	Mnemonics and Imagery (13)	More formal models of lexical storage (13)
III	L1 reading skills (11)	Vocabulary uptake and inferencing (13)
IV	Performance of Bilinguals (10)	Performance of bilinguals (11)
V	Corpora and Discourse (10)	Chinese/French (4)
VI	Vocabulary uptake and inferencing (9)	Translation effects in bilinguals (4)
VII	Descriptive approaches to English (5)	Imagery and Mnemonics (4)
VIII	(Johns, Oller)	Memory processes and skilled reading (4)
IX		Cognate effects (3)
X		Word Frequency Count (2)

4. Discussion

The simplest account of the changes from 1991 to 1992 suggests that the traditional concerns of L2 vocabulary research have been replaced by an upsurge in psycholinguistics research and formal modelling approaches. Unlike the traditional approaches, this new work is laboratory-based, rather than classroom based. It uses highly technical research methods which would be difficult to emulate in classroom situations. It is also striking that most of this research is concerned with bilingual speakers, rather than the (low level) second language learners,who usually serve as participants in L2 vocabulary research. It is difficult to see how the insights gained in the psycholinguistic research could be applied in real world situations. Some of the research, for example, suggests that bilingual speakers are very slightly slower at recognising words in their weaker language, but the difference is tiny – often not much more than a few tens of milliseconds – and not really likely to be registered outside of laboratory studies. This does indeed feel like a serious change of course – a new set of priorities, a new set of methods, and a serious shift in perspective.

At the same time, the mapping shown in Figure 4 strongly suggests that research in foreign language vocabulary learning has (at least temporarily)been eclipsed by the research in psycholinguistics. A number of research areas that were important in 1991 have disappeared from the 1992 map, and a very large number of authors who were significant influences in 1991 have stopped being cited. For example, it looks as though research on dictionary use and corpus linguistics is only barely registering in 1992. The only identifiable themes that appear in both 1991 and 1992 are mnemonics, lexical inferencing and the importance of reading for L2 vocabulary acquisition.

However, this interpretation is not as straightforward as it looks. One possibility is that the 1992 maps have been seriously skewed by the appearance of Harris' edited collection of papers in 1992. This volume is tightly edited, and it adopts citation practices which are notably different from anything that we have seen so far in this series of studies. The chapters in Harris' collection frequently cite each other, for example, a feature which is not usually found in papers that are published in a single year in more disparate sources. The papers also have much more extensive bibliographies than is normal for journal papers at this time. In

1992, the average number of outputs cited in a paper was 31 but nearly all the papers in the Harris collection exceed this figure. (In 1990, the equivalent figure was only 24.)

Many of the same comments apply to the collection of papers that appeared as a special issue of the *European Journal of Cognitive Psychology* edited by de Groot and Berry (de Groot & Berry 1992). This volume contains seven papers which cover much of the same ground as the Harris volume. Taken together, these two volumes make up nearly 20% of the outputs that constitute the 1992 data set, and it is not surprising that they dominate the co-citation map. The obvious solution to this problem is to eliminate the papers in these volumes from the 1992 data set and see what we are left with. Surprisingly, this radical pruning does not make much difference to the overall structure of the maps, and this suggests that the shift away from applied linguistics driven research towards more psycholinguistics concerns is even more serious than it might appear at fist sight. (See Figure 5.)

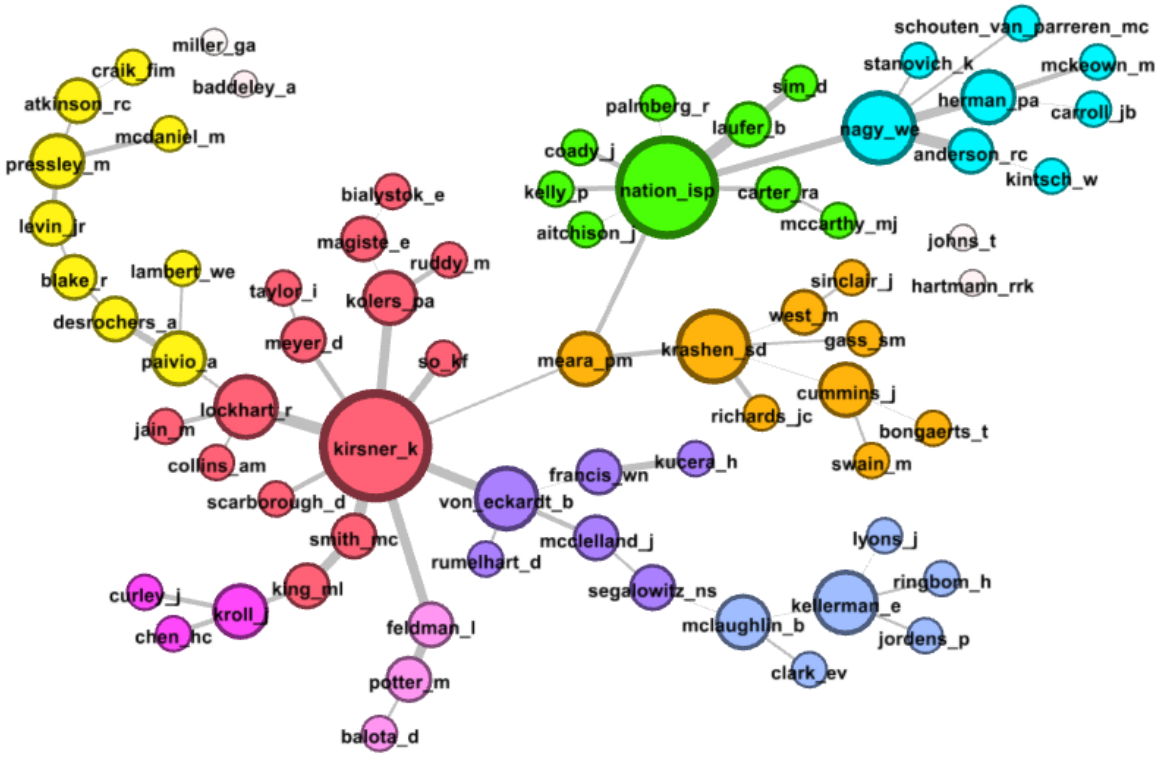

Figure 5: *A spanning tree map of the co-citations in 1992 data set (Citations within the papers in Harris 1992 and de Groot & Barry 1992 have been eliminated)*

Kirsner still emerges as the most significant influence in the reduced 1992 spanning tree. Meara still plays a key role in linking the psycholinguistic work to the L2 vocabulary acquisition work. The biggest difference between these two maps is the emergence of Nation as the second very significant influence – the first time that he has appeared in this role in these reports. It is also worth pointing out that a number of linguists who were absent from Figure 4 do make an appearance in Figure 5, and many of these influences are strongly co-cited with Nation (Aitchison, Kelly, Coady, Palmberg, Sim and McCarthy). All these figures appeared in the 1991 spanning tree. The L1 reading cluster has developed into a distinct cluster dominated by Nagy. Kellerman emerges as the nucleus of a small cluster dealing with

semantics and meaning, and there has been a notable expansion in the mnemonics cluster which now includes Lambert, Blake, Levin, McDaniel and Craik. These shifts suggest that the field as a whole is fairly stable, but it is not yet large enough or resilient enough to be unaffected by the appearance of a large collectionsof highly focussed papers with a shared methodological focus.

The strongest co-citation links in Figure 5 are listed in Table 20. These weights are very comparable to the weights that we reported in the 1991 data set, and this suggests that the very strong weights reported in Table 18 are indeed an aberration. Nevertheless, there are some warning signals that need to be heeded in Figure 5. The majority of the strong co-citation links involve Kirsner and colleagues, and only the strong link between Nation and Laufer runs against this trend. (See Table 20).

Table 20: *The strongest co-citation links in Figure 5*

Link Weight	
7	Laufer~Nation Kirsner~Lockhart Kirsner~Smith Nagy~Anderson
6	Kirsner~von Ekardt Kirsner~Feldman Kirsner~Kolers Feldman~Potter King~Smith Nagy~Herman

Generally speaking, the linguistics clusters in Figure 5 are held together only by the most tenuous of links. It is difficult to tell whether this represents a genuine structural change in the field. However, it IS noticeable that a number of authors who were important in the 1991 map no longer play a role in the 1992 maps. Gairns & Redman, who made up the strongest co-citation link in 1991 do not appear in the 1992 map. They represent a strand of research that was strongly involved with practical applications of more theoretical research, and their loss is a significant shift in emphasis. Also absent from the 1992 maps are Galisson, Zimmerman and Faerch & Haastrup, representatives of the French, German and Scandinavian research traditions that we have identified in our earlier maps. Levenston, Bensoussan and Olshtain have been succeeded by Laufer as the most cited author in Israeli vocabulary research. Perhaps the most striking loss is the disappearance of Leech, Greenbaum, Svartvik & Quirk, who we identified in our earlier maps as an important cluster dealing with linguistic descriptions of English. This strand of research is here represented only by Sinclair, Carter & McCarthy. Dictionary research is represented only by Hartmann, who appears as an unattached source. Johns, too (an advocate of hands-on concordancing), appears as an unattached source in this analysis.

To sum up, it seems that many of the concerns that figure in our 1991 maps have been replaced by new research foci. This does not mean that the main themes that we identified in 1991 have stopped altogether. Rather, they do not reach the critical mass that allows them to appear in a map of the most significant themes in the 1992 map.

Conclusion

Clearly, we have identified some very significant shifts in the 1992 dataset, and there are hints that some very large changes are appearing over the horizon. After a period of reduced output,

1992 shows a modest increase in the number of outputs published in a single year, and it provides the largest set of outputs in the 1988-92 window. This increase in activity hints that we may need to be on the lookout for new emerging research themes in future years. Perhaps the most important feature in this report is the discrepancy between the five year 1988-92 analysis and the more detailed analysis of the 1992 data. The data that underlies the five year map appears to be very stable, with only a few minor changes compared to the 1987-91 window. In contrast, the smaller 1992 data set appears to be wildly different from the 1991 data set, with very large structural changes taking place. This suggests that the field might be entering a period of rapid development and change.

We can anticipate that the field will continue to grow at a rapid rate, both in terms of the number of research outputs recorded, and in terms of the number of authors contributing to these outputs. It is more difficult to foresee the direction that these changes will move the field as a whole. Nevertheless, two developments in particular do hint at important changes to come.

Firstly, it is worth noting that 1992 saw a small meeting of psycholinguists and L2 vocabulary researchers which resulted in a collection of papers published in 1993. (Schreuder & Weltens 1993). This meeting brought together a number of significant figures from both the psycholinguistics and the applied linguistics approaches, and the resulting publication looks to be a text that might successfully bridge the growing divide between these two diverging research traditions.

Secondly, in my earlier reports, I noted the importance of Nation's book *Teaching and Learning Vocabulary* (Nation 1990). Most of the work appearing in 1992 will have been written before the publication of this book – the research cycle was much slower in the days before the internet than it is now, and it is not surprising the find that *TLV* does not seem to be influencing the co-citation maps to date. By 1993 and 1994 we can expect the impact of this book to appear in the more recent maps. In the meantime, however, the steady rise in the importance of Nation in these maps seems to indicate that the applied linguistics strand of L2 vocabulary might be able to recover from the hits it received in 1992.

All in all, 1992 looks as though it was a pivotal year for vocabulary research, and we can confidently look forward to interesting new developments in 1993.

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Appendix A

Author co-citation analysis: The methodology

The author co-citation method used in this paper was developed by Small in a number of papers published in the 1970s (e.g. Small: 1973). This approach, which was actually built on earlier bibliometric work by Price (1965), has been extensively used to analyse research in the natural sciences (e.g. White & Griffith: 1981) but does not seem to have been adopted as a standard tool by researchers in the Humanities.

The raw data for a co-citation analysis consists of a list of all the authors cited in the set of papers to be analysed. For each paper in the data set, we make a list of every author that the paper cites; for each paper, each cited author counts only once, regardless of how many times they are cited in the paper; and for a cited paper with multiple authors, each of the contributors is added to the author list. Self-citations, where an author cites their own work, are treated in the same way as any other citation, on the grounds that authors only rarely fail to cite their own work. This raw data is then used to construct a large matrix showing which authors are cited together in each of the papers in the data set. The matrix can then be analysed using a program such as Gephi (Bastian, Heymann and Jacomy: 2009). Gephi performs a cluster analysis on the data, groups together authors who tend to be cited alongside each other in a number of papers, and outputs a mapping which shows the composition of the clusters and the relationship between them. The clusters are generally taken to represent "invisible colleges" in the data.

Appendix B

Lotka's model

Lotka (1926) suggested that there might be a straightforward relationship between the number of authors who contribute a single paper to a field and the number of authors who make multiple contributions to the field. Suppose, for example, that we have 250 authors who make a single contribution to a data set, then it would be unusual to find only one author who makes two contributions, and it would likewise be very unusual to find that a single author who makes twenty contributions, while no other authors make more than one contribution to the data set. Lotka suggested that the expected relationship could be described as a power law:

$$E_N = T / N^x$$

where T is the total number of authors who contribute a single paper to the data set,
N indicates 2, 3, 4, 5... outputs,

and

E_N is the expected number of authors contributing to N outputs.

In practice, the value of x (the exponent in Lotka's formula) is usually around 2 – that is, a value of 2 for this exponent gives a fair approximation of what happens in real life. So, for a data set in which 250 authors contribute to just one paper in the data set Lotka's model predicts that we can expect $250/2^2 = 63$ authors who contribute to two papers in the data set, $250/3^2 = 28$ authors who contribute three papers to the data set, $250/4^2 = 16$ authors making four contributions to the data set, and so on as shown in the table below.

***Table A**: An illustration of Lotka's Law with x = 2 and $N_1 = 250$*

contributions	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
Expected E_N	2	3	4	5	7	10	16	28	63	250

Clearly, this model predicts that the number of papers an active researcher might be expected to produce falls off rather quickly. Empirical tests of what has become known as "Lotka's Law" do seem to work well. However, the model works best when we are dealing with well-established fields, and very large data sets. The single year data sets that I have discussed in this series of papers are not a close match to Lotka's expectations, but the larger 5-year data sets are generally a better fit to the power law model. In both cases, however, we get a much better fit when the value of N^x is raised above 2. For example, we get the best fit for the 1988-1992 data set when x = 2.9. This is lower than the equivalent figure for 1987-91, which was x = 3.01, though both figures need to be treated with some caution because the data sets are relatively small. Higher values of x seem to be typical of immature, highly volatile fields. Generally speaking, the exponent values we find for the L2 vocabulary research literature are higher than we would normally expect, but the fall in the 1988-92 figure seems to suggest that the field is becoming slightly more "normal" than it was in 1987-91.

Appendix C

Spanning trees

The maps presented in this paper are a simplification of the maps that appeared in the earlier papers in this series. The earlier maps tried to capture the relationships between the authors by including any co-citation link which was stronger than a chosen threshold value – for example, we might include any link with a weighting of 8 occurrences or more in the data set. The threshold values were chosen to avoid cluttering up the visuals with very weak connections, but they varied from one report to another, and were essentially arbitrary.

In this paper, I have adopted an alternative solution to this problem, by displaying the data in the form of a spanning tree. In this alternative approach, we start with a list of authors, a list of all the co-citation links between them, ordered by their weight, and an empty map containing no nodes. We then build a map by working through the ordered list of links, and following the steps outlined in an algorithm developed by Prim (Prim: 1957). Starting with the strongest link, we add nodes and edges to the empty map as long as the new edge does not lead to a cycle. That is, if we have a new edge A ~ B, and our tree does not already contain a link (direct or indirect) between node A and node B, then we add the edge A ~ B to the map, adding new nodes as necessary. The map grows in a piecemeal way at first, adding pairs of strongly connected nodes to the map, but eventually, the algorithm finds a set of links that connects each node to another by its strongest connection.

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Is there a "Meditative-polemic-*May*"?

Maruszka Eve-Marie Meinard
Lumière University Lyon 2, France

Abstract

This article aims at displaying the results of a preliminary study on MAY and MIGHT in extraposed subject clauses where they compete with the meditative-polemic-Should. Two types of extraposed subordinate clauses will be compared, one in which MAY and MIGHT have an epistemic meaning and one in which they behave like the meditative-polemic-Should. The examples extracted from Google reveal that this specific use of MAY and MIGHT is mostly found in American English, that it is mostly used in journals, and that the subclause refers to past events that could logically be expected. What is more, the subordinate clause containing this modal auxiliary reformulates the title of the article or of a paragraph. This shows that the proposition in which it is found plays a crucial role in the text, which is to provide the main information of the article once the background has been explained. We will also see that when the subject of the content clause is animate, MAY and MIGHT are less likely to have an epistemic or root reading than when the subject is inanimate. Finally, the examples reveal that this form collocates with subjective markers denoting the point of view of the subject, via the use of verbs of cognition and perception or via the progressive aspect (*it's not surprising that he may* ***want, need, choose, be feeling***…). We propose to call it the "subjective-explanatory-*May*".

Keywords: May; Might; Modal auxiliaries; Meditative-polemic-should

1. Introduction

In content clauses after certain evaluative adjectives like *odd, surprising, weird, strange*, *normal,* the modal auxiliary SHOULD has a very particular meaning, which has neither an epistemic nor a root value. It is used when the speaker refers to an event or a situation that is taken for granted, like in 1:

(1) It's odd that he should resign.[1]

As noted by Khalifa (2004: 293), the meaning of SHOULD seems to have a reversed polarity compared with its meaning in an independent clause, as can be seen with 2, more or less equivalent to 1:

[1] This example is taken from Khalifa (2004: 108).

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(2) It's odd, because he should **not** have resigned.

This SHOULD is called *meditative-polemic-Should* by Behre (1955). It has drawn the attention of many linguists, some of whom consider it to be a subjunctive marker. Jespersen (2013 [1931]) calls it *emotional should*, Leech (1971) calls it *Theoretical should*, Quirk *et al.* (1985) call it *putative should*, Coates calls it a *quasi-subjunctive* (Coates, 1983: 17), Bouscaren and Chuquet (1987) simply call it *should in that-clauses* and consider that it denotes a *type III modality*, Jacobsson (1988) calls it *should2*, Huddleston and Pullum (2002: 1002) call it *Attitudinal should*, Larreya et Rivière (2005: 109) talk about *contextes appréciatifs* (*evaluation contexts*), Celle (2018), calls it *pragmatic should*.

This presentation of the different labels is still oversimplified since different subclasses of SHOULD in content clauses have been proposed in the literature, e.g., '*should*-mandative' vs '*should*-non-mandative (Huddleston & Pullum, 2002: 998), *should*$_2$ versus *should that is commutable with the present subjunctive* (Jacobsson, 1988: 79), but these considerations are not central for the present article. What is more, as the "polemic-meditative-*Should*" is factive, it would also be interesting to compare it with *would* used in factive contexts: Spears (1973: 627, 637) uses the term 'Factive *would* complements', Larreya (2015: §63) calls it *WOULD conjecturel-factuel* (*circumstantial-factual WOULD*), and Celle (2018) *pragmatic 'would'*.

As far as I know, a lot has been said about SHOULD in *that*-clauses (to the authors already mentioned above, one can add Adamczewski and Delmas, 1982; Paillard, 1984; Mélis, 2002 ; Kanté, 2010), but a similar use of MAY and MIGHT has received little or no attention in grammars and articles.

Indeed, Paillard merely mentions it (1984: 74); Coates (1983: 165) mentions the existence of a *quasi-subjunctive MIGHT*, but only to signal that there were no more than seven occurrences in her corpora. Larreya (2015 §63) provides one example but does not comment on it, as well as Huddleston and Pullum (2002: 994, 1001), who observe that in some contexts where MAY is not interpreted like that of the main clause, it can *count as a specialised-modal construction.* Apart from these sparse remarks, I am not aware of any study clearly devoted to MAY and MIGHT in this factive context. Yet, as I hope to show in this article, these modals seem to compete with the meditative-polemic-Should.

In this article, I will focus on the presence of MAY and MIGHT in content clauses that are extraposed subjects in matrixes with *surprising* as predicative adjective and where the subclause is a factive (the event referred to in the subclause did eventually happen). Many other evaluative adjectives could have been chosen, but the existing research on the *meditative-polemic-Should* focusses on this type of adjectives (*surprising, odd, weird, strange*, *normal,* cf Celles, 2018) since this SHOULD is used when the speaker takes into account both the fact that the event took place and the fact that it is contrary to the speaker's and the addressee's expectations.

To illustrate the specificities of this syntactic structure with MIGHT instead of the *meditative-polemic-Should*, let us start with an unambiguous example (authentic occurrence extracted from my list):

(3) Lilya has no family (save for an uncaring and indifferent aunt), no money, and no job skills, so it's not surprising that she might turn to prostitution.

The text from which sentence 3 is extracted summarizes the plot of a movie (*Lilja 4-ever*, by Lukas Moodysson), which narrates the life a young woman, Lilja, who becomes a prostitute. Within this fictional framework, there is no doubt concerning the factuality of the event referred to in the subordinate clause (the protagonist did turn to prostitution in the movie). For the moment, I will call this use of MAY and MIGHT "M2" (in reference to Jacobsson's *SHOULD*$_2$, 1988). This M2 clearly differs from an epistemic use of MIGHT, where it refers to a virtual situation, like in the following constructed example: *Lilya* ***feared*** *that her mother* ***might*** *know one day*. I call "M1" both the root and epistemic MAY/MIGHT.

Some tests show that MIGHT in example 3 is what I call an M2:

- This MIGHT is at least syntactically commutable with the *meditative-polemic-should: it's not surprising that she should turn to prostitution*,
- it cannot have the same meaning as an M1, i.e., a MIGHT with an epistemic or root value, like in an independent clause: *she might turn to prostitution* is not semantically equivalent to example 3, since the former means that her turning to prostitution is a mere possibility, while the latter means that she eventually turned to prostitution.

The aim of this article is to provide a preliminary descriptive account of the main grammatical properties of MAY and MIGHT when used as alternatives to the *meditative-polemic-Should*, since they deserve to be taken notice of in grammars.

In section 1, I will present my corpus. In section 2, I will briefly compare M2 with M1 in *that*-clauses that are not factual to show how I have tagged the occurrences once extracted. In section 3, I will describe the different uses of M2 depending on the variety of English and I will describe its grammatical properties. In section 4, I will focus on its pragmatic and semantic properties: I will mention the contexts in which M2 is used, that it can mostly be found in journal and magazine articles and that it plays a very specific role in these articles (the subclause often refers to the title). I will also show that the nature of the subject of the subordinate clause has an impact on the interpretation of the modal (if the subject is inanimate, the M2 is more often what Coates calls a *merger*).

2. Method: Data collection on Google and the limits of the present study

As noted by Coates (1983: 165), this use of MIGHT is very rare and the traditional corpora (COCA, BNC) do not contain enough occurrences to make any substantial observation. Coates's corpora (Lancaster corpus and Survey of English Usage) only contained 7 occurrences of this use of MIGHT.

Because they are quite rare, I thus chose to collect the results of queries on Google. The relevance-based ranking of Google inevitably creates a bias, yet, extracting a list of examples from Google also has some benefits, like to make it possible to collect information on the authors (to determine the variety of English they spoke) and to have access to a very large context (much larger than the "expanded context" of the COCA, for instance). Thus, this list of examples is quantitatively poor, but qualitatively rich.

My list is elaborated after the systematic extraction of the results of six queries in quotation marks on Google. The queries correspond to the combinations of parameters X and

Y in the following structure: "[**surprising that X Y**]". X is a singular third person pronoun (X = *he, she, it*) and Y is a modal auxiliary (Y = may, might).

As noted above, the choice of "surprising" is in line with previous research works which have already extensively studied the *meditative-polemic-Should* in subclauses governed by evaluative adjectives denoting the expectations of the speaker (Celle, 2018, Bouscaren & Chuquet, 1987, Behre, 1955). The adjective in the main clause serves to provide a judgment on the content of the subclause, which is why adjectives like *it's strange, odd, funny, surprising, revolting, weird* are often found in this context (Khalifa, 2004: 109); Behre calls them *expressions of sorrow and displeasure* and *expressions of surprise and wonder* (Behre, in Khalifa, 2004: 109). In order to extract as many occurrences as possible on Google in as small as possible an amount of time, I chose only one adjective, but it goes without saying that other evaluative adjectives will have to be studied in this context too.

Indeed, Google being a dynamic corpus, I had to minimize the amount of time devoted to the extraction: I have only extracted the first occurrences that were suggested. A random extraction would have required some automatized device, which is not possible with Google. The extraction was spread over three days in October 2021 (in a southern suburb of Paris, France). It was not possible to reduce it to a smaller amount of time because I had to extract the expanded context of each occurrence to find as much information as possible on the source to determine the category of the source (e.g., journal, magazine, blog, etc… and its geographical location), as well as information on the speaker to determine the variety of English they spoke.

I determined the language of the speakers with some additional research on their biography thanks to cross-reference information available in the internet site of the source itself, on the biographies available on site *Muckrack.com*, on Wikipedia and on the social networks to which they subscribed (LinkedIn, Twitter, Facebook). What is more, as some of the MAY and MIGHT occur in reported speech (*X said it's not surprising that Y may…*) I had to find information on the quoted speaker. When the origin of the speaker was untraceable, I used the headquarter of the source itself to classify the English as American or British: for instance, if the occurrence was found in a journal located in the United States, I then categorized the occurrence as AmE (American English). Thus, I have two degrees of confidence as to the variety of English: the personal information that I found in the speaker's biography, which I consider as maximally reliable, and which I annotate *Direct Information* (*DI*), and the source of the internet site, which I consider as less reliable and which I annotate *Indirect Information* (*II*). Therefore, the occurrences are annotated the following way: *AmE-DI*, for *American English, Direct information,* or *BrE-II*, *British English, Indirect Information*. Few occurrences where totally untraceable, especially when they were found in blogs or chat forums, which I annotate *unknown origin* (*UO*).

As will be shown in the next section, the identification of the semantic value of MAY and MIGHT requires some interpretation and thus implies the analysis of a largely expanded context, which in turn implies to collect as much information as possible (it is particularly true with the category "merger", as will be shown below). And because of the amount of information that I had to collect and process for each occurrence, the sample is very small (109 occurrences). Indeed, an optimal solution between two contradictory requirements had

to be found: on the one hand, a minimal amount of time devoted to the extraction (due to the dynamic nature of Google) and on the other hand, a maximal amount of information (to interpret the value of the modal auxiliary and to identify the variety of English).
Yet, I hope that this sample suffices to show that MAY/MIGHT can compete with the meditative-polemic-SHOULD.

3. M1 and M2

3.1. Comparing MAY/MIGHT1 with MAY/MIGHT2 to tag the data

When used as epistemic or root modal auxiliaries, MAY and MIGHT express a logical possibility or a permission, and the event referred to is virtual (in *he may be there by now*, the predicative relation <he-be there by now> is a mere supposition and is not taken for granted). I call them here M1. When the event referred to in a subclause governed by MAY and MIGHT is factual, I call them M2. As shown with example 3 in the introduction, some uses of MAY and MIGHT are unambiguously M2 (in *It's not surprising that she might turn to prostitution,* <she-turn to prostitution> is factual). At first glance, it seems to be due to the governor in the main clause (*not surprising*). Indeed, some matrix clauses seem to only license an M1 in the subclause, like in 4 [present + *foreseeable*]:

(4) It is reasonably foreseeable that he may eventually marry her.

Here, MAY has the same meaning in the subclause as in an independent clause: *he may eventually marry her (but he also may not).*

Yet, the adjective *foreseeable* is not the only cause for this interpretation, since the modal could be interpreted as an M2 if the preterite was used in the matrix clause, like in 5:

(5) It **was** reasonably foreseeable that he **might** marry her (so why didn't you propose to her before he did?)

Thus, the interpretation of the modal auxiliary as an M2 or as an M1 depends on a combination of factors: the choice of the governor of the *that*-clause and the tense of the superordinate clause.

Apart from the tests presented in the introduction, the differences between M1 and M2 can be determined thanks to the scope of an adverbial subclause. Let us add an adverbial subclause introduced by the conjunction WHILE and observe what the circumstantial subordinate clause modifies. If the subclause expresses a contrast with the evaluative adjective, it's an M2, like in 6:

(6) John finds it **odd** that Peter may marry Julia (**while it was perfectly foreseeable,** Peter has always been in love with her).

With an M2 in the content clause, the adverbial subclause provided a comment on the governor of the content clause (here, the adjective *odd*), i.e. a comment on the subject's judgment (John shouldn't have found it ***odd***, since it was ***foreseeable***). This corresponds to the

use of the *Meditative-polemic-Should* and in accordance with the fact these clauses are said **not to be assertive**: *Although the content clause is seemingly in accordance with the evaluative judgement expressed in the superordinate clause,* ***it is not vouched for by the speaker*** (Celle, 2018: 48, my emphasis). And if Behre calls it "polemic-should", it is precisely because *should* conveys the *mental resistance* of the speaker.

By comparison, if the adverbial subclause modifies the content clause, then it is an M1, like in 7:

(7) John finds it obvious that **Peter may marry Julia** (**while it can't happen**, fortunately, since Peter lives abroad).

With the M1, the adverbial subclause disputes the statement in the embedded clause. Indeed, the fact that Peter may marry Julia is refuted by the adverbial subclause (John shouldn't believe that **such an impossible event may happen**), not the fact that John finds it obvious. This test is also in accordance with what Pelyvás calls a "predication shift" (2006: 123-124), revealed by question tags, where what is in profile in a complex clause governed by a cognitive matrix predicate can either be a "grounded head" or a "cognitive predicate".

The reason for these different scopes of WHILE may be that the contrasting subclause modifies the element that is most likely to be contrasted. As the M2 signals factive contexts (i.e., events that are taken for granted), the content clause in example 6 is less likely to be contrasted than the judgment concerning the event (so, for this example, the adjective *odd*): one cannot refute what is already taken for granted. Thus, the only thing that can be contrasted is the judgement present in the main clause. Conversely, as the M1 signals non-factual contexts (it signals a logical possibility or a permission), the event referred to in the content clause is more likely to be contrasted than the judgment on this hypothetical event (like in 7): it is more direct to refute the relevance of a virtual situation (a logical possibility or a permission) than to refute a subjective judgement concerning the relevance of the virtual situation. This corresponds to the path of least effort in the *Relevance-theoretic comprehension procedure* explained by Wilson and Sperber:

> Relevance-theoretic comprehension procedure
> a. Follow a path of least effort in computing cognitive effects: Test interpretive hypotheses (disambiguations, reference resolutions, implicatures, etc.) in order of accessibility.
> b. Stop when your expectations of relevance are satisfied.
> Given clause (b) of the definition of optimal relevance in (8), **it is reasonable for the hearer to follow a path of least effort** because the speaker is expected (within the limits of her abilities and preferences) to make her utterance as easy as possible to understand. […]
> Thus, when a hearer following the path of least effort arrives at an interpretation that satisfies his expectations of relevance, in the absence of contrary evidence, this is the most plausible hypothesis about the speaker's meaning. Since comprehension is a non-demonstrative inference process, this hypothesis may well be false; but it is the best a rational hearer can do.
>
> (Wilson & Sperber, 2004, my emphasis)

3.2. M1, M2 and Merger

Among the 109 occurrences that were extracted, 79 have a factual use (they correspond to what I call *M2*), which represents 72% of the total. Among the 30 remaining occurrences, 29 correspond to an M1, i.e., a purely epistemic or root use of MAY or MIGHT (which represents almost 27 % of the occurrences) and one is a case of ambiguity.

These results are yet to be refined, since a substantial part of these 79 occurrences are in fact what Coates calls *mergers*, i.e., modal auxiliaries that contain different values (epistemic/root + subjunctive), as will be explained. My list of examples contains 62 occurrences of pure M2 (or *SEMs*), which in fact represents about 57% of the extracted occurrences.

The root and epistemic values of modal auxiliaries are discrete categories that cannot always be clearly distinguished in some authentic examples and some examples are indeterminate. Coates distinguishes three kinds of indeterminacy: *gradience*, *ambiguity* and *merger*. What Coates calls *Gradience* refers to the fact that the meaning of modal auxiliaries is itself a *fuzzy set* (Coates, 1983: 11) composed of a *core*, which is statistically rare but corresponds to the first meaning learned by children (Coates, 1983: 13), a *skirt* and a *periphery*; what she calls *ambiguity* is found when the context does not make it possible to identify the meaning of the modal. *Merger* will be particularly helpful to describe MAY and MIGHT in this article. Let us have glance at Coates' (1983) definition:

> Examples of merger, like those of ambiguity, are indeterminate in the sense that the context fail to exclude one of the two possible meanings. However, merger differs from ambiguity in that it is not necessary to decide which meaning is intended before the example can be understood; with merger the two meanings involved are not in certain contexts mutually exclusive. This can be described as contextual neutralisation. This phenomenon has long been recognized by some linguists and is certainly not confined to the modal auxiliaries.
>
> Coates (1983: 16-17)

The examples of *merger* given by Coates for SHOULD (1983: 17) roughly correspond to what Huddleston and Pullum (2002: 998) call a neutralized distinction between *should-mandative* and *modally harmonic non-mandative*. The cases of MAY merger and MIGHT merger are quite different. Indeed, for MAY (ibid., 2002: 145), merger corresponds to *examples where both Root and Epistemic interpretations are possible and they are not in conflict*, while for MIGHT (ibid., 1983: 163) two possible interpretations can merge: first, *the simple Epistemic meaning of MIGHT*, *and the hypothetical Epistemic meaning* and second, *Root hypothetical meaning and Epistemic hypothetical meaning*. Contrary to the possible merging interpretations of SHOULD, Coates does not count the quasi-subjunctive MIGHT or MAY as being possibly merged with the epistemic or root meaning. Yet, I think that this case of merger does exist, as the following examples extracted from my sample show (the italics are in the original text, but I underline the modal auxiliaries):

(8) Another one read: 'no shade but if you abandon your friend when they're going through a rough time it speaks more on your character than anything. idc if you think you're "helping" or "not enabling" someone...there are other ways to get your point across.'
Wilmer became friends with the Jonas' through Demi, **so it's not surprising that she <u>may</u> be feeling betrayed by both parties at this time**.
[Magazine, *Celebrity Insider*, 2019, AmE-DI (American English, Direct information)]

In (8), the subject of the *that*-clause (*she*, i.e. Demi Lovato) was betrayed by Wilmer and Jonas because they met thanks to Demi, became friends, and finally let her down. The context reveals the that she indeed feels betrayed (9) and acts as such (10):

(9) […] ***she thinks that they abandoned her*** *after her nearly fatal overdose in 2018;*

(10) *Demi Lovato* ***Likes Shady Posts*** *About Wilmer Valderrama And The Jonas Brothers Ahead Of Joe Jonas And Sophie Turner Wedding!*

These extracts confirm the factuality of the event referred to in the content clause (the event is her feeling betrayed, not the fact that she was eventually betrayed), MAY is thus an M2. Yet, other parts of the article counterbalance the certainty of her truly feeling betrayed (my emphasis):

(11) ***By the looks of some of the photos….***

(12) *One of the posts that Demi* ***appeared*** *to agree with read […]*

(13) *… leaving Demi to* ***seemingly*** *feel left out;*

These sentences cast doubt on the previous remarks: here, the elements in boldface support an epistemic reading of MAY. Indeed, sentence 8 could very well be rephrased *she may be feeling betrayed, which wouldn't be surprising*. If it is the case, then MAY in example 8 was an M1 after all. Thus, as the two interpretations of MAY are not incompatible, I classify the MAY in this example as *merger* (it merges the epistemic and M2 meaning of MAY).

My list contains 17 cases of merger in total.

4. Descriptive considerations

4.1. Variety of English

As far as the English is concerned, 99 occurrences out of the 109 were traceable. Among these 99 occurrences, more than two thirds are AmE, about 10% were BrE, as the following table shows:

Table 1: *MAY and MIGHT, variety of English*

	MAY (47 occurrences)	**MIGHT (52 occurrences)**
USA	30/47 = 64 %	38/52 = 73 %
UK	4/47 = 8.5 %	6/52 = 11.5 %
Other	13/47 = 27.5 %	8/52 = 15.5 %

In the category *other*, several English-speaking countries are represented: Australia (3), Canada (4), Jamaica (1), Scotland (2), South Africa (2), India (1). There are also occurrences that I have labeled "international" (7), either because the occurrence was found in an academic paper with several co-authors from different countries, or because the biography of

the author could not make it possible to determine which variety of English they spoke, since the biography of the author indicated that they had spent several years in different English-speaking countries (for instance, one of them was born in England, then studied in the United States, then lived in Canada). I have also labeled one example "standard", since the occurrence is a constructed sentence found in a grammar book.

Yet, as already mentioned, two degrees of reliance as to the variety of English of each occurrence are to be distinguished: what I call "Direct Information" ("DI", henceforth), where I have found information on the speaker's origins, and "Indirect Information" ("II" henceforth), where I have found information on the origins of the source (the journal, the blog):

Table 2: *Direct and Indirect Information concerning the variety of English*

	MAY DI	**MAY II**	**TOTAL traceable MAY (47 occurrences)**	**MIGHT DI**	**MIGHT II**	**TOTAL traceable MIGHT (52 occurrences)**
AmE	23	7	**30**/47 = 64 %	36	2	**38**/52 = 73 %
BrE	4	4	4/47 = 8.5 %	6	6	6/52 = 11.5 %

Crossing the data: kinds of MAY/MIGHT and the variety of English:

As said above, I have collected three kinds of MAY/MIGHT:

- those which have an epistemic or root value, which I call here MAY/MIGHT1,
- those which are *semantically empty*, to use Coates' terms concerning the quasi-subjunctive *Should* (1983: 18), which I call here MAY/MIGHT2 (but which I will call later *subjective explanatory MAY/MIGHT*),
- and the mergers, i.e. those which contain both aspects of MAY/MIGHT1 and MAY/MIGHT2.

In extraposed content clauses after *surprising*, there is a majority of MAY/MIGHT2[2] as shown in Table 3:

Table 3: *Proportion of M1, M2 and Merger*

MAY/MIGHT1	**MAY/MIGHT2**	**merger**	**MAY/MIGHT2 + merger**
29/109 = 26.61 %	62/109 = 56.88 %	17/109 = 15.6 %	79/109 = 72.48 %

When one crosses these results with the variety of English, one can see that M1 and M2 are predominantly American, as shown in the following table:

[2] 29 + 62 + 17 = 108, but I have 109 occurrences. I have labeled the remaining occurrence "ambiguous", because the context does not make it possible to decide which reading is the correct one.

Table 4: *Kinds of MAY/MIGHT depending on the variety of English*

	AmE	**BrE**
MAY/MIGHT 1 (29 occurrences)	**16**/29 (55 %)	**1**/29 (3.45 %)
MAY/MIGHT 2 (62 occurrences)	**44**/62 (71 %)	**4**/62 (6.45 %)
MERGER (17 occurrences)	8/17 (47 %)	5/17 (29 %)

4.2. Grammatical context

The grammatical context in which these modal auxiliaries appear is quite regular. In the following section, I will sketch out some of the regularities that can be found as to the tense and the polarity of the main and the subclause.

Main clause – No surprise:

One of the most striking characteristics is the fact that in almost all the occurrences collected, MAY/MIGHT2 appears when the content clause refers something that is presented as **predictable** in the main clause. Indeed, out of the 109 occurrences, 95 were assertive and negated, generally with the adverb *not* (*it's **not** surprising that he may…*) and occasionally with a near negative adverb (*it is **harldy** surprising that*). To that number, one needs to add 5 non-assertive occurrences (***is it** surprising that he may…. **?***). No interrogative was negated in my list (**isn't it surprising that she may…?*), which still confirms the predictable nature of the content clause. Only 6 occurrences were affirmative (***it is** surprising that he may*), but 2 of them were found in grammar books and cannot count as authentic occurrences. In total, 103 occurrences out of 107 authentic occurrences were not affirmative, which represents more than 96% of the list. Even if the relevance-ranking bias of Google might have modified the results some way or another, this figure seems to show a tendency. What is more, this result corroborates Celle's research on factual uses of *should*, according to whom the *pragmatic 'should' is encountered in content clauses that convey hearer-old information. This use is 'meditative-polemic' and not generated by a sense of surprise* (Celle, 2018: 49). As will be shown, it is also in accordance with Behre's remarks, that *'what the should-clause refers to is generally a fact which is stated, directly or indirectly, in a preceding passage of writing'* (Behre, 1955: 174).

Main clause – Tense:

In a large majority of the occurrences, the main clause verb is in the simple present (95 occurrences out of 109, which represents 87%). 9 occurrences were in the preterite, 3 in the conditional. Only 1 contained *should* (***it shouldn't be surprising** that he might just poke himself in the cornea with a piece of hay*).

Table 5: *Tense and mood of the main clause*

TOTAL: 109 occurrences					
Modal in the subclause / Tense of the main clause	**MAY**: 52 occurrences		**MIGHT**: 57 occurrences		
	HE/SHE **MAY**: 34 occurrences	IT **MAY**: 18 occurrences	HE/SHE **MIGHT**: 41 occurrences	IT **MIGHT**: 16 occurrences	Total: 109 occ.
Simple present	31/34	17/18	33/41	14/16	**95**/109
Other tenses, aspects and moods	3	1	8	2	**14**/109
Other tenses, aspects and moods of the main clause:					
Shouldn't + verbal stem	0	0	1 (MIGHT2)	0	**1**/109
preterite	1 (MAY1)	0	6 (MIGHT2)	2 (1 MIGHT1 + 1 merger)	**9**/109
conditional	2 (MAY1)	1 (MAY1)	0 (MIGHT2)	0	**3**/109
>>Conditional + present verb stem (*would not* ***be***)	2	1	0	0	>>**3**/3
>>Conditional + past verb stem (*would not* ***have been***)	0	0	0	0	>>**0**/3
Pragmatic WOULD	0	0	1	0	**1**/109

As could be expected, the tense of the main clause has an impact on the choice of the tense of the auxiliary in the subclause: most of the preterite superordinate clauses (9 occurrences) license a MIGHT (8/9) in the subclause, even if this MIGHT is an M2, which shows that the quasi-subjunctive MAY has a past form, contrary to SHOULD. As recalled by Celle (2018: 22) the "pragmatic SHOULD" (or *meditative-polemic*) can very well be used when the superordinate clause is in the preterite (*it* ***was*** *inevitable that X* ***should*** *Y*). The existence of a past form with MAY could explain why MAY and MIGHT can efficiently compete with SHOULD to signal a factive clause.

3 occurrences were in the conditional (with WOULD in the superordinate clause) and all were negated (*it would****n't*** *be surprising that X might…*). As could be expected, all of the MAY and MIGHT found in these 3 occurrences of non-factive contexts are M1.

Subclause – tense of the lexical verb:

The lexical verb in the subclause can be a present infinitive (*may* ***do***) or a past infinitive (*may* ***have done***). The first is by far the most represented tense: 92 occurrences, which represents 84,5% of the corpus, while there are only 17 occurrences with the second, which represents 15,5%.

Among the 9 superordinate clauses in the preterite, only 2 were followed by a past infinitive in the subclause: one with MAY + HAVE BEEN, and one with the past version of the auxiliary (MIGHT) + HAVE BEEN:

(14) The auction houses added that the painting was "almost entirely overpainted," so it **was** not surprising that it **might have been** overlooked by any professional appraiser.

In 14, I classify MIGHT is a Merger.

The tense of the subclause does not seem to have an influence on the choice of the modal auxiliary, since 10 of the subclauses with a past infinitive contain MAY (*may have done*) and 7 contain MIGHT (*might have done*). The difference between M1, M2 and MERGER does not seem to have an influence either (5 occurrences of M1, 7 occurrences of M2, 5 occurrences of Merger):

Table 6: *Past tense in the subclause*

Past tense in the subclause					
MAY 1	**MAY2**	**MAY Merger**	**MIGHT 1**	**MIGHT 2**	**MIGHT Merger**
4	3	3	1	4	2

Subclause - polarity:

Few occurrences contained a negated process in the subclause (*hardly surprising that she might not conform to the looks of many Spaniards*): only 7 occurrences out of 109, which represents 6,5% of the total.

Table 7: *Affirmative versus negative process in the content clause*

Content clause	**TOTAL**
Affirmative	102
Negative	7 occurrences: 2 occurrences of MAY/MIGHT 1 4 occurrences of MAY/MIGHT 2 1 occurrence of MAY/MIGHT MERGER

Difference between MAY and MIGHT

As stated by Coates (1983: 147), *MAY and MIGHT, in their Epistemic usage, are usually interchangeable.* In their quasi-subjunctive use (which we call M2), they also seem to be interchangeable, apart from two distinguishing factors:

- first, as shown in table 5, when the superordinate clause is in the preterite, MIGHT in the content clause is preferred to MAY
- second, MAY is more often a Merger than MIGHT.

Indeed, MIGHT is more likely to be an M2 than MAY in extraposed content clauses: if one compares the amount of MAY2 among all the occurrences of MAY with the amount of MIGHT2 among all the occurrences of MIGHT, one can see that MIGHT2 is more represented (70%) than MAY2 (42%), as shown in the following table:

Table 8: *The proportion of MAY and MIGHT as M1, M2 and Merger*

	MAY 52 occurrences	**MIGHT 57 occurrences**
M1	18/52 = 34,5 %	11/57 = 19,5%
M2	22/52 = **42,5 %**	40/57 = **70 %**
MERGER	11/52 = 21%	6/57 = 10.5%
Ambiguous	1/52 = 2%	0/57

This is perhaps why MAY in content clauses is so rarely presented as a potential quasi-subjunctive in the literature: Coates (1983: 132) only mentions the quasi-subjunctive MAY that serves to express a wish (like in *May it be*) but not the MAY that can be found in subclauses.

5. Semantic and pragmatic properties

5.1. Animate versus inanimate subject

In the following section, I will describe the influence of the subject on the interpretation of the modal.

What is particularly interesting is the influence of the subject of the subordinate clause on these three kinds of modals (M1, M2, Merger). Indeed, when the subject is animate (a *she* or a *he*), the proportion of M2 is more important (65%) than the proportion of M1 (12%). Conversely, when the subject is inanimate, the amount of M1 is more important (59 %) than the proportion of M2 (38%). This may be explained by the fact that the M2 appears when the verbs of the content clause are verbs of perception, cognition and emotion (*it's not surprising that he might* ***want to***, ***feel***, ***decide***, *etc.*…), which requires an animate subject, while the M1 expresses the fact that the event referred to in the content clause is a possibility. The results are summarized in table 9:

Table 9: *Animate or inanimate subject in the subclause*

Subject = animate: M2 is more represented than M1:	
subject of the subclause = ***he/she***	**M2** = 49 occurrences (**65.3 %**)
subject of the subclause = *he/she*	M1 = 9 occurrences (12 %)
Subject = inanimate: M1 is more represented than M2:	
subject of the subclause = *It*	M2 = 13 occurrences (38.2 %)
subject of the subclause = ***It***	**M1** = 20 occurrences (**58.8 %**)

As one can see, my sample contains 29 occurrences of M1 in total. The majority of these M1 are found in the sample where the subject of the content clause is inanimate: there are 20 occurrences of *it is/was not surprising that* ***it*** *may/might…* (which can be reformulated with *that it is possible for X to Y is not surprising*). MAY1 is more represented than MIGHT1 in this configuration: out of the 20 occurrences, there are 14 occurrences of MAY1 (so 70%) and only 6 occurrences of MIGHT1 (30%).

Here is an example of this configuration:

(15) With this El Niño event set to be one of the strongest on record, it is not surprising that it may have had an expected disruptive effect on monsoon circulation.

[Journal: *CLIMAS* (popular science journal article), 2015, AmE-DI]

Such occurrences of M1 are often found in the context of a scientific discussion (13 occurrences were found in academic papers or popular science journal article). In comparison, the sample with animate subjects in the subclause does not contain any occurrence of MAY or MIGHT in a context belonging to the scientific field. This leads me to the next section, devoted to the context.

5.2. Source and Context

Let us now move to the context of these MAY/MIGHT in a subclause:

Table 10: *Labelling the Source*

Journals & magazines:	70 occurrences (64.5 %)
Blogs	28 occurrences (25,5 %)
Chat forums & social networks	7 occurrences (6,5 %)
Other[3]	4 Occurrences (3,5 %)

As shown in table 10, these structures tend to be mostly used by journalists. Now, if one crosses these results with the variety of MAY and MIGHT (M1, M2 and Merger) and with the nature of the subject (animate or inanimate), one can see that M2 with an animate subject is clearly a variety found in journals and magazines, while M2 with an inanimate subject is less represented in this type of corpus.

Table 11: *Kind of MAY/MIGHT in journals and magazines*

	JOURNALS & MAGAZINES		
	M1	M2	MERGER
Animate subject:			
HE/SHE MAY (34 occurrences, 21 found in journals or mags)	2/21	**15**/21	4/21
HE/SHE MIGHT (41 occurrences, 25 found in journals or mags)	4/25	**17**/25	4/25
Inanimate subject:			
IT MAY (18 occurrences, 10 found in journals or mags)	9/10	1/10	0/10
IT MIGHT (16 occurrences, 14 found in journals or mags)	6/14	7/14	1/14

In table 11, one can see that most of the MAY and MIGHT found in journals and magazines are M2 when the subject is animate (third column, 15/21 and 17/25), while most occurrences of MAY are M1 when the subject is inanimate (9/10). Indeed, most of MAY 1 found in journals and magazines are found in academic papers or popular science journal articles and

[3] In the category *other*, I have included 1 online course, 2 constructed examples found in grammar books and the biography of an employee in the site of a company.

have an inanimate subject. This MAY1 denotes a logical possibility (e.g., *Since cannabis is a potent anti-inflammatory, it isn't surprising that it <u>may</u> be helpful in the treatment of IBD*).

5.3. Recurring pattern: [it is not surprising that <TITLE>]

The most striking fact revealed by this list of occurrences is the very important number of subclauses that directly or indirectly refer to the title of the article or to the title of one of its paragraphs, as shown in the following examples:

(16) With this much negative talk surrounding her, it's not surprising that **she <u>might</u> have chosen to step away from unnecessary chatter**.

Title of the article: *Naya Rivera Deletes Her Twitter Account*
[Journal (*PopCrush*); 2014, (AmE-DI)]

Out of the 107 authentic occurrences of my sample[4], 74 of them directly refer to a title, which represents 69% of the occurrences. Among these 74 occurrences, the most frequent variety of MAY/MIGHT is M2, followed by M1, and in the last position, Merger: 43 occurrences of subclauses referring to the title are M2, which represents 58% of the total, 20 occurrences are M1, which represents 27% and 11 occurrences are Merger, which represents 15%. Here is another example:

(17) Gruden said he "cried for three days" after making that trade, so it's not entirely surprising that **he <u>might</u> want to try and get Mack back on the Raiders** at some point, right? Turns out he reportedly tried to do exactly that.

Title of the article: *Jon Gruden reportedly tried to get Khalil Mack back on Raiders, but Bears weren't interested*
[Journal (Yahoo Sports), 2021 (AmE-DI)]

The large number of subclauses referring to the title in my list seems to indicate that MAY and MIGHT, in this construction, appear in a sentence that plays a very specific role, which is to finally **provide an explanation to the title**: after having settled the background and having given all the relevant information concerning the context, the journalist explains why, after all, the important event mentioned in the title was to be expected. This clearly echoes what Behre called a *meditative-polemic* SHOULD: *what the 'should-clause' refers to is generally a fact which is stated, directly or indirectly, in a preceding passage of writing* (Behre, 1955: 174), and what Celle's study reveals: *Pragmatic 'should' is encountered in content clauses that convey hearer-old information. This use is 'meditative-polemic' and not generated by a sense of surprise* (Celle, 2018: 24).

What is more, a large majority of the occurrences of the list contain a discourse connector in the superordinate clause (*therefore, so, thus, as a result*, *as a consequence*, *considering the fact that*, etc…) presenting the content clause as a logical consequence.

[4] Let me recall that 2 occurrences are isolated constructed examples found in grammar books and as a consequence do not occur in texts likely to have a title.

One might add that generally, MAY and MIGHT are regular modal auxiliaries (with a root or an epistemic meaning): they are used in non-factual contexts, since they put some predicative relation in the modal category of NECESSITY or POSSIBILITY (in the sentence *he must be there*, the predication **<he-be there> ∈ NECESSITY**). As this is by far the most frequent use of these modal auxiliaries, the journalist has to signal very clearly to the reader that the event referred to in the subclause did eventually occur. Thus, the piece of information has to be apparent in a part of the article that is salient enough for the reader to retain it. The most salient part of an article being the title, it is not surprising to find such rare uses of MAY and MIGHT there. For these reasons, I shall call M2 the ***explanatory MAY/MIGHT***.

5.4. Semantic context - when the speaker includes the point of view of the subject

In the last part of my descriptive account, I would like to mention another important aspect of these M2, which is their tendency to appear in content clauses where **the point of view of the subject** is taken into account. Let us start with one of the most striking examples.

In an article whose title is *Former Obama Official **Defends** Romney's Bain Capital Record*, the content clause reads *it's not surprising that he might **want to** **defend** the honor of the industry that made him rich* instead of the predictable *[…] that he might **defend** the honor […].* All the same, in an article whose title reads *Jon Gruden reportedly **tried** to get Khalil Mack back on Raiders,* […], the content clause goes *it's not entirely surprising that he might **want to** **try** and get Mack back.* The addition of the verb WANT in the subclause referring to the title shows that an element which carries the point of view of the subject is included in the subclause. One could even say that there is a collocation between MAY/MIGHT in content clauses and the verb WANT, since my corpus contains 10 occurrences of the structure [*surprising* + animate subject + MAY/MIGHT + *want*] out of the 75 occurrences of the corpus with an animate subject in the content clause. It represents 13.5 % of the occurrences.

Other verbs carrying the point of view of the subject can be found in my corpus, like FEEL (4 occurrences: e.g. *it is not surprising that he may **feel like** his version would have been great*), NEED (2 occurrences: e.g. *it's not surprising that he may **need** some dental work done*), FIND (*it's not surprising that he might **have found** that bulk to not be worth the benefits*), SEE (*Is it really all that surprising that he might **not have seen** a significant moral difference*), CHOOSE (*it's not surprising that she might **have chosen** to step away from unnecessary chatter*).

Apart from the presence of verbs like WANT, FEEL, CHOOSE, one can also find several other strategies to include the point of view of the subject in the content clause, namely:

- The addition of predicative adjectives: BE CONSCIOUS, BE FED UP WITH.
- The choice of the passive voice in the content clause when the title was in the active voice.
- The addition of *him/herself*.
- The addition of VIEW.
- The addition of the progressive aspect (**be+ -ing**) and some moderation markers (*quite, a bit, some, at this time*).

This inclusion seems to go hand in hand with some moderation of the statement from the author. These two markers show that the speaker takes the point of view of the subject into account, and adds his/her own uncertainty. Thus, both the point of view of the subject of the content clause and the point of view of the speaker are marked.

All in all, 44 content clauses contain some element indicating the point of view of the subject (out of the 75 occurrences with an animate subject, which represents 58,5% of the sample). This addition seems to be specific to M2, since out of these 44 occurrences, a majority of content clause including the point of view of the subject contain an M2 (34 occurrences), while a minority contain a Merger (7 occurrences) and an M1 (3 occurrences).

For these reasons, I also call it the ***subjective*** *MAY/MIGHT*, hence my overall label ***subjective-explanatory MAY/MIGHT*****,** in reference to Behre's *Meditative-polemic-SHOULD*.

The inclusion of the point of view of the subject with these M2 may recall Rothstein's analysis of the subjunctive (Rothstein, 2009), according to whom the subjunctive serves to include the point of view of the addressee. For now, we can observe that these subjective-explanatory MAY and MIGHT serve to add an information layer concerning the speakers or the agents of the action.

6. Conclusion

To conclude, I hope to have shown with this preliminary description that MAY and MIGHT in this syntactic context, as substitutes for the *meditative-polemic-Should*, deserve to be paid more attention. The fact that not only SHOULD, but also MAY and MIGHT can play this role could be interpreted as an indication that these modal auxiliaries substitute for the subjunctive mood in this syntactic context. This article aimed at displaying a preliminary study, and it goes without saying that a more extended data collection is required: one needs to study the influence of other adjectives than *surprising* (like *odd, strange, (im)possible, etc…*) and more syntactic structures. One also needs to study the effects of the grammaticalization of MAY and MIGHT (maybe from structures like *fear that he may*, where MAY is still an M1, to unambiguously factual contexts).

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The impact of international trade relations on French borrowings into English in the sparkling wine industry: A corpus-driven study conducted by a terminologist

Piotr Nagórka
University of Warsaw, Poland

Abstract

This article serves several purposes. First, it aims to consolidate the view that knowledge models make effective diagnostic tools that terminologists can use in their attempt to find answers to research questions about communication in professional fields. Secondly, the article serves to demonstrate the results of preliminary research into professional communication in the sparkling wine industry, with the working English-language model showing the presence of borrowings from French, the industry's leading language. Notably, the percentage of French borrowings in the sparkling wine industry, an integral part of the domain of special wines, has been found to be greater than the percentage of loanwords from Portuguese and Spanish, leading languages in the fortified wine industries representing the same industrial domain (OIV 2022: I.1.4-1). This finding bears out the view that communication in a professional field may be typified by more than one leading (national) language. Moreover, outcomes of the study of encyclopaedic knowledge on sparkling wines, when combined with the results of the study into communication in the fortified wines sector (Nagórka 2021, Nagórka 2023: 94–105), indicate that the history of commercial ties between pertinent language communities (English-speaking community with French-, Portuguese- and Spanish-speaking communities) may be reflected in the scale of borrowing into English for professional purposes. The rise in borrowing from leading languages seems inversely proportional to the intensity of (amicable) trade relations between the communities concerned, a hypothesis that may contribute to explaining the observed differences in borrowability.

Keywords: knowledge models; leading languages; multilingual terminology; sparkling wine industry; unassimilated borrowings

1. Introduction

The present study, focusing on inter-language borrowing in the sparkling wine industry, can be viewed as a continuation of terminological research into communication in the domain of

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special wines. Its findings were presented for the first time in the 2021 model of knowledge on fortified wines (Nagórka 2021), a work subjected to analyses for the presence of unassimilated borrowings from Iberian-Romance languages into English, with their results already published (Nagórka 2023). The borrowing process, resulting from changes to human communication systems induced by (interpersonal) contact between representatives of different language communities, can be understood as the adoption of foreign features into a community's native languages by their speakers, or as the transfer of features from the language system distinctive of a given community to the communication system distinctive of another community as a consequence of contact between these communities' representatives (Thomason and Kaufman [1988] 1991: 21; Alvanoudi 2018: 4–5). The language from which elements of any kind are borrowed is typically referred to as the donor (or source) language. The language enriched by foreign elements is called the borrowing (or recipient) language (Winford 2019: 57). Focused on the impact of (unassimilated) borrowings on the English language in the sparkling wine trade, this study considered wine professionals as the ultimate loci of language contact and agents of change resulting in the borrowing process.

This article serves to consolidate the view that models of professional knowledge, which have been at the heart of terminology research since Eugen Wüster laid the foundations for this discipline in the 1930s, make effective diagnostic tools that terminologists can use when seeking answers to research questions. The article does so by presenting the results of preliminary research into professional communication in the sparkling wine industry, with the working English-language model showing a significant number of unassmimilated borrowings from French. Furthermore, this study aims to demonstrate how the presence of French unassimilated borrowings into English in the sparkling wine trade compares to the share of borrowings into English from the leading languages in the fortified wines trade (Portuguese for madeira and Spanish for sherry and port), with the two professional fields constituting the trade area of special wines (OIV 2022: I.1.4-1). Interestingly, the results of this research might also contribute to finding out if the presence of unassimilated forms in the English-language professional discourse could be linked with the intensity and character of commercial ties between the language communities concerned, which have been developing over many centuries.

As in the case of the three traditonal areas of the fortified wine business (madeira, port and sherry), where Spanish and Portuguese serve as donor languages (Nagórka 2023: 94–105), in professional discourse concerning sparkling wines the forms borrowed into English from French remain largely unassimilated, meaning that they retain both their native morphology and their native pronunciation (Lyra 1966: 303–311; Barkin, 1980; Zuckermann 2003: 8; McArthur *et al.* 2018; Mattingley 2020: 20–21). The expression 'unassimilated borrowings' as used in this article refers to both a circumstance in which equivalents in the borrowing language – in this case English – exist and cases of no equivalents among words and expressions of the borrowing language available. The significant presence of unassimilated loans from French in the sparkling wine business has been confirmed by English-language documents – old and new. One needs only examine Charles Tovey's and Henry Vizetelly's 19th-century descriptions on the making of champagne and other sparkling wines (Tovey 1870; Vizetelly 1882). These (unassimilated) loanwords, referring to sparkling winemaking

activities, include (among others): *coupage*, *cuvée*, *foudres, sur point(e)*, *tirage en bouteilles,* and *vin mousseux*, with most of these expressions (notably *cuvée*, *sur point(e)*, *tirage en bouteilles* and *vin mousseux*) being specific to the group of effervescent wines, especially those produced by methods applied in the latter half of the 19th century in Champagne:

> It is the great art of the manufacturer to blend these various products to form the happy marriage technically called the *coupage*. (…) The casks in which the wines are mixed are called *foudres*: they vary from thirty to one hundred hectolitres, according to the requirements of the season and the quantity of wine to be made. (…) About the middle of April is a busy time with the Champagne manufacturer; this is the period known as the ‹*tirage en bouteilles*›. The wine is now put into bottle; and although it had fermented in the cask, it renews the process vigorously in bottle, and generally reaches its height in about three weeks.
>
> Tovey (1870: 56–7)

> It will be seen that it is important to put the bottles in such a position that they may be removed without disturbing the sediment; and for this purpose the bottles are placed *sur point(e)*, in racks made of two boards united in an acute angle, like a half-opened portfolio with the edges downwards; the sides are pierced with holes; into these holes the necks of the bottles are thrust, and the bottles rest at an angle of about 45°.
>
> Tovey (1870: 58–9)

> To-day, however, the growers find it more profitable to make white instead of red wine from their crops of black grapes, the former commanding a good price for conversion into *vin mousseux*, from being in the opinion of some manufacturers especially valuable for binding a *cuvée* together.
>
> Vizetelly (1882: 129)

The presence of unassimilated French borrowings in the English literature on sparkling wines continued to be noticeable in the latter half of the 20th century. One example is Patrick Forbes' book *Champagne: The Wine, The Land and The People*, published for the first time in 1967 (Forbes [1967] 1989: 298–332). It contains numerous loanwords from French, including designations such as: *agrafe*, *chef de cave*, *cuves de débourbage*, *cuvée*, *dégorgement, dosage*, *ficelage*, *liqueur d'expédition*, *liqueur de tirage, prise de mousse*, *rebêche*, *remuage*, *remueur, retroussage*, *sur lattes*, with the majority of these words and expressions being distinctive of the subject matter of sparkling wines. The book *Sparkling Wine* witten by Sheldon Wasserman and Pauline Wasserman, issued in 1984, seems almost as rich in borrowings from French as Patrick Forbes' work (Wasserman and Wasserman 1984: 28–43). When discussing the sparkling winemaking activities, the authors use such French words and expressions as: *agrafe*, *cuve de débourbage*, *gyropalettes*, *prise de mousse*, *remuage*, *etc*. Similarly, in Christopher Fielden's book *Exploring Wines & Spirits*, first published in 1994, one can observe a number of unassimilated loanwords from French in the chapter on champagne and other sparkling wines (Fielden [1994] 1998: 281–298). Examples include (but are not limited to): *assemblage*, *cuvée*, *cuvée de prestige*, *dégorgement*, *marc*, *pupitre*, *rebêche*, *remuage*, *sur pointe*, *taille*, *etc*.

In the first quarter of the 21st century, rather than witnessing manifestations of the assimilation process of French expressions in the sparkling wine trade, astute observers will notice that English-speaking professionals discussing sparkling wines continue to use French loanwords in their unassimilated forms or choose to apply French expressions and their

English equivalents interchangeably, as is the case with such words as: *remuage* [FR] and riddling [EN] (Liem 2017: 60, 301, 322), or *dégorgement* [FR] and disgorging [EN] (Liem 2017: 196). In her short chapter 'The Method Champenoise', part of the book *On Champagne*, published in 2022, Margaret Rand uses such French words and expressions as: *assemblage*, *chef de cave, débourbage*, *dégorgement, habillage, liqueur d'expédition, liqueur de tirage*, *prise de mousse*, *pupitres*, *remuage*, *sur lattes*, and *vin clair* (Rand 2022: 18–20). Similarly, Anne Krebiehl's chapter 'Marriage of Age and Youth', contains the following French words and expressions: *assemblage*, *chef de cave, demi-muid, foudre* and *réserve perpétuelle* (Krebiehl [2017] 2022: 234–243). The English-language article written in 2023 by a team of wine scientists led by Gérard Liger-Belair contains the French expressions: *méthode traditionelle* and *prise de mousse* (Liger-Belair *et al.* 2023: 22844–22851), with the latter used interchangeably with the English expression 'second in-bottle fermentation'.

Interesting patterns can be observed in communication in the domain of special wines when comparing the preliminary results of terminological studies into communication in the sparkling wine industry with the structured model of knowledge on fortified wines (Nagórka 2021; Nagórka 2023). In both cases the thesaurus method has been applied (Lukszyn 2005: 60; ISO 25964 2011; Nagórka 2011: 69–94, Nagórka 2012: 23–48), a terminological method of presenting the content of professional communication by indicating concepts grouped using a limited set of conceptual links previously identified – through intellectual analyses of the subject corpus – as distinctive of the pertinent field of knowledge. While each of the leading languages in the domain of special wines (Portuguese in the industries of madeira and port, Spanish in the sherry trade, and French in the sparkling wine industry) has been found to leave its mark on English as the borrowing language, the knowledge models created for each of these trade areas demonstrate that Spanish and French may be considered the major donors of (unassimilated) words and expressions. The results of the present study will either reinforce or weaken the tentative hypothesis advanced during the studies on language loans in the fortified wine industries (Nagórka 2023), namely that differences and conflicts, past and present, at the inter-state levels, which leave their imprints on commercial relations between professional communities and result in their reduced intensity, seem to contribute to an increase in the percentage of unassimilated borrowings from an industry's leading language(s).

Historians' accounts indicate (Shillinton and Chapman [1980] 2010) and the results of terminological analyses using models of encyclopaedic knowledge on special wines seem to confirm (Nagórka 2021; Nagórka 2023) the relatively intense amicable character of international relationships between the Portuguese and English-speaking communities. By contrast, numerous sources reveal a long history of deeply-entrenched hostility in ties, including commercial ones, between Spanish- and English-speaking communities, with the history of (trade) relations between the French and English-speaking communities, especially the Franco-British relations, marked by (relatively) the most serious and deeply-rooted conflicts on multiple (social and political) levels, continually revived – and thus perpetuated – by the media, in particular by the British tabloid press (Morris and Haigh [1992] 2002; Davis 2022). The model of communication in the (classic) fortified wine industries (Nagórka 2023: 101–105) shows that Portuguese may be viewed as the least exploited donor of unassimilated

borrowings into English, when their proportions are measured separately for each trade area (madeira, port, and sherry). The proportion of borrowings from Portuguese constitute 7.5% descriptors for the coverage of the area of ports, and 10% descriptors used for the area of madeiras. Spanish has been found as the greatest contributor of direct borrowings into English in a fortified wine industry. Using a strict indicator, direct (*i.e.* unassimilated) Spanish borrowings have been found to account for 16% of all specialised expressions identified in English-language communication in the sherry trade.

The large number of borrowings from Spanish in communication in the sherry trade may be explained by the need for borrowings created by cultural distance between England and Spain culminating in military conflicts and political disputes, some of which (as the conflict over Gibraltar) continue to the present day (Morris and Haigh [1992] 2002). A similar explanation (i.e. one based on facts of international rivalries) (Davis 2022) may be provided for the high percentage of unassimilated loanwords of French origin. This factor can be closely associated with that of prestige, a well-known cause of borrowing, which has a documented impact on the directionality of the borrowing process (Carling *et al.* 2019). The United States and the United Kingdom are the two largest export markets for champagne, with consumption of this wine in these two countries in 2022 amounting to 33.72 mln bottles and 28.06 mln bottles respectively. If a rough estimate pointing to French as the largest donor of unassimilated loanwords into English in the domain of special wines prove accurate, the tentative hypothesis concerning borrowability, advanced in the research into professional communication on fortified wines (Nagórka 2021: 307–317), will find statistical support.

2. Methods

Much of the method behind this research has been adopted from representatives of the Varsovian School of Terminology (Grucza [1991] 2017; Lukszyn and Zmarzer [2001] 2006; Lukszyn 2005; Grucza 2017: 238–240; Łukasik 2017; Pawłowski 2017; Nagórka and Pawłowski 2018; Grucza 2019; Michta 2022), a school of research informed (in the aspect of methods) by theoretical achievements in the scope of library and information sciences and epistemology (Dahlberg 1978; Leski 1978; Dahlberg 1992; Gilchrist [2009] 2018; Hjørland 2009; Hjørland 2011; Dahlberg 2011; Hjørland 2015; Zeng 2019). What could be regarded as a (relative) novelty is the use of terminological products, notably specialised thesauri understood as models of (encyclopaedic) knowledge, as diagnostic instruments. These are capable of serving both the purpose of finding answers to questions, which guide scientific research, and the purpose of testing hypotheses advanced in the course of corpus-driven studies into communication in professional fields. This stance could provide a solution to the problem of theory-building in terminology, as it offers an impetus to the enterprise of reviving the ambition of treating terminology as a serious scientific discipline, the need of which has been recognized in the language sciences at the very least since the early 2000s re(Cabré Castellví 2003: 181–2; Faber Benítez 2009: 112–113), with a growing expectation that terminologists, just as natural scientists, will derive their theoretical claims from empirical evidence, while also being ready to test them for their veracity.

A terminological model of professional knowledge in the sparkling wine trade has been constructed to compare the presence of unassimilated loans from French, the field's dominant language, with the presence of direct borrowings from Portuguese and Spanish in the fortified wine industries, the latter previously diagnosed using a knowledge model based on the thesaurus method (Nagórka 2021; Nagórka 2023). The working diagnostic version of the new model employs the same set of 12 concept linkages, established as productive for the domain of grape wines, as the model used for capturing professional knowledge in the fortified wine industries. This set includes the following relationship types: performer – activity, activity – performer, parent – child (*i.e.* genus – species), child – parent (*i.e.* species – genus), child – child (with the referenced concepts assuming the role alternatives), whole – part, part – whole, prequel – sequel, sequel – prequel, cause – effect, effect – cause, companion – companion (Nagórka 2021: 310–315). The set of domain-specific conceptual linkages has been used for the search of concepts. The use of these linkages, which can be likened to 'semantic glue', ensures that the description of the target field is optimal. The decision to terminate the process of compilation of concept markers was based on two phenomena accepted as signals that the process ought to be coming to an end, an idea sourced from information and library sciences (Leski 1978: 58) and expanded for the purpose of creating diagnostic models. The weak signal is associated with the growth in the number of new concepts marked in the corpus being created. The (near) completion of the compilation process can be visualized by a line chart in which the curve showing growth in the number of new concepts over time begins to form a straight line. The strong indicator can be observed when percentage differences between the numbers of occurrences of the target concepts identified using a language corpus begin to stabilize, no matter how many new documents are accepted into the corpus.

The thesaurus method, supported by the use of indicators of growth in the number of candidate terms, solves both the problem of irrelevant expressions in the target database and the problem of the number of terms in the target model (Burkhanov 1998: 244; Marchwiński 2001:153). The working version of the model of professional communication on sparkling wines has been created using 323 documents, including 87 reference works, 103 scientific publications and 133 professional documents, with less than 10% of all these sources published before 2000. This contrasts with 539 documents used for the creation of the collective model of communication in the fortified wines industry, comprising three micro-models (one per each subject area: madeira, port and sherry), including 104 works of reference, 124 scientific publications, and 311 professional documents. In all these cases, reference works include: encyclopaedias, thesauri, companions, subject dictionaries, handbooks, history books or articles, and glossaries. In cases where articles and chapters in reference works were found to be signed with the name of their author, reference has been made to that author and not to the editor (Nagórka 2021: 316). A significant proportion of research publications, such as scholarly books, reports and journal articles, were accessed via the Web of Science. Professional documents accepted into the corpus comprised books, trade press articles, technical reports, blog articles and interviews with wine professionals, including personal interviews conducted as an attempt to fill a number of systemic gaps identified in professional knowledge as covered by documents comprising the subject corpus (Lukszyn [1993] 1998: 10; Lukszyn 1998: 49–55). Two interviews with English-speaking sparkling wine

makers (one in Poland – Adoria Vineyards, and one in France – Leclerc Briant) were conducted in the period May 2022 – June 2023. One example of the systemic gap that the interviews were to fill was the search for the narrower terms ('*tirage* in closed tanks' and '*tirage* in bottles') for the general concept of *tirage*, a winemaking activity considered crucial for making base wines effervescent.

The approach adopted in this research assumes a realist stance in pursuing truth, according to which human knowledge is viewed as rooted in pre-critical experience. As a consequence, the researcher should be ready to hone their knowledge on the subject that they have undertaken to examine so that they become capable of seeking adequate correspondence between their state of subject knowledge (including the knowledge of language forms needed for its capturing) and the reality to which professional communications they have committed to investigate refer (*i.a.* Aristotle, [~350 BC] 2015a: 1011b, 1051b; Aquinas, [1256–1259] 1970: q.1, a.1, co.; Dzierżak, 2023: 10). Interaction with professionals seems advisable not only at the end of terminology research, when a number of problems awaiting solutions have accumulated, but as soon as the first working version of a graphic representation of concepts and their interrelations has been prepared. Regular social contact with subject experts offers a chance to gain interactional expertise (Collins 2004: 125–9), which could be utilised for scientific (and educational) purposes, making a (potentially) valuable contribution to the content of professional discourse. This kind of knowledge can be of assistance to terminologists at a more advanced stage of their inquiry, enabling them to reduce the number of cases that need consulting with subject experts. One method of acquiring interactional knowledge on the subject of sparkling wines is a series of visists at wine-making firms. Among many producers visited in the course of this research are: Adoria Vineyards, Winnice Kojder, Winnica Turnau, and two champagne producers: Lanson and Champagne Charles de Cazanove. A full-length interview with Leclerc Briant's *chef de cave* Hervé Jestin was conducted in June 2023.

The venture to create a representative model of knowledge in the sparkling wine trade, against which the models of communication in fortified wine trades can be contrasted, was based on the thesaurus method, adapted by terminologists from the centuries-old concept of data organisation, honed by library and information scientists since the latter half of the 20th century. Terminologists' attempts at modelling knowledge have been largely consistent with the general methods of developing knowledge representations recommended by international standards (ISO 25964 2013) for the construction of subject thesauri, the latter providing support to terminology work since the mid-1970s. One difference between the models made strictly according to these standards and those exemplified in this study is that the authors of the latter attempt to capture concept relationships specific to the field of interest, a tendency that may have been influenced by linguists of the Cambridge Language Research Unit (Masterman *et al.*, 1959; Roberts, 1984) and those representing the Varsovian School (Grucza 2013; Pawłowski 2017; Grucza 2019), now focused on exploring the nature of concept relationships (Pawłowski 2021: 82–3, 107–9, 112–3). Another difference lies in the objective behind the task of modelling professional knowledge. In this research, a known sequence of general procedures – from the collection of words and expressions representative of a given field to systematisation of candidate terms to the presentation of the subject content (with the

use of adequate designations and display formats) (Ścibor & Tomasik-Beck 1995: 101–8; Lukszyn & Zmarzer [2001] 2006: 45–70; Nagórka 2008: 198–205; Nagórka 2011: 69–94) – has served the establishment of an optimal representation of communication in the sparkling wine industry, which can be used as a tool for the diagnosis of both the subject content and language forms.

To test the assumption that French expressions are statistically more represented in the English model of communication on sparkling wines than Spanish in the English model of communication in the sherry trade requires that these models demonstrate a similarly high degree of accuracy. With the once idiocentric (Grucza 2013; Pawłowski 2017; Grucza 2019) and now – increasingly – realist views of evidence held by language scholars of the Varsovian School (Nagórka and Pawłowski 2018; Pawłowski 2021: 120–123, 132–142, 147–150), building a model of knowledge may involve the need to verify many of the statements encountered in documents comprising a corpus, especially in cases where communications about professional events, processes, and facts, are found to be contradictory. Terminologists attempting to offer quality descriptions, a task essential to providing a reliable model, must rely on the basic assumption of the existence of reality (professional artefacts included) independently from human minds and interests, a reality capable of being discovered and investigated (Yngve and Wąsik [2004] 2006: 329), providing (optimal) reference points, which in some cases could enable the researcher to overcome the problem of contradictions and inconsistencies that they may have encountered when studying documents in the course of terminology work. This attitude seems consistent with the notion that scholars have a social responsibility to continue to add to the ways in which their language can respond to reality (Putnam 1999: 6–9), if only to render their models increasingly accurate.

In the current enterprise, initiated in January 2022, several cases of contradictory statements and inconsistencies have been identified in documents previously accepted as relevant to the subject matter of sparkling wines. An illustrative example is the case of 'Charmat method', an expression used in some online sources, such as Natalie MacLean blog (MacLean 2012), to refer to the method of crafting sparkling ice wines, niche wines produced in Canada, thus implying that they have been made using a double fermentation method, with the second fermentation provoked in a closed pressure tank for obtaining effervescence (Robinson [1994] 2015: 225, 287, 763; McArthur 2023). Nonetheless, a video by winemaker Marco Zamuner of Magnotta Winery (Zamuner 2021), a company making these wines, proves that a single fermentation is used for their production. Rod Phillips, a wine historian, seems to offer an acceptable solution as he uses the expression 'modified Charmat method' to refer to fermenting the juice in a tank and closing the lid at the end of the fermentation process (Phillips 2017: 75). This case necessitated modifications in the categorical affiliations of the concept of sparkling ice wines. As people are known to vary in the quality of their knowledge, one solution is to prioritise sources, putting the greatest trust in information objects showing the highest proximity to an event described. In the case where ambiguities are detected in the use of markers of general concepts, as in the lack of clarity in the use of the expression 'Charmat method' in Natalie MacLean's wine review, prioritising interviews with or reports by the makers of a relevant wine over reports offered by wine journalists enables terminologists to avoid producing definitions that are likely to mislead.

Determining degrees of wine professionals' language proficiency has been considered unnecessary, as has the distinction between borrowing proper (the case of the recipient language being the speaker's dominant or native language) and imposition (the case of the source language being the speaker's dominant or native language) (van Coetsem 1988: 7–24; Winford 2019: 57–8). Notably, terminological systems enable researchers to recognize and emphasize the roles of words and expressions in a target conceptual field, with these roles dependent on the space a concept occupies in the target system. Hence, the fact that foreign words repeat in some or many compound terms in different spaces of the same knowledge representation system (including the one on sparkling wines) may be regarded as irrelevant to the task of drawing a comparison between representations of industrial knowledge in the field of special wines. This is because every single compound term within each system of descriptors on the subject of special wines plays a different role in the representation system concerned.

Effective comparison of representations of industrial knowledge in the domain of special wines in terms of the presence of (unassmiliated) words and expressions borrowed from leading languages requires diagnostic measurements of the relevant terminological systems at the same stage of development. Whereas the model of communication on sparkling wines has been developed to the point of presenting a full-scale terminological map (covering all descriptors), with definitions of concept markers 75% complete, the models of communication in the fortified wine industries, structured using the same set of concept relationships is 100% complete and published (Nagórka 2021, Nagórka 2023). This difference, however, could prove insignificant. The percentage difference in the number of borrowings relative to the total number of descriptors between the now complete models of communication in the fortified wine industries (madeira, port and sherry) and the stages where they were 75% complete was between 0.5% and 0.9%. While the process of defining the remaining concept markers for the field of sparkling wines could still result in new discoveries, and minor changes to the final count of descriptors can be expected, the above statistics show that the descriptive part of the model at this stage of development should be stable.

When the results of the count of unassimilated borrowings from French identified in the descriptive part of the model on sparkling wines are known, they will be contrasted with the scale of the presence of unassimilated borrowings from the leading languages (Portuguese and Spanish) found in the descriptor components of the models of communication in the fortified wine industries. If the scale of unassimilated borrowings into English from Spanish, a language of the sherry trade found to have so far provided the largest proportion of unassimilated loanwords in the discourse on fortified wines (Nagórka 2023: 104–5), is lower than the scale of unassimilated borrowings into English from French in the sparkling wine trade, with the proportion of the latter expressed as a percentage and measured with a maximum variance of 0.9%, the assumption that French may be the most exploited donor language in the special wines industry will be confirmed. For the purposes of this measurement a descriptor will be counted as an unassimilated borrowing if it is found to contain at least one foreign-language element (understood as a word) (Górnicz 2005: 134; Kornacka 2005: 131).

3. Results

Preliminary results of the new inquiry into communication in the sparkling wine industry indicate French as the dominant language in this trade area, with the percentage of direct borrowings from this language into English found to be as high as or higher than that of Spanish in the fortified wine industries. At the early stage of collection of candidate terms, the French words and expressions identified in English documents on sparkling wines were found to constitute more than 20% of all concept markers needed for the description of communication in the sparkling wine industry. These direct borrowings are more than 10 percentage points more abundant than Spanish words and expressions identified in English documents on sherry. Tendencies concerning a pattern of borrowing from leading languages observed in English-language communication on special wines, and a relatively high percentage of unassimilated borrowings of French origin into English in the sparkling wine industry noticed at the early stage of terminology work fitting that pattern, support the view that the history of commercial ties between English-speaking community and the French-, Portuguese- and Spanish-speaking communities may be reflected in the scale of borrowing into English for professional purposes. The rise in borrowing from leading languages seems inversely proportional to the intensity of (amicable) trade relations between the communities concerned, a hypothesis that may contribute to explaining observed differences in borrowability. Cultural difference, which may have created the need for an extensive use of French unassimilated loanwords in the sparkling wine trade, may not be the only motivation for borrowing. In this case, direct borrowing appears to be also motivated by a sentiment associated with the use of designations understood as an intrinsic part of a culture creating products of the highest quality (Pulcini 2019: 124–5). Suffice it to mention that as many as nine of 28 holders of the Royal Warrant in the category of official suppliers of food and drink to the British court from outside the UK are producers of champagne, a highly protected designation of origin and one of the world's most recognozed territorial brands (RWHA 2024).

The results of terminological diagnosis of the concept field of sparkling wine, performed in the period January 2022 – December 2023, confirm that the presence of unassmilated loanwords from French in professional and scientific documents may be attributed to the need for accurate designation of concepts. This seems evident from cases of French words and expressions having no adequate and statistically relevant English equivalents and cases of French words or expressions being preferred to their English equivalents where the latter are poorly motivated (Pavel and Nolet 2001: 21; Milošević 2014: 129–135; Poplack 2018: 214; Nagórka 2023: 103–5). Illustrative examples of a French descriptor without an adequate English equivalent include the expressions: *ficelage*, *remise en cercle*, *tirage* and *transversage*. Examples of a pair of French and English words or expressions that are often used interchangeably (*i.a.* Tardi 2016: 20, 43, 102, 134, 138–140, 143, 147; Mowery 2023; Zoecklein 2002: 16, 19, 20–1, 23) include: *réserve perpétuelle* (FR) – perpetual reserve (EN), *remuage* (FR) – riddling (EN), *dégorgement* (FR) – disgorgement (EN). For statistical reasons, in each of these pairs the English word or expression has been assigned the descriptive role, with the French word or expression treated as a non-preferred term. Another reason for the use of

unassmilated designations of the French extraction seems attributable to prestige, linked with these designations' (stylistic) appeal, as in cases where a French designation has been selected by some authors even though a strongly motivated English equivalent exists, with two alternative expressions (English and French) – in some English-language documents – used interchangeably.

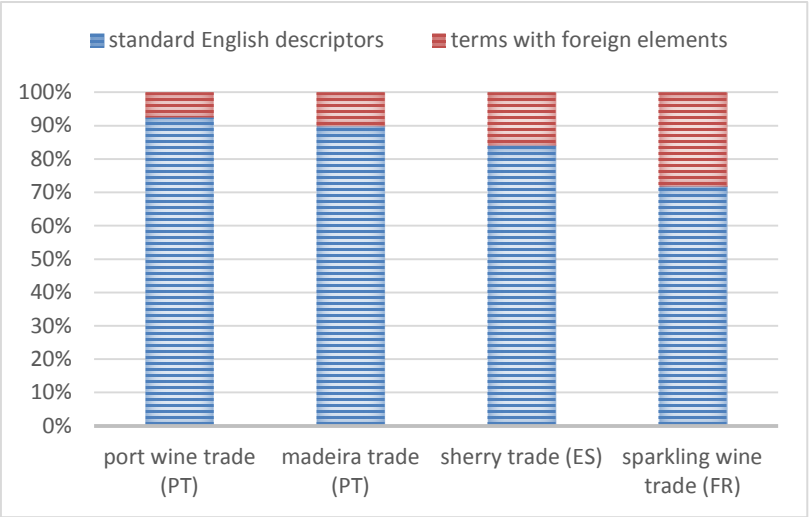

Figure 1: *Comparison of the distribution of descriptors with foreign elements (Portuguese, Spanish and French) for the coverage of the three areas of the microfield of (classic) fortified wines (madeira, port, sherry) and the microfield of sparkling wines, with numbers of terms expressed as percentages (Nagórka 2023: 102)*

All but seven out of 49 descriptors attributed to concepts in the sparkling wine industry, each of which contains at least one unassimilated loanword of the French extraction, are compound terms. The group of seven simple (one-word) descriptors includes: *cuvée*; *ficelage*; *rebêche*; *retrousse*; *taille*; *tirage*; *transversage*. Collection of the remaining 42 compound terms includes: addition of *tirage* liqueur; bottling of *Charmat* method sparkling wine under pressure; centrifugation of must for red and *rosé* base wines; *Charmat* method; *Charmat* method sparkling red wine; *Charmat* method sparkling *rosé* wine; *Charmat* method sparkling white wine; clarification of *Charmat* method sparkling wine; complete fermentation of must for red and *rosé* base wines; continuous *tirage*; cooling of wine in *autoclaves*; *coeur de cuvée*; *cuvée* filtration; *dosage* in traditional method sparkling wines; *dosage* in *Charmat* method sparkling wines; double-fermentation sparkling *rosé* wine; fermentation in *autoclaves*; fermentation of must for red and *rosé* base wines; gentle extraction of skin components to must for red and *rosé* base wines; malolactic conversion in red and *rosé* base wines; natural clarification of must for red and *rosé* base wines; partial fermentation of must for red and *rosé* base wines; *poignettage* during sparkling wine maturation; *poignettage* for distribution of expedition liqueur; pre-fermentation treatment of must for red and *rosé* base wines; *remise en cercles*; *saignée* juice; securing of final corks with *agrafes*; securing of temporary corks with *agrafes*; sealing of bottles of *cuvée* with temporary corks; sealing of bottles of *cuvée* with temporary crown caps; single-fermentation sparkling *rosé* wine; sparkling *rosé* wine; stacking *sur lattes*; stacking *sur pointes*; thermovinification of grapes for red and *rosé* base wines; *tirage*

in bottles; *tirage* in closed tanks; traditional method sparkling *rosé* wine; treatment of red and *rosé* base wines and fermenting musts; use of *saignée* method; vinification of grapes for red and *rosé* base wines.

The most important finding of the current research concerns the scale of the presence of unassimilated borrowings in the knowledge model representing the content of professional discourse in the sparkling wine industry. As expected, the vast majority of these unassimilated borrowings are French, with only three descriptors identified as having at least one element borrowed from Italian. Unassimilated loans from French have been found to constitute 49 out of 175 (≈ 28%) descriptors for the conceptual field of sparkling wines. This contrasts with the result of the count of unassmiliated loans from Spanish in the sherry trade (Nagórka 2021; Nagórka 2023), with the coverage of the subject area of sherry requiring the use of 95 descriptors, of which 15 (≈ 16%) were identified as being of the Spanish extraction. The result of this study points to French as replacing Spanish as the largest donor language in the special wines industry, a category encompassing both sparkling wines and fortified wines (Fig. 1). The contrast observed will be even more pronounced when the result of the count of direct borrowings into English in the sparkling wine trade is set against the results of the count of unassimilated loanwords from Portuguese in the madeira trade and the port wine industry. Thirteen descriptors with at least one unassimilated word of the Portuguese extraction were identified in documents covering the subject matter of madeira, which corresponds to 10% of all 130 descriptors required to cover this area of professional knowledge. Only seven out of the total of 94 (≈ 7.5%) descriptors used to designate the concept area of port have been found to contain at least one element from Portuguese. As evident from Figure 1, unassimilated French borrowings dominate not only in the English-language discourse in the sparkling wine industry alone, but also in the whole industry of special wines, even when one takes into account a possible variance of +/– 0.9% discussed in the Methods section of this article.

4. Discussion and conclusions

The observed differences in the proportion of unassimilated borrowings from the wine industry's leading languages (Spanish and Portuguese in the case of fortified wines, and French in the case of sparkling wine) confirm that the dominant presence of French loanwords in the English-language discourse in the sparkling wine trade, expressed as a percentage, is significantly higher than the percentage of direct loans into English from Spanish in the sherry trade. The dominance of the French language in the domain of special wines can prove even greater when non-preferred terms are included, as demonstrated by a tendency observed in professional communication in the fortified wines industry. Non-preferred terms, which can be included in the final count at the very end of the terminology work, tend to have weaker semantic motivation and are often statistically less represented. At this stage of terminology work, with the model of English-language communication in the sparkling wine business being 75% complete, major changes in the presence of French elements are unlikely. However, precise calculations in the remit of communication in the fortified wines business (Nagórka 2023: 101–5) show that the percentage of designations with

foreign language elements can be expected to increase by up to 2.1 percentage points when both preferred and non-preferred designations are included in the calculation. The presence of loanwords found in the corpus increased from 7.5% to 7.7% in the case of communication on port wines; from 16% to 16.3% in the case of communication in the sherry business; and from 10% to 12.1% in the case of communication in the madeira industry.

Based on Figure 1, one can notice a clear pattern of borrowing from the industry's primary languages into English. The least significant donor of foreign elements (*i.e.* words) into English is Portuguese (7.5% of foreign elements in the discourse on port wines and 10% of foreign elements in the discourse on madeiras). The presence of Spanish words in the discourse on special wines is more pronounced, with 16% descriptors representing the concept area of sherry found to have word elements of the Spanish extraction. The finding of this study demonstrates that French elements are present in 28% descriptors representing concepts in the sparkling wine industry, showing French as the most significant source of unassimilated loanwords in the English-language discourse on special wines. In some aspects, this finding might be viewed as counterintuitive, as – unlike in the classic fortified wine industries – the sparkling wine sector (as a general category) is not limited by location, with sparkling wine production geographically dispersed. While it is true that most sparkling wines draw their roots from European soils, their production takes place on all continents except Antarctica (OIV 2020: 7–8). Given this fact, which is evident in the relevant statistics, with the largest sparkling wine-producing countries by volume including Italy, France, Germany, Spain, the United States, Russia, Australia, Brazil and Argentina, one can consider the dominant position of French as donor language as impressive.

Unassimilated language forms borrowed into English in the special wines industry from Portuguese are less significant than those borrowed from Spanish. Those from French are the most significant. This could be explained – as tentatively proposed in the previous sections – by the nature and character of language contact between English traders and wine producers from Portugal (madeira and port producers), Spain (sherry producers), and France (makers of champagne and other sparkling wines). These trade relations are deeply rooted in the history of trade. The terminological models of encyclopaedic knowledge demonstrate that amicable ties, known to naturally enhance the intensity of communication between language communities concerned, may have been the strongest between the British and the Portuguese, as manifested by references to events such as the Treaty of Windsor (1386) – the longest continuing alliance in world history – allowing British merchants to dwell in Portuguese territory (Trowbridge 2016), and the Methuen Treaty (1703), guaranteeing admission of Portuguese wines into England on preferential conditions, with the duty on these wines lower by a third compared with the duty levied on French wines. Currently, the port industry accommodates the largest number of producers of British ownership and / or extraction. These facts may have contributed to the extent to which the English language has been able to respond to developments in the port trade, substantially reducing the need for borrowing.

References to historical events provided in the models may be interpreted as indicators of cultural proximity between England and Portugal as set against cultural distance observed between the British and Spaniards or the French. The largest relative proportion of borrowings in the fortified wines industry from Spanish seems to be explainable by historical

baggage in ties between Britian and Spain, with numerous armed conflicts and disputes at the inter-state level, some of which remain unresolved. This confirms the tentative claim that the scale of borrowing of unassimilated forms from leading languages into English may be inversely proportional to the intensity of (amicable) trade relations between language communities in question, with commercial ties being often (directly or indirectly) influenced by political decisions. A similar explanation may be provided for the finding that French may be viewed as the largest donor of unassimilated loanwords into English in the entire domain of special wines. Notwithstanding, in the case of French loanwords used in the English discourse on sparkling wines, the need for language loans created by cultural distance, undoubtedly exacerbated by a convoluted history of military conflicts and long-standing disputes, seems accompanied by the factor of prestige of the French words commonly associated with quality products.

Among the possible non-linguistic factors contributing to the very high percentage of unassimilated loanwords from French identified in English-language documents on sparkling wines one can also find Anglosaxon traders' recognition of champagnes as quality products. Evidence offered in the model of communication in the sparkling wine trade strengthens the view that borrowability in a professional area could respond to the strength of sentiments in trade relations between language communities concerned, where by sentiments one means not only degrees of hostility or amicability in commercial ties, which could lead to the need for borrowing (especially from one of the languages having the primary status in the industry), but also degrees of prestige ascribed to loanwords, with the latter linked to the quality of industrial products. Even before the Cobden-Chevalier Treaty (1860), which led to significant reductions in English tariffs on French wine and increased sales, the sales of champagne to Britain had already been on the rise for several decades (Harding 2018: 15–16, 78), not least as a result of the Anglosaxon traders' recognition of the wine's quality. While the year 2019 witnessed a significant growth in champagne exports to the United States (from around 23.7 mln bottles in 2018 to more than 25.6 mln bottles in 2019), commonly regarded as related to Donald Trump government's threats to impose additional tariffs, ultimately these tariffs did not affect champagne. The official 2022 sales data (CIVC 2023: 10, 20–1) show that the US and the UK continiue to consider champagne as a highly valuable product, as they remain Champagne's leading export markets, with 33.72 mln bottles and 28.06 mln bottles purchased in these countries respectively. When fully developed and complete, the model of encyclopaedic knowledge on sparkling wines (prepared for publication in the form of a structured encyclopaedia in 2025) is likely to demonstrate additional data that can be expected to shed more light on the link between the sense of prestige ascribed to loanwords and the high quality of products to which these loanwords refer.

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Where authority, speech acts and modality meet: A pragmatic analysis of the trial record of King Charles I

Minako Nakayasu[1] and Michi Shiina[2]
[1]*Hamamatsu University School of Medicine, Japan;* [2]*Hosei University, Japan*

Abstract

This paper investigates how speakers perform speech acts coordinating with modality in the flux of power in Early Modern courtroom interactions along the lines of historical pragmatics. The text used for analysis is the trial record of King Charles I in the *Sociopragmatic corpus*, in which the King was put on trial on the charge of high treason.

First, examination of vocatives, noun phrases, verb phrases and grammatical subjects shows who has the authoritative power in interaction, the Lord President (the judge) or the King (the defendant). Next, quantitative and qualitative analyses of speech acts performed with the aid of modals demonstrate the tendency that the speech acts performed by the Lord President are highly relevant to deontic modality, while those performed by the King are closely related to dynamic modality. This reflects which authority the two parties depend upon: authority of the Court, and authority of the King/Kingdom, respectively.

The analysis of authority, speech acts and modality reveals that the King becomes less authoritative as the trial proceeds, particularly after the sentence has been pronounced. On the other hand, the authority of the Court, which is manifested in the Lord President's speech, stays the same throughout the course of the trial.

To summarise, this research shows how the judge and the defendant interacted with each other in a fluctuating power relationship in the courtroom, at the interfaces between authority, speech acts and modality, where their viewpoints and attitudes are reflected.

Keywords: authority; speech acts; modality; trial record; historical pragmatics

1. Introduction

In 1649, King Charles I was brought to trial in Westminster Hall, London, on the charge of high treason. The record of this trial provides an excellent opportunity to explore the pragmatic aspects of historical data, where the major participants, the Lord President (the judge) and the King (the defendant) interact with each other in the courtroom. This is an exceptional case where the social hierarchy with the King at the apex clashes with the jurisdictive system with the Lord President at the top. Who, then, has the authoritative power

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in the interaction, the Lord President or the King? What speech acts do the speakers perform in this exceptional case? They skillfully utilise modals/modality and other devices where their attitudes are reflected. What roles does modality play in the courtroom interaction?

The purpose of this research is to investigate how speech acts are performed with the aid of modality in the flux of power in the trial record of King Charles I along the lines of historical pragmatics (Taavitsainen & Jucker, 2010, 2015). In other words, we explore the interfaces between authority, speech acts and modality in Early Modern courtroom interactions. These are the categories which the speakers' viewpoints and attitudes are strongly reflected upon. To interact with their interlocutors, the speakers exploit these categories not only solely but also in coordination. We have already investigated pragmatic aspects of this particular text, i.e. Shiina (2014, 2016) focused on vocatives and speech acts, respectively, and Shiina & Nakayasu (2022) expanded the analysis to pronouns. The present paper will perform an integrated analysis of authority, speech acts and modality. No other research has attempted such an analysis of historical data, not to mention this courtroom interaction, which offers an intriguing opportunity of pragmatic analysis.

The corpus used in this research is the trial record of King Charles I, taken from the *Sociopragmatic corpus* (1640-1760) (Archer & Culpeper, 2003), consisting of 7,660 words. The interaction is written in the form of dialogue. Courtroom interactions have certain characteristics which are different from everyday language (Archer, 2005; Culpeper & Archer, 2008; Kryk-Kastovsky, 2006). The style of language is simple and clear so that there may be no ambiguity and misunderstanding. Participants take turns – one speaks only when permitted. Courtroom discourse is public and formal, and decisions made are more binding than in community.

The theoretical framework this research is based upon is historical pragmatics, whose target is the language use in earlier periods, the development of language use, and the principles of such developments (Taavitsainen & Jucker, 2010, 2015). According to Jacobs & Jucker (1995), there are two directions of mapping assumed in historical pragmatics: form-to-function mapping and function-to-form mapping. The present research basically employs the former to see how certain forms perform pragmatic functions, while it exploits both directions when required, for example, for the analysis of speech acts. Moreover, we incorporate the methodology of critical stylistics (Jeffries, 2010) into analysis. In this field, analysing components of the sentence is the first step to investigate what the text is doing in relation to the text world. This paper examines noun phrases and verb phrases, which are two vital components in the sentence.

This study will focus on frequencies of vocatives, noun phrases, speech acts, grammatical subjects and modals observed in the *Sociopragmatic corpus*. In order to see whether the disbribution of frequencies is statistically significant, we will conduct a Chi-square test and a residual analysis.

To explore where authority, speech acts and modality meet in the trial record of King Charles I, this paper will proceed in the following way. Section 2 will analyse vocatives to see the interpersonal power relationship between the judge and the defendant. The third section will examine noun phrases, which will tell us what issues are at stake in this trial. Section 4 will be devoted to speech acts performed by interlocutors, and the following section will examine

grammatical subjects to reveal who has the authoritative power in such speech acts. Paying special attention to modals and modality in Section 6 will support our findings so far and give us new insights. The final section is a conclusion.

2. Vocatives

Now we will start looking at each category which gives us some insights in the interfaces between authority, speech acts and modality. This section will conduct an analysis of vocatives along the lines of Shiina (2014).

The *Sociopragmatic corpus* consists of trial proceedings and drama (Archer & Culpeper, 2003). Shiina (2014) counted all the vocatives used in the *Sociopragmaitc corpus* to see who uses which vocatives to whom. A comparison of vocatives in the trial proceedings with those in the drama reveals that vocatives are employed much less frequently in the trial proceedings than in the drama: the normalised figure per 10,000 words in the trial proceedings is 50, while the figure in the drama is 171 (Shiina, 2014, p. 82). Another difference is the range of vocative choices: both familiar types and deferential types are used in the drama, whereas in the trial text, only deferential types can be found. It is interesting to note that we can find unilateral and bilateral uses of vocatives in the corpus. *My Lord* is used only upwards by the defendant or examiner to address the judge, while the 'title + surname' pattern is employed downwards by the judge or examiner to address the defendant or witness. By contrast, *Sir* is a safe vocative used bilaterally, both upwards and downwards, regardless of the addressee's social rank. The following example (1) is taken from our corpus, the trial record of King Charles I: the King (the defendant) is imploring the Lord President (the judge) to let him speak:

(1) [King] If it please you Sir, I desire to be heard, and I shall not give any occasion of interruption, and it is only in a word, a sudden Judgment.
[Lord President] Sir you shall be heard in due time, but you are to hear the Court first.[1] (p. 42)

Both of them employ *Sir* and continue to use it after this context. Although *Sir* is a safe vocative used both upwards and downwards, it is still an exceptional and contradictory case where the social hierarchy with the King at the top clashes with the jurisdictive hierarchical system in the courtroom where the judge is at the top. In other words, the social status of the King is cancelled as he is the defendant in the courtroom; meanwhile, the lower social status of the Lord President is elevated to the highest position in the jurisdictive system. This makes *Sir* possible for both parties.

Having confirmed that vocatives suggest the power relationship between the King and the Lord President, the following sections will analyse other linguistic features in order to know in what way both parties exert their own authoritative power.

[1] The spellings of examples follow those in the corpus. Underlines are ours.

3. Noun phrases

This section investigates noun phrases to determine which side, the judge or the defendant, has the authority, following the analysis in Shiina (2016).

We have collected frequently used noun phrases and classified them into three categories: the court, the country and the power. Table 1 below shows the frequency of noun phrases used by major characters i.e. the Lord President and the King, and gives examples of each category which appear in the corpus:

Table 1: *Noun Phrases Used by the Lord President and the King (after Shiina, 2016)*

Category	Lord President	King
court	193 **+ (Court, answer, Jurisdiction, Justice, Charge, Sentence, reason(ing/s), Prisoner, Law(ful)s, Judgement, Judge(s), guilty)	89 **– (Law(ful/s), reason(ing/s), Sentence, Court, Judgement, Charge, Judge(s), Jurisdiction, Justice, Prisoner, answer)
country	47 **– (People, England, Commons, Kingdom)	53 **+ (Kingdom, England, King, Treaty, People, Commons)
power	28 **– (Authority, Liberty, favo(u)r)	41 **+ (Authority, Liberty, favo(u)r, Power)

Note. We conducted a Chi-quare test to see whether the distribution is statistically significant and also did a residual analysis to see which figures are significantly larger or smaller than the expected values. $\chi^2(2) = 26.070$, $p < .01$, Cramer's $V = 0.240$, **+: significantly greater at the level of 1%; **–: significantly smaller at the level of 1%.

Statistically speaking, the Lord President uses noun phrases referring to the court significantly more frequently than the King, whereas the King resorts to those referring to the country and the power significantly more frequently than the Lord President. This difference shows that these main characters are more likely to mention the noun phrases in the category/-ies that provide the basis of their authority and power than the other category/-ies. It is reasonable to suppose that the Lord President believes in the jurisdiction and authority of the Court that he represents, negating the authority of the King. The King, by contrast, asserts his own authority as the King of the country, having doubts about the authority, lawfulness, and jurisdiction of the Court. They each represent the Court and the Kingdom, relying on their own authority and power over their interlocutor.

4. Speech acts

This section will identify speech acts performed by the major interlocutors by investigating verb phrases and classifying their activity types (Shiina, 2016). We will examine speech acts from both directions: from the Lord President to the King, and from the King to the Lord President.

These speakers perform different types of speech acts. The Lord President mainly performs orders, while the King performs requests and refusals (and an apology). Table 2

below is the list of major speech acts performed by both speakers and example utterances from the corpus:

Table 2: *Speech Acts Performed by the Lord President and the King (after Shiina, 2016)*

Speaker	Speech act	Example
Lord President	Order to answer	... it is prayed to the Court ... that you answer to your Charge. (p. 19) The Court expects you should give them a final Answer, ... (p. 23)
	Order not to dispute	... Sir, you are not to dispute our Authority, ... (p. 29) Sir, neither you nor any man are permitted to dispute that point, ... (p. 30)
	Order not to talk but to listen	Sir you shall be heard in due time, but you are to hear the Court first. (p. 42) Sir, You shall be heard before the Judgment be given, and in the mean time you may forbear. (p. 43)
King	Request to explain	I would know by what power I am called hither: ... (p. 19) Sir, I desire that you would give me, and all the world, satisfaction in this; ... (p. 22)
	Request to give permission to speak	... then I think is fit at this time for me to speak of; ... (p. 19) ... therefore resolve me that, and you shall hear more of me. (p. 20)
	Request not to interrupt	By your favour, you ought not to interrupt me; ... (p. 38) ... I hope I shall give no occasion of interruption. (P. 42)
	Refusal to answer	... I will not betray it to answer to a new unlawful Authority, ... (p. 20) ... I conceive I cannot answer this, ... (p. 28)
	Apology	Pray excuse me Sir, for my interruption, ... (p. 47)

First, the King makes strong requests to the Court to explain why he is being tried, to give permission to speak, and not to interrupt while he is talking. He refuses to answer. The Lord President, on the other hand, gives orders to answer, not to dispute, and not to talk but to listen. Our analysis of the trial record reveals that the tone of the King's speech acts changes in due course, becoming less authoritative, making appeals more earnestly, and making an apology in the end. The judge's illocutionary force, by contrast, stays the same throughout the trial.

5. Grammatical subjects

In relation to the speech acts the main characters perform, we will take a particular note of grammatical subjects and modals/modality. Looking back to examples in Table 2, we notice that these utterances often employ the first person and the second person subjects, and modals such as *shall*, *should*, *will* and *would*. This section will examine how grammatical subjects show where the authoritative power resides, and the next section will carry out an analysis of what role modals/modality play in the interaction to approach the interfaces of these speaker-oriented categories, i.e. authority, speech acts and modality.

Among the judge's orders with *you* as a grammatical subject, take a look at the examples of the Lord President's orders (in Table 2; repeated here for the sake of convenience):

(2) [Lord President] Sir you shall be heard in due time, but you are to hear the Court first. (p. 42)

The pattern 'you are to V' is used as many as 7 times in the corpus. Although he takes a hearer-oriented viewpoint, this construction obscures the origin of the authority. The use of the passive voice below also makes the source of the authority vague, i.e. whether the authority comes from the judge or the Court:

(3) [Lord President] Sir, neither you nor any man are permitted to dispute that point, ... (p. 30)

Although the judge gives orders to the defendant, the decision maker is left unmentioned, irrespective of the difference in strength of illocutionary force in these examples. It is hard to say, therefore, whether the judge as the speaker is exerting his discursive power over the defendant. The following example in (4), on the other hand, clearly shows the source of authority:

(4) [Lord President] The Court desires to know whether this be all the Answer you will give, or no. (p. 22)

The subject is the Court, which is impersonal: from this it is clear that the Lord President himself is not the source of the authority but relies on the authoritative power of the Court. Examination of the Lord President's utterances in (2)-(4) suggests that the judge is only a medium by which the authoritative power of the Court is exercised.

A conspicuous characteristic regarding the King's choice of grammatical subjects is the first person pronouns. We have already seen in Section 4 that the King makes a variety of requests to the Lord President. In (5) (in Table 2; repeated here for the sake of convenience), the King asks him to explain why he is taken to the Court:

(5) [King] I would know by what power I am called hither: ... (p. 19)

The King as the speaker is represented as the grammatical subject *I*. Here he takes a speaker-oriented viewpoint, expressing his strong intention in combination with the modal *would*, and holds an authoritative, sovereign power over his interlocutor.

Table 3 shows which viewpoint, speaker-oriented or hearer-oriented is likely to be taken by both speakers, based on Culpeper & Archer (2008) and Shiina & Nakayasu (2022):

Table 3: *Grammatical Subjects by the Lord President and the King (after Shiina & Nakayasu, 2022)*

Viewpoint	I/we (speaker-oriented)	You (hearer-oriented)	Other (incl. impersonal)
Lord President	10	37	22
	**–	**+	ns
King	38	18	16
	**+	**–	ns

Note. We conducted a Chi-quare test to see whether the distribution is statistically significant and also did a residual analysis to see which figures are significantly larger or smaller than the expected values. $\chi^2(2) = 23.791$, $p < .01$, Cramer's $V = 0.411$, **+: significantly greater at the level of 1%; **–: significantly smaller at the level of 1%; ns: non-significant.

The 'other' category includes the subjects which take an impersonal viewpoint such as 'the Court'. The data in Table 3 demonstrate that the Lord President takes a hearer-oriented view

significantly more frequently, which could suggest that he respects the King's sovereign power. The King, by contrast, assumes a significantly frequent use of the speaker's viewpoint, according to his authority. As seen in (5), he employs *I*, avoiding *you* in his request. However, after the death sentence is pronounced, his requests shift to much more hearer-oriented:[2]

(6) [King] Will you hear me a word Sir? (p. 73)

Syntactically speaking, the utterance in (6) employs the subject *you* and the interrogative form. What this utterance further represents is that the King shows politeness to the Lord President and his authority as a King is now weak. He could not make such utterances until it is too late to show a respect to the authority of the court.

6. Modals and modality

We have so far examined vocatives, noun phrases, speech acts and grammatical subjects to explore the relationship between speech acts and authority in courtroom interactions. This final section analyses modals and modality to see how modality contributes to the interface between speech acts and authority.

We analyse proximal and distal forms of modals *shall*/*should*, *will*/*would*, *can*/*could*, *may*/*might*, *must*, the contracted form *'ll*, and *ought*. Figure 1 below shows the modals used in our corpus:

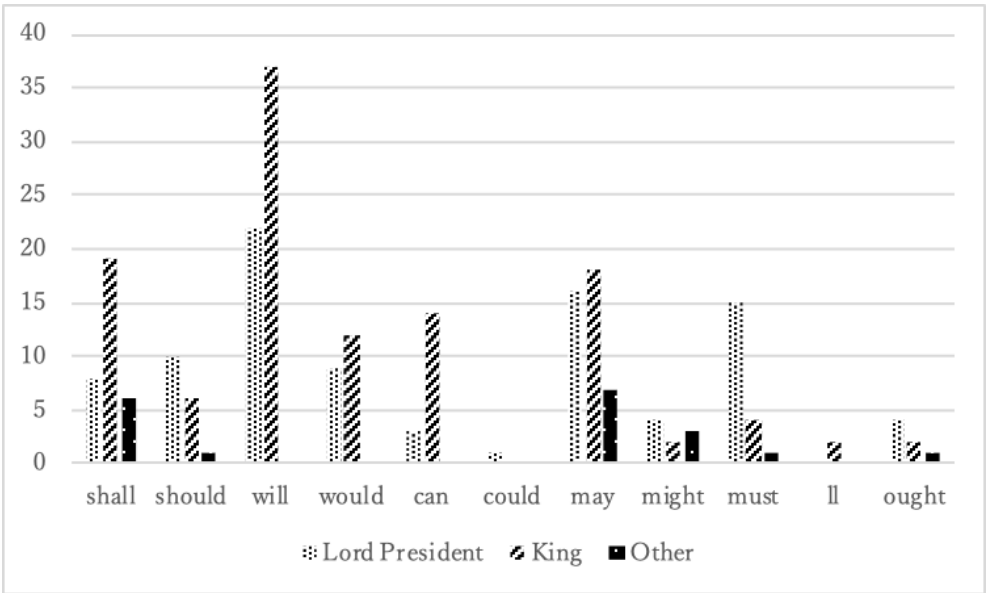

Figure 1: *Modals in the Corpus*

[2] Before the sentence is pronounced, the King makes a request using the subject *I*:

(i) [King] But I shall desire you will hear me a few words to you, ... (p. 70)

Note that he employs the subject *you* in the subordinate clause "you will hear me a few words to you". This shows that he takes a more hearer-oriented view. After the sentence has been pronounced, however, he changes the declarative subordinate clause to an interrogative main clause as in (6), whose viewpoint is now much more hearer-oriented.

The Lord President employs *will*, *may* and *must* frequently, while the King makes use of *will*, *shall* and *may* frequently.

Since modals are closely related to the speaker's domain, the speaker's attitude is well reflected in the use of modals. Modality is a grammatical category which is typically represented by modals. Palmer (2001) defines it as concerned with the status of the proposition which expresses the event. We adopt a trichotomy for modality following Palmer (2001), Nakayasu (2009) and others: that is, epistemic, deontic and dynamic. The historical change in meaning can be considered to be realised in the polysemy of modals. First, epistemic modality describes the speaker's judgement of the factual status of the proposition or the state of affairs represented in the proposition. In (7), the speaker, the Lord President, makes a judgement of how probably the proposition 'you know more of the pleasure of the court' can be realised:

(7) [Lord President] Sir, We shew it you here, the Commons of England; and the next time you are brought, you <u>will</u> know more of the pleasure of the Court, and, it <u>may</u> be, their final determination. (pp. 31-32)

Since the clause *the next time you are brought* signifies a point in the future, the meaning and function of the modal *will* is close to future tense here. Note that he also employs the modal *may* to express his judgement about the probability of the proposition 'it be their final determination'.

Second, deontic modality describes the state of affairs represented in the proposition which has not yet been actualised. The conditioning factor is outside the relevant individual. In (8), the King is asking for a permission from the Court:

(8) [King] I do require that I <u>may</u> give in my Reasons why I do not answer, and give me time for that. (p. 31)

What is important here is that the conditioning factor is outside the subject *I*: that is, it comes from the Court.

Third, dynamic modality also describes the state of affairs not actualized yet, but for this modality, the conditioning factor is inside the relevant individual. In (9) (=(5); repeated here for the sake of convenience), the King expresses his intention with the distal modal *would*:

(9) [King] I <u>would</u> know by what power I am called hither: ... (p. 19)

Table 4 below shows how frequently these three types of modality are exploited by the Lord President, the King and other speakers (the solicitor and the clerk):

Table 4: *Modals and Modality*

Modality	Lord President	King	Other
epistemic	31	28	6
	ns	ns	ns
deontic	33	24	6
	*+	*–	ns
dynamic	28	64	7
	**–	**+	ns

Note. We conducted a Chi-quare test to see whether the distribution is statistically significant and also did a residual analysis to see which figures are significantly larger or smaller than the expected values. $\chi^2(4) = 18.486$, $p < .01$, Cramer's $V = 0.172$, *+: significantly greater at the level of 5%; *–: smaller (5%); **+: significantly greater at the level of 1%, **–: smaller (1%); ns: non-significant.

The Lord President uses each of the three modalities almost equally frequently, while the King resorts to dynamic modality most frequently. Epistemic modality does not display a significant difference between the Lord President and the King. However, note that the Lord President uses deontic modality significantly more often than the King, while the King utilises dynamic modality significantly more often than the Lord President. Recall that the crucial difference between deontic and dynamic modality is whereabouts of the conditioning factor: from outside of the relevant individual or from inside, respectively. Their preferences for either modality therefore reflects where these speakers consider their authoritative power resides. The Lord President regards the authority as deriving from outside of him, i.e. from the Court, whereas the King believes that his authoritative power comes from inside himself as a king.

Now that we have examined modality, our next step is to analyse how speech acts are performed by the speakers with the aid of modals in the trial record corpus. Following the methodology of Nakayasu (2009), who carried out a pragmatic analysis of modals in Shakespeare, we examined all the utterances which contain a modal and analysed what speech act each utterance performs. The graph in Figure 2 shows an inventory of speech acts performed with the aid of modals by the major characters in the Court, i.e. the Lord President and the King:[3]

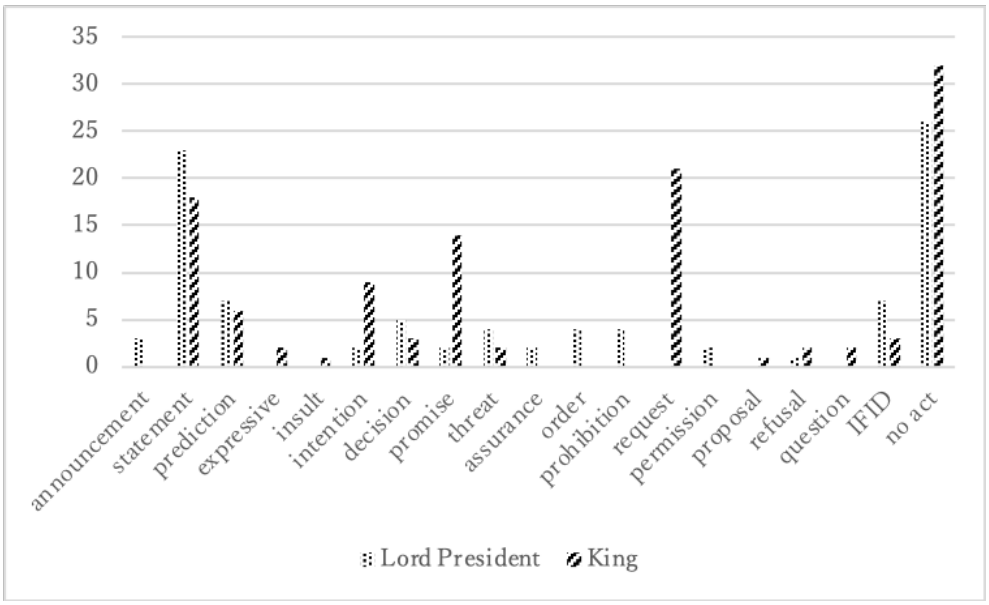

Figure 2: *Modals and Speech Acts*

Let us take a look at the speech acts performed by the Lord President with modals. The speech acts performed by him, not by the King, are the announcement, the assurance, the order, the prohibition (the negative counterpart of the order), and the permission. It should be noted that all these speech acts are strongly related to deontic modality, whose conditioning factor is

[3] The 'IFID' covers cases where a modal occurs in an illocutionary force indicating device, as in *I must interrupt you*. The 'no act' signifies that the modal is not related to a particular speech act mostly because it occurs in a subordinate clause.

outside the relevant individual (i.e. the subject). This is supported by the significantly high frequency of deontic modality as seen in Table 4,[4] and conforms to our finding that the authority resides in the Court rather than in the Lord President himself. The example in (10) shows that the Lord President gives an order to the King with the distal modal *should*:

(10) [Lord President] The Court expects you should give them a final Answer, their purpose is to adjourn till Monday next, if you do not satisfie your self, though we do tell you our Authority; ... (p. 23)

Note also that the subject is the Court, not the Lord President himself, which means that the authority lies in the Court. In (11), the Lord President prohibits the King's demurring the jurisdiction of the Court:

(11) [Lord President] Sir, neither you nor any man are permitted to dispute that point, you are concluded, you may not demur the Jurisdiction of the Court, ... (p. 30)

This is a negative counterpart of the order, which is performed with the aid of deontic modality.

On the other hand, the King performs the request most frequently. In (12) below, the King requests the Court to give a permission to speak by using the proximal modal *shall*:

(12) [King] I shall desire a word to be heard a little, and I hope I shall give no occasion of interruption. (p. 42)

He employs the first person subject *I*, which his authority as a king comes from.[5] Other speech acts performed by the King, but not by the Lord President, are the proposal, the expressive (the 'regret' in our corpus), the insult, and the question. The promise is made more frequently by the King than the Lord President:

(13) [King] Satisfie in me in that, and I will answer, ... (pp. 22-23)

The King takes the 'imperative + modal' pattern: if the condition is met, i.e. if the Lord President (*you*) tells him why he is called there, he (*I*) makes a promise that he will answer. Interestingly, all these speech acts, except for the question, are generally related to dynamic modality. Here again, the King's speech acts have a certain relevance to dynamic modality, whose conditioning factor facilitates the interpretation that the authoritative power locates in himself.

Turning our attention to discourse, we can observe some interesting alternations in modals in the King's speech. The following context in (14) is excerpted from the beginning of the trial, where the King, depending on his own authority as a king, requests the Court to explain why he was brought to the Court:

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[4] Recall also that the Lord President employs *must* frequently as seen in Figure 1. This modal is closely related to deontic modality.

[5] Recall also example (9), where the King employs the first person pronoun *I* and the modal *would* to make a request to the Court.

(14) [King] (...) but I would know by what Authority I was brought from thence, and carried from place to place, (and I know not what,) and when I know what lawful Authority, I shall answer: Remember I am your King, your lawful King, ...
therefore let me know by what lawful Authority I am seated here, and I shall not be unwilling to answer, in the mean time I shall not betray my Trust: I have a Trust committed to me by God, by old and lawful descent, I will not betray it to answer to a new unlawful Authority, therefore resolve me that, and you shall hear more of me. (p. 20)

He utters *I shall* three times, expressing his strong intention. It is highly likely that he employs *shall* because he is the King, a public figure with authoritative power, as is clear from the phrase *Remember I am your King, your lawful King*. Recall that he employs *shall* frequently as seen in Figure 1. He then switches to *will* as in *I will not betray it* to express his strong personal intention.[6] The final *shall* is used because the 'imperative + modal' pattern, *resolve me that, and you shall hear more of me*, promotes the use of the second person subject, and this further promotes deontic modality. Here the conditioning factor is outside the subject *you*, i.e. the King (the speaker).

Another interesting change in his use of modals can be observed after the death sentence has been announced. Recall that the King makes a request employing the interrogative with the modal *will* and the second person subject in (15) (=(6); repeated here for the sake of convenience):

(15) [King] Will you hear me a word Sir? (p. 73)

Asking the intention of the Lord President (the hearer) with dynamic modality, he makes a polite request. It is a crucial change because the conditioning factor of the dynamic modality is now in the second person subject *you*, and he cannot rely on his own authority any more. This confirms our analysis that his authority as a king is extremely weak. By contrast, the authority of the Court, as represented by the Lord President, stays the same.

7. Concluding remarks

This paper has carried out a pragmatic analysis of the trial record of King Chares I to examine how the speakers performed a variety of speech acts with devices such as modals/modality in the flux of power relationship. Along the lines of historical pragmatics and critical stylistics, we have examined vocatives, noun phrases, speech acts, grammatical subjects and modals/modality, taking particular note on who has the authority, the Lord President or the King.

In trials in general, the judge has power over the defendant. In this text, however, the hierarchical social order contradicts with their social roles in the courtroom. It was confirmed that the authoritative power of the judge resides not in himself but in the Court as a jurisdictive system. The King, who started the trial by giving strong requests for explanations

[6] Nakayasu (2009, p. 227) observes the alternation between *shall* and *will* in Julius Caesar's modal use in Act 2, Scene 2, and remarks that he switches to *will* when he wishes to express his strong personal intention.

of the accusation with the authoritative power of himself and the Kingdom, becomes less authoritative as the trial proceeds. In particular, after the sentence was announced, his authoritative power as a king was nullified. Speech acts related to dynamic modality play a significant role in the King's speech. By contrast, the authoritative power of the Court, not of the judge himself, seems rather stable and constant throughout the course of the trial. This relationship is supported by the Lord President's frequent performance of speech acts derived from deontic modality.

This research demonstrated how the judge and the defendant interacted with each other in a fluctuating power relationship, shedding new light on pragmatic aspects of Early Modern trial records. That is exactly where authority, speech acts and modality meet.

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The irrelevance of case for DP movement in English

Mark Newson
Eötvös Loránd University, Hungary

Abstract

A particular view of English case assignment falls out from an assumption within Dependent Case theory that there are only two structural cases: dependent and unmarked. The different forms of DPs do not necessarily indicate different assigned cases, but may be different contextually determined exponents of the same case. From this perspective, it can be argued that English has a neutral case system. Pronouns have contextually determined forms realising one underlying case. As a consequence, standard assumptions about the interaction of case assignment and movement can be questioned. Many assumptions concerning the exceptional status of certain constructions can be dropped in favour of a simpler theory in which case is assigned to DPs in their base positions.

Keywords: Dependent Case Theory; case motivated movement; exceptional clauses; DP-licensing

1. Introduction

Chomsky and Lasnik (1977) addressed a puzzling issue of the time: if X-bar theory operates with category variables rather than specific category labels, why do nominal phrases distribute as they do? The tale of how Vergnaud's (1977) belated letter suggesting that considerations of grammatical case should replace Chomsky and Lasnik's filters and how this led to the proposal of the Case Filter (Chomsky 1981) has become almost legendary. And thus, the notion of DP licensing was born.

It was Marantz's (1991) contention that the Case Filter, as a DP licensing mechanism, was not based on case. Indeed, as far back as 1985 (Zaenen, Maling and Thráinsson) this assumption had been shown to be problematic. Although in recent years, the notion of DP licensing has held a less central position in the analyses of DP distribution patterns and the idea of long distance Agree has tended to neutralise the idea that DPs move in order to be licensed by case, there does seem to be a reluctance to let go of the idea entirely and one often finds case features being listed in those needed to be checked (see, for example, Chomsky, 2000).

It this paper, I will argue that case assignment in English is always dealt with locally, which for subjects means from within the clauses that immediately contain them, and

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therefore it plays no role in licensing the displacement of DPs[1]. This perspective leads to the possibility of reconsidering certain assumptions about the structure of clauses, especially those considered to be 'exceptional'. These assumptions have grown out of the view that DPs are licensed by non-local case assignors. My claim will be that there is no need to consider any clause structurally exceptional and one can apply a uniform analysis to them all.

These claims are made from assumptions set within Dependent Case theory (DCT – Marantz 1991), introduced in section 2. Section 3 presents an analysis of case assignment in English based on Newson and Szécsényi (2023) in which it is shown that English is a case neutral language, similar to Chinese. In sections 4 and 5, I show that for structures which have been claimed at some point to involve case motivated movement, there is reason to believe that case is assigned to the DP in its base position. Here, that the realisation of an assigned case can be affected by syntactic context comes to the fore and it is shown how it is therefore only apparent that DPs acquire their cases in their landing sites. In section 6, I will offer some rather tentative ideas concerning why, if not for case reasons, DPs move.

2. The basics of Dependent Case Theory

Marantz (1991) argued that Case Theory was not about DP distribution but about the distribution of morphological case. He outlined a theory of case assignment based on a disjunctive hierarchy of case types, distinguished in terms of the conditions on their assignment:

(1) lexically governed case
dependent case
unmarked case
default case

As they are largely irrelevant to our concerns, we will not discuss lexically governed or default case. This leaves the two structural cases: dependent and unmarked.

Marantz described the case assignment process in terms of a waiting list on which eligible DPs are put. Once case is assigned to one of them, it drops off the list and the rest are evaluated in the next round of assignment. The assignment of dependent case is prior to that of unmarked case and is dependent on there being at least two DPs on the list. Unmarked case is assigned to any DP left on the list after the previous rounds of case assignment have taken place.

This theory enables an understanding of certain case systems apparent in different languages. Marantz concentrated on accusative and ergative systems. The difference between these is a matter of which of two DPs on the list is selected for dependent case assignment. Suppose it contains a subject and an object. If dependent case is assigned to the object, this will drop off the list leaving the subject to receive unmarked case. The assigned cases will be

[1] I do not go so far as claiming that case assignment and movement never interact in any language. Baker (2015) provides numerous instances in which the displacement of a DP can affect the assignment of case to that, or indeed other DPs. I do maintain, however, that even in these cases, the case effects are the result of the movement rather than its cause.

the opposite if the subject is selected for dependent case. Why this produces different case systems can be seen by considering what happens in intransitive contexts. Here there is only one DP on the list from the beginning and hence only unmarked case can be assigned to it. This means that the subject of both intransitive and transitive constructions will be assigned unmarked case when the object is assigned dependent case, while the subject of the intransitive and the object will be assigned unmarked case if the subject of the transitive gets dependent case. Clearly, this describes accusative and ergative systems:

(2)

Accusative	**Ergative**
$Subj_{unmarked}$ …	$Subj_{unmarked}$
$Subj_{unmarked}$ … $Obj_{dependent}$	$Subj_{dependent}$ … $Obj_{unmarked}$

Baker (2015) extended Marantz's proposals in a number of ways. He suggested two further possibilities for the assignment of dependent case. In one of these, dependent case is assigned to neither eligible DP, in which case unmarked case is assigned to them all resulting in a neutral case system. The other involves assigning dependent case to both DPs, in which case a tripartite system emerges.

A second development proposed by Baker concerns how items are included on the list. For Marantz, listed DPs were those assigned case by related heads. He assumed that dependent case was assigned by the unified verb and inflection, thus allowing it to be assigned to either the subject or the object. Baker proposed a complete break from the standard 'head assignment' assumption, and claimed case is assigned over constructions which he termed domains. This allowed him to extend the principles of dependent case assignment to constructions other than the clause, resulting in a more general theory.

Case domains not only determine which DPs are on the list, but they also allow different cases to be identified as dependent and unmarked for different constructions. For Marantz, only accusative and ergative are dependent, i.e. cases assigned at the clause level. But Baker, through assuming that there is a case domain within the DP, could explain why some languages can have ergative (dependent) and others have nominative (unmarked) possessors. He also extended the notion to VPs claiming that these too could be domains in which dependent (dative in Sakha) and unmarked (partitive in Finish) can be assigned.

Baker based his notion of a case domain on the Spell-out domain of phase theory (Chomsky 2001). Case is assigned at Spell-out and thus all and only those DPs being spelled-out are considered. So, the standard Spell-out domains (TP, nP and VP - complements of phase heads C, D and v) are case domains.

A problem arises, however, from Baker's claim that VPs are case domains, even though he offers some evidence to support this. For example, in Sakha, the definite object is external to the VP and accusative while the indefinite remains inside the VP and is unmarked. If the VP is a separate domain, the indefinite object is in a different domain to the subject and subsequently only eligible for unmarked case. The definite object is in the same domain as the subject and hence able to be assigned dependent case. However, for other languages where subjects and objects interact but for which there is little reason to believe that objects move out of the VP, it must be the case that its domain status is somehow evaded. For this, Baker

proposes the notion of a 'soft domain': a domain for which some of its contained DPs remain active even after Spell-out. This is not a particularly elegant solution and it raises issues which destabilise the assumption that the principles of case assignment are limited by the same restrictions placed on other syntactic processes. We will see that, for English at least, this problem can be avoided.

3. A simplification

Both Marantz and Baker take a traditional view concerning the nature of case: case is a feature whose values range over tokens such as 'nominative', 'accusative', 'dative', etc. From this perspective, the notions 'dependent' and 'unmarked' merely name types which actual case values fall into. However, DCT, if paired with a late insertion approach, à la Distributed Morphology (Halle and Marantz, 1993), allows for a more radical view. In this, dependent and unmarked are the values of the case feature and the different forms that we call 'nominative', 'accusative', etc. are contextually determined exponents of these values. I will demonstrate below that this latter view offers a substantial simplification.

In this demonstration, I will refer to the analysis of the alternation between nominative and dative case (forms) in Hungarian proposed by Newson and Szécsényi (2020). This paper argued that nominative case and some uses of dative case are unmarked in the language. As is typical of accusative languages, the subject of the finite clause is nominative, realised as a null morpheme, in both transitive and intransitive contexts:

(3) a. *Péter-∅ el-olvas-t-a a könyv-et.*
Peter-NOM away-read-PAST-3S. the book-ACC
'Peter read the book.'

b. *Péter-∅ alud-t-∅.*
Peter-NOM sleep-PAST-3S.
'Peter slept.'

However, Hungarian has an inflected infinitive for which the subject, in both transitive and intransitive contexts, is dative:

(4) a. *Nem szabad Péter-nek olvas-ni-a a könyv-et.*
not allowed Peter-DAT read-INF-3S. the book-ACC
'Peter is not allowed to read the book.'

b. *Nem szabad Péter-nek alud-ni-a*
not allowed Peter-DAT sleep-INF-3S.
'Peter is not allowed to sleep.'

The dative case used here cannot be analysed as a lexically governed case as it is no more semantically restricted than the nominative subject of the finite clause. Indeed, its equivalence to the nominative subject leads straightforwardly to the conclusion that it is an unmarked case. Newson and Szécsényi extend this analysis to cover the well known facts about Hungarian possessive DPs (Szabolcsi, 1983), where the possessor can either be nominative or

dative, depending on its position within the DP: nominative if lower than the determiner and dative if higher, as shown in (5).

(5) a. *az én / Péter-∅ kutyá-m/-ja*
the 1S.NOM Peter-NOM dog-1S./-3S.
'my/Peter's dog'

b. *nekem / Péter-nek a kutyá-m/-ja*
1S.DAT Peter-DAT the dog-1S./-3S.
'my/Peter's dog'

If there are two unmarked cases in the language, Newson and Szécsényi argue, then there must be two domains which they are the unmarked cases of. Assuming that case domains are Spell-out domains, it follows that there must be two different phase heads involved in these constructions: one which introduces the unmarked nominative domain and the other introducing the unmarked dative domain. The same agreement morpheme, differing from finite agreement, appears in both the inflected infinitive and the possessive DP, which Newson and Szécsényi call non-finite agreement (AgrN). They claim this to be the phase head introducing the unmarked dative domain[2]. The standard phase heads C and D introduce the unmarked nominative domain.

Clearly, the assumption of an extra phase head adds complexity to the theory and given that the effects of this particular phase head are detectable only in terms of case phenomena, it is not independently justified. But the argument that there must be two different case domains assumes that nominative and dative are two different cases. Under the assumptions discussed above, however, there is only one case at play here: unmarked, though its realisation differs, depending on its context. If true, we need only assume one type of domain, introduced by the standard phase heads, C and D, with unmarked case assigned to the subject and possessor of both We then add the following realisation rule for the unmarked case morpheme[3]:

(6) $\text{Case}_{[\text{unmarked}]} \Leftrightarrow$ ∅ / C/D –
nVk elsewhere

This rule states that the case feature valued 'unmarked' is realised by the null morpheme (=nominative) in the local context of a preceding C or D and as 'nek/nak' (=dative) in all other contexts. This is where we see the true nature of AgrN, as its presence does not define a separate domain, but a distinct context blocking the application of the first condition and allowing the elsewhere form to emerge.

As can be seen from the above, the effects of the suggested simplification are fairly broad ranging. It not only reduces the number of structural cases the system operates with but a

[2] Due to the appearance of unmarked dative in other constructions which do not involve AgrN, Newson and Szécsényi conclude that the unmarked nominative domain is defined as that introduced by C and D and the unmarked dative domain is defined as 'elsewhere'.

[3] As with most Hungarian morphemes, the vowel of the dative morpheme is harmonic with the vowels of the stem.

substantial and positive simplification can be made in terms of the definition of domains and the phase heads required.

4. English accusative

English is typically assumed to be an accusative language, judging from the forms most of its pronouns take in different contexts. We find 'nominative' pronouns (*I*, *we*, *he*, *she*, *they*) in subject positions of finite clauses and 'accusative' (*me*, *us*, *him*, *her*, *them*) in object position. It is striking that this assumption about the case system of the language is based on the behaviour of five words. All of the other nominals in the language do not show this pattern, but rather demonstrate a neutral system in which the same form emerges in all contexts.

Newson (2019) argued that accusative on the subject of the English acc-ing gerund (7a) must be an unmarked case, given that there is no other nominal element within its domain to license the assignment of a dependent case. Newson and Szécsényi (2023) extend this claim to *for*-clauses and small clauses for exactly the same reason. Both of these can appear in subject position and in that configuration, there can be no external DP to license dependent case on the subjects of these clauses:

(7) a. Him playing fair was unexpected.
b. For them to succeed would please the supporters.
c. Them disappointed would be upsetting.

Indeed, the only time an accusative form realises dependent case seems to be in object position and then only when the object is one of the five pronouns which has such a form. The fact that this form realises unmarked case in significantly more contexts raises the question of whether it is ever really used to realise anything else.

If English is an accusative language and dependent case is assigned to the object, then it must be a language with a 'soft' VP domain, as there is little reason to believe that the object moves out of the VP. As discussed above, Baker's notion of 'soft domains' is problematic and it would be better avoided if possible. Fortunately, there is an assumption that enables us to avoid claiming that the English VP is soft and which unifies all the uses of the accusative pronouns as the realisation of a single case. If we simply assume that the English VP is a case domain, then it follows that the object can only be assigned unmarked case. Therefore, accusative pronouns only ever realise unmarked case and, indeed, there is no dependent case assigned in the language at all, as is indicated by most of its nominal elements[4].

[4] A reviewer points out that under these assumptions English has smaller spell-out domains than accusative languages as for these the VP is not a case domain and wonders if there is any empirical evidence for this. Unfortunately, this is a problem facing Baker's suggestion that case domains and spell-out domains coincide as, as far as I am aware, there is no reason to think that VP is 'soft' with respect to other phenomena, such as movement or long distance agreement. It is unlikely, therefore, that we will detect any difference between English and accusative languages in this respect.

The realisation of case in English is therefore very simple. Unmarked case, in the vast majority of instances, is realised as a null morpheme. For the five pronouns which have context dependent realisations, the 'nominative' form is restricted to finite clause subject position and, like the 'dative' in Hungarian, the 'accusative' form is used elsewhere. Thus, we have the following realisation rules:

(8)

1pl.	⇔	*we*	/	C_{FIN} –
	⇔	*us*		elsewhere
1	⇔	*I*	/	C_{FIN} –
	⇔	*me*		elsewhere
3pl.	⇔	*they*	/	C_{FIN} –
	⇔	*them*		elsewhere
masc.	⇔	*he*	/	C_{FIN} –
	⇔	*him*		elsewhere
fem.	⇔	*she*	/	C_{FIN} –
	⇔	*her*		elsewhere
3	⇔	*it*		
2	⇔	*you*		
$Case_{[unmarked]}$	⇔	∅		

5. DP movement contexts

With the above analysis in place, we can now turn our attention to contexts in which DPs move and which have in the past been claimed to be case motivated. We will consider three movements: the passive movement, raising to object and raising to subject:

(9) a. [$_{CP}$ C [$_{TP}$ They may be [$_{vP}$ follow-ed [$_{VP}$ ~~follow~~ ~~they~~]]]].
b. The magistrate believed them (unwisely) [~~them~~ to be honest].
c. [$_{CP}$ C [$_{TP}$ They seemed [~~they~~ to be honest]]].

Each of these constructions has at some point in the past been claimed to involve case motivated movement and central to that claim is the assumption that case is assigned to the DP after it moves. It is my contention that in each of these the simpler assumption is that case is assigned to the DP in its base position. One of the main reasons to assume that case is assigned after movement is that a pronoun takes the form appropriate to its landing site. But the form a pronoun takes is irrelevant to the issue of case assignment as this is determined post syntactically on a contextual basis and so this argument is undermined.

The issue is not only a matter of case assignment, however. The movements themselves have led to assumptions about the exceptional status of what would have been Spell-out domains in other constructions. This impacts on case assignment under Baker's claim that case domains are Spell-out domains. If VP in the passive and the TPs in raising constructions are not Spell-out domains, then they are not case domains either and case will not be assigned until the next phase head is merged into the structure. This will be after the relevant movement and hence case will be assigned to the DP in its landing position. My claim for simplicity will rest on the argument that there is no need to assume an exceptional status for

these phrases. If this is so, then case will be assigned before the movement takes place and it will therefore play no role in any aspect of the movement itself.

Let us start with the passive. The standard 'GB' approach to this was to claim that the object position is caseless due to the passivised verb losing its ability to assign accusative case. Therefore, in order to satisfy the Case Filter, the object moves to the subject position where it will be assigned the case relevant to this position. Later descendants of this approach claimed that the accusative case was the responsibility of the little v head which introduces the external argument. In the passive, this head is absent and hence the accusative case also goes missing. While it is not typically assumed that the there is no Voice head in the passive, the passive morpheme being its realisation, this element cannot be assumed to assign case and its status as a phase head might also be questioned.

From the present perspective, the question of whether the Voice head in the passive construction assigns case or not is not a meaningful one. In a strict interpretation of DCT principles, no head assigns case. The issue of whether it is a phase head is relevant however, as this impinges on the status of the VP as a case domain. There are a number of ways in which it can be maintained that the passive v is a phase head without any problems for the movement. One would be to suppose that the object makes use of its specifier position as an escape hatch. This might run into problems concerning the motivation for this movement, under the assumption that movements involve the checking/valuation of some feature. This would be especially so as it does not appear that the passive v always requires a DP to move through its specifier[5]:

(10) It was [$_{vP}$ – thought [$_{CP}$ that no one knew]].

A second possibility that would not require movement through the specifier of the vP would be to adopt a weaker version of the Phase Impenetrability Condition (PIC), as suggested in Chomsky (2001). Under this assumption, elements within a Spell-out domain do not become immediately inaccessible after Spell-out but can be accessed until the next phase head is merged. This would avoid the assumption that the passive v is exceptional at the same time as allowing the object to move directly into the subject position. Under these assumptions, the VP is still a Spell-out domain and therefore a case domain. It would be more complicated to prevent case from being assigned within the VP and pointless to claim that it is

[5] A reviewer suggests that it might be possible for the pleonastic subject to raise from a position inside the vP, perhaps object, to subject position and thus making use of the vP specifier. This is currently not an assumption that is normally made and typically the clausal complement is assumed to be in this position, thus excluding the pleonastic element from originating there. Early generative analyses, however, often assumed that clausal arguments were inside a nominal phrase, the head of which could be realised by *it*. The underlying assumptions which led to this proposal have largely been abandoned and it is no longer felt necessary to adopt it. Empirically, the suggestion rests on the status of examples such as:

(i) I never thought it that everyone knew.

To my ear, this sounds very marginal and the clause seems to have the status of an epenthetic element rather than that of an argument. Thus, there is little to support the idea that pleonastic subjects raise from within the vP.

assigned in both positions. As there are independent reasons for adopting the weak PIC (Chomsky, 2001), I claim that this is the preferred analysis.

Next, we consider raising to object. The analysis of this construction has undergone development since the standard GB approach. Originally, the DP subject of the infinitival clause was said to be case marked in situ and this required assumptions about the status of the clause. The general approach took this case assignment to be exceptional, given that verbs do not normally assign case into their clausal complements. Hence, 'exceptional' clauses were claimed to be IPs rather than the usual CP. Subsequent work, based on observations originally made in Postal (1974), claimed that the subject raises to object position, where its case requirements are satisfied (Lasnik, 1995). This still requires an exceptional status for the infinitival clause to allow for the movement. More recently, this movement has been argued to be optional (Lasnik 2001; den Dikken 2018). This means that the movement is not required for case purposes; the DP, even when unmoved, is still assigned case. We can therefore be confident that it is possible to assign case to the subject of the infinitive before it moves, even in cases where it does move.

However, even if we can conclude that it is possible to assign case to the exceptional subject before it moves, it is still not demonstrated that case assignment must be made prior to movement due to the assumed exceptional categorial status of this clause. If there is no complementiser, then the clause is not a case domain, and case will only be assigned once the next phase head, the little v of the higher clause, is merged into the structure. As this is subsequent to any movement of the subject, it follows that the subject will get its case in its landing site. Therefore, although the movement may not be essential for case assignment, it is still possible that case and movement interact. We therefore need to examine the claims for the exceptional status of this clause.

In many ways, the claim for the exceptional status of exceptional clauses is similar to those made about the passive VP discussed in the previous section. They originate in assumptions about case assignment and movement, many of which are no longer relevant. As argued for the passive VP, it would be simpler not to have to assume a special status for these clauses if there is no longer any need for it. There certainly is no need for this assumption from the perspective of the current theory of case assignment. Furthermore, under the adoption of the weak PIC suggested in the previous discussion, there is no need to assume exceptional clauses not to be CPs either, as movement to object position should be possible out of a CP. Again, I argue that a simpler analysis follows if we reject the exceptional status of these clauses, thereby favouring the analysis in which case is assigned prior to the movement.

Finally, we turn our attention to raising to subject constructions. As we argued, the fact that a raised pronoun subject has a form consistent with the position it moves to is no indication of where it was assigned case. The relevant questions are whether case could have been assigned before the movement and what structural conditions must hold in order for this to happen. Given that the simplest analysis of the other cases we have discussed involves case being assigned before movement, there is some reason to believe that the same will be so for raising to subject. Once again, however, standard assumptions would not favour this analysis. The original observation, mainly based on English data, was that raising is only possible out of non-finite clauses. Raising out of a finite clause is impossible:

(11) a. They seem [~~they~~ to be harmless].
b. *They seem [~~they~~ are harmless].

It was therefore assumed that there must be something exceptional about these non-finite clauses to allow the movement and hence they were claimed to lack the CP layer. Note that the raised DP must also escape the higher VP. The absence of an agentive little v goes some way in accounting for this, but the situation is similar to that of the passive discussed above.

Some pause for thought is suggested, though, by the observation that raising out of finite clauses is possible in some languages, e.g. Brazilian Portuguese (Ferreira, 2000), Zulu (Halpert, 2019) and Mongolian (Fong, 2019). While there have been numerous responses to these observations which try to square them with current assumptions (see Zyman, 2023, for a detailed review), it is in principle possible that the original assumption that infinitives are exceptional in English for allowing raising was misdirected and the question should have been: what is exceptional about English finite clauses that they prevent raising? Pertinent to this is Halpert's (2019) observation that in Zulu while raising from finite clauses is possible, it is prevented from non-finite clauses. Such observations suggest that it is not necessary to assume an exceptional status for the infinitive from which raising takes place. Though I will not attempt to argue in favour of one of the approaches which seek to account for raising out of CP, I will be satisfied with the fact that assuming a non-exceptional status for English raising constructions provides us with a uniform, and thereby simpler, analysis of case assignment in which case is always assigned prior to movement.

To conclude this section, I have argued that the theory of case assignment adopted here removes the main motivation for assuming late case assignment in the constructions we have discussed. Moreover, a simpler analysis follows in which supposed exceptional statuses for certain constructions can be done away with by assuming early case assignment. This all leads to the conclusion that case has no role in movement in English.

6. So why do DPs move?

In this final section, I will briefly consider why DPs move, if not for reasons of case. While I am not able to provide anywhere near a full answer to this question, I believe there is enough evidence to conclude that the assumption that there is a licensing requirement on DPs, following from the original Case Filter approach, is incorrect.

Consider the following observations:

(12) a. It is likely [(that) they will win].
b. [*(That) they will win] is likely.
c. [*(For) them to win] is likely.
d. They are likely [~~they~~ to win].

(13) a. It seems [[that they won] has been confirmed]].
b. [That they won] seems [[~~that they won~~] to have been confirmed]
c. *It seems [[that they won] to have been confirmed].

(14) a. I believe [(that) they will win].
b. I believe [them to have won].
c. I believe them [~~them~~ to have won].

(15) a. I consider them [~~them~~ mad].
b. *I consider [them mad].

It is generally assumed that movement, as opposed to long distance agreement, involves the checking of a specific feature (sometimes termed the EPP feature). One incarnation of this, which tied the idea to DP-licensing, was that for DP movement contexts, the feature involved is a 'D' feature on the tense head which would be checked by the DP moving to subject position (Chomsky 1995). The fact that clauses can act as subjects (12), however, suggests that whatever lies behind the original EPP requirement (that clauses must have subjects), is not dependent on the specific category of the subject. Indeed, this suggests that the licensing involved here is not that of the subject, but rather the clause that it is subject of.

If we take this perspective, we can observe that different clauses are licensed by different subjects. Finite clauses are licensed by both DP and CP (but only those with an overt complementiser). Certain non-finite clauses, however, cannot be licensed by an overt subject, be it DP or CP, as shown in (13c). This cannot be accounted for by the standard case-based view of raising, which has nothing to say about the distribution of clauses.

The contrast between (14) and (15) suggests that different conditions hold of licensing requirements in the VP. If we assume that it is not just clauses that require licensing, we can account for a difference in raising to object, noted by Hong and Lasnik (2010) and supported by den Dikken (2018), concerning infinitives and small clauses. In a raising to object context, the subject of a small clause must raise, contrasting with the optional raising from the subject of the infinitive. One possible way to account for this is to assume that the movement serves to satisfy some licensing requirement of the VP in a similar way to how the licensing requirement of clauses results in movement to subject position. The optionality of the movement with infinitives falls out from the assumption that both DP and CP can act as licensors and so the VP is licensed by its clausal complement when movement does not take place and by the DP when it does. The obligatory movement out of the small clause indicates that small clauses cannot act as licensors. Note that small clauses can, to a limited extent, license clauses and as such they behave like other clauses:

(16) a. [Workers angry about pay] is what the management were trying to avoid.
b. *It seems [[workers angry about pay] to be what the management were trying to avoid.
c. [Workers angry about pay] seems [– to be what the management were trying to avoid.

Obviously, this is a very different perspective from the standard point of view and one which is barely worked out. But it does, at first glance, appear to have merit. Given that our understanding of licensing from a standard 'EPP' feature approach is not particularly advanced, it may well be worth exploring the kind of licensing outlined here, even if only to come to a better realisation of what licensing is not about.

7. Conclusion

If it is true that English is a neutral case language and the forms of its pronouns are merely contextually determined realisation of a single underlying case, then most of the arguments that have led to the assumption of the exceptional status of certain VPs and clauses are undermined. An analysis in which such exceptions can be avoided is simpler and therefore preferable. I have argued that a simpler analysis is possible without adding complexity elsewhere which is not otherwise motivated. As a consequence, there is no reason to assume that case is not assigned to DPs in their base positions and this is therefore the null hypothesis. This does raise the question, however, of why movements take place if not to satisfy some requirement of DPs. Although I have no fully developed answer to this, I have indicated that there is reason to believe that whatever it is that lies behind the relevant movements, it is not specific to DP, as CP and other constructions are subject to it, and therefore it is not the licensing of the phrases that undergo the movements that is involved, but rather that of the constructions containing the landing site of the movement. I have pointed out that different constructions, clauses and VPs, appear to be licensed by different elements and this assumption offers some explanation of why certain movements are optional and others obligatory.

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Mixed compounds in code-switching contexts

Cristina Pierantozzi and Gloria Cocchi
University of Urbino, Italy

Abstract

This pilot work analyses the acceptability of mixed compound words in code-switching contexts. In particular, we will discuss mixed Italian-German and Italian-English compounds, i.e. cases of mixing among languages where the process of compounding follows different rules for what concerns the position of the head, as well as inflection issues.

An Acceptability Judgment Task featuring different types of mixed compounds has been administered to two groups of participants, who are either bilingual or highly fluent in the two languages involved (Italian-German or Italian-English). Our conclusion is that it is overall possible to have mixed compounds. However, the two groups provide different judgments. For the Italian-German language pair, the possibility of mixed compounds is severely constrained, especially because of the different head-modifier parameters exhibited by the two languages and the interference of gender inflection. Though the English language patterns with German with regard to the head-modifier parameter, Italian-English participants accept a much higher number of combinations; indeed the fact that both Italian and English exhibit exocentric compounds, and that gender features do not interfere with judgments, might favour acceptability.

Keywords: morphology; morpho-syntactic interface; code-switching; mixed compounds; integration

1. Introduction[1]

According to many definitions (e.g. Trach 2022), a compound word is obtained when two (or more) words are linked together to form a new word with a different meaning. Hence, morphology analyses compounds as complex words, since no free morpheme can be inserted between the two members, even when there is a space in-between (cf. **a language famous school*). At the same time, syntax interferes with the compounding process, since the linear order exhibited by the two members of the compound reflects the head-modifier parameter which is dominant in the language involved. With these premises, the acceptability of mixed

[1] This work is the result of the collaboration of the two authors in all respects. Nevertheless, Cristina Pierantozzi takes responsibility for sections 3, 5, 6 and 8 and Gloria Cocchi takes responsibility for sections 1, 2, 4, and 7.

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compounds in code-switching (CS) contexts would represent a peculiar case of CS below word level, which is generally disallowed.

After a discussion of the taxonomy of compounds in the three languages under investigation, as well as a review of the literature on the emergence of mixed compounds in different language pairs, the main aim of this work is to investigate the acceptability rates of mixed compounds in Italian-German and Italian-English code-switching contexts. In particular, we aim to see how different factors (i.e. the head-modifier parameter, or gender features) interfere with the acceptability rates and discuss the theoretical implications raised by them.

2. English, German and Italian compounds: a comparison

According to Adams (1987), English compounds should be classified according to three parameters:

a) the categories of the combined words, as well as the category of the compound itself;
b) how they are written, a fact which correlates to the stronger or weaker degree of union of the two words: closed compounds, written in one word (*ashtray*), hyphenated compounds (*oil-free*), and open compounds, with a space in-between (*language school*);
c) the presence and position of the semantic head, namely the most important of the two words, from both a syntactic and a semantic point of view (Plag 2003): endocentric compounds, where one of the two words represents the head (*swordfish*, which is a fish and not a sword); exocentric compounds, where none of the words is to be identified as the head (*outlaw*), and copulative compounds, where both words can be deemed as heads (*sofa bed*).

This classification has been proposed for English, but can be easily adapted to other languages, though with some relevant differences that we will underline in what follows.

As concerns category combinations, in this work we will focus primarily on compound nouns (which is by far the most frequent outcome), and in particular on those obtained by N+N combination, though different possibilities will be explored (e.g. compound adjectives or nouns formed by V+A combinations).

Relating to how compounds are written, in German almost all compounds are written in one word, without spaces or hyphens in-between (*Staatspolizei* 'state police').[2] Conversely, in Italian we witness a high number of open compounds, written in two words, especially compounds of more recent formation or less frequently used (*pesce palla* 'puffer fish' [lit. 'fish ball'])[3]. Hyphenated compounds, which are frequently found in English, are relatively rare in Italian or German.

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[2] Indeed, in German we often find (closed) compounds formed out of more than two words. However, this type of compounds will not be tackled in the present work.
See https://www.dartmouth.edu/~deutsch/Grammatik/Wortbildung/Komposita.html.

[3] See e.g. Scalise (1994), Grossman and Rainer (eds.) (2004).

The most important parameter to discuss proves to be head position, as it is in this environment that we observe the most relevant differences among the languages under analysis. Indeed, in German, virtually all compounds are endocentric, with very few exceptions (Gast 2008). This means that one of the two words which form the compound is to be regarded as the most important one, which gives the compound a category specification and determines all its semantic and syntactic features, like gender (Plag 2003). Furthermore, the head is always on the right, with no exception: *Freundeskreis* 'circle of friends' is a *Kreis* 'circle'. Therefore German compounds pattern with English endocentric compounds, as the latter are all head-final too.

Crucially, Italian compounds diverge from both German and English compounds in two important aspects. Firstly, Italian endocentric compounds are generally head-initial, i.e. the head is the member on the left (*pescecane* 'shark' is a *pesce* 'fish', rather than a *cane* 'dog'); there are a few head-final compounds (like *ferrovia* 'railway' [lit. 'iron.way'])[4], but this combination is hardly productive. Secondly, Italian exhibits a very high number of exocentric compounds, which are almost unattested in German and not so numerous in English. In particular, in Italian we find a high number of compound nouns formed out of V-stem+N combinations (*cavatappi* 'corkscrew' [lit. 'take-out.corks'][5], but not only (see e.g. the adverb+N combination *fuorilegge* 'outlaw').

Finally, copulative compounds represent a minority in the three languages; see German *süßsauer* or Italian *agrodolce* (both meaning 'sweet-and-sour').

3. Theoretical background

In Poplack's (1980), Sankoff and Poplack's (1981) seminal works on code-switching, two important constraints on mixed combinations are formulated: the Free Morpheme constraint, which assumes that the switch may not occur below word level, and the Equivalence constraint, which states that the order of sentence constituents on both sides of the switch point must be grammatical with respect to both languages involved.

Crucially, both constraints are somehow challenged by the mixed compounds tackled in the present work. As for the first, as stated in the Introduction, compounds are treated by morphology as complex words, hence mixed compounds would represent a peculiar case of CS below word level, a possibility which is generally disallowed by the theory. Actually, Sankoff and Poplack's (1981) Free Morpheme Constraint mainly rules out the switching between two bound morphemes, or between a free root and a bound inflectional morpheme. Compounds, thus, would represent a different case of switching below word level, as they are generally formed out of the combination of two free roots. However, this is not always the

[4] In literal translations, a dot is placed to separate the two members of closed compounds.

[5] Compounds of this type are considered exocentric since the V-stem cannot be regarded as the head, as it is a verbal element while the compound is a noun. Indeed, compounds made of agent noun + theme noun, or vice versa (as in the English example *dishwasher*) are not attested in Italian.

case. Indeed, in Italian V+N exocentric compounds, the first member cannot be regarded as a free morpheme, but rather as a verbal stem, hence a bound morpheme.[6]

As for the second, the head-modifier parameter is crucially different in languages like English and German on the one side, and Italian on the other, since endocentric compounds (which represent the majority of compounds) are head-final in the former languages and (mostly) head-initial in the latter.

MacSwan (1999), who rephrases the Borrowing Hypothesis (Poplack 1980 and following work) in Minimalist terms, assumes that the mentioned constraints hold as far as no rules of the two mixing languages are violated. Hence, CS below word level and even between bound morphemes may in principle be allowed when morpho-phonological constraints are not disobeyed, as stated in the PF Disjunction Theorem (see also Alexiadou and Lohndal 2018). This is indeed what happens in examples like *a-me-repeat* 'he has repeated/failed', reported by Myers-Scotton (1993), where the inflectional bound morphemes of an agglutinating language like Swahili may easily combine with an English root without giving rise to PF violations.[7]

As for mixed compounds, according to Muysken (2000), it is generally possible to have them in languages which exhibit the same parametric choices, hence where the Equivalence constraint is not violated; see in this regard the German-English mixed compounds reported by Alexiadou (2020), like *beachhäuser* ('beach houses') or *kettenstore* (chain store). However, Treffers-Daller (2005) reports the occurrence of mixed compounds also in languages which do not exhibit the same parametric choices, like Dutch-French, e.g. *velo-winkel* ('bicycle shop').

4. Problems raised by mixed compounds. Research questions

Turning to our case study, German and English endocentric compounds are all head-final, with no exceptions. This fact mirrors the rigid parametric order exhibited by nouns and their adjectival modifiers in these languages. In Italian, on the other hand, the great majority of endocentric compounds are head-initial, a fact which also mirrors the relative order of nouns and adjectives; see the contrast below:

(1) G: ein roter Fisch ein Schwertfisch
E: a red fish a swordfish
I: un pesce rosso un pescespada[8]

However, in Italian the N-A parametric order is not as rigid as in the other mentioned languages: indeed in this language we also find some adjectives which may precede the noun

[6] Italian verbs are always morphologically complex and free roots cannot be employed in compounding.

[7] In the literature we find other counter-examples to Poplack's Free Morpheme Constraints and MacSwan's PF Disjunction Theorem involving several language pairs: e.g. Adangme/English (Nartey 1982), Irish/English (Stenson 1990), Breton/French (Timm 1994), Farsi/English (Mahootian 1993), Finnish/English (Halmari 1997) among others.

[8] Literally 'a fish red' and 'a fish.sword'.

they modify.[9] Analogously, in Italian we find some head-final endocentric compounds, though this option is generally unproductive:

(2) I: una gran donna una nobildonna
'a great woman' 'a noblewoman'

This being the situation, we can address our first research question:

– RQ1: In code-switching contexts, will bilingual speakers accept mixed compounds which combine an Italian word and a German or English word?
If so, is this option limited to compounds which are uniformly head-final?

Another problem is raised by the gender features of mixed compounds. In both German and Italian endocentric compounds, the gender of the compound coincides with the gender of its head. However, the nouns which form a mixed Italian–German compound may have a different gender in the two languages. Hence a mixed Italian–German compound might receive the selected gender of the head noun or the analogical gender, namely the gender of the equivalent noun in the other language.

Conversely, since English inanimate nouns are not marked for gender, a mixed Italian-English compound can receive not only the selected gender of its head or the analogical gender, but also a default gender (masculine in Italian), especially in case of compounds with an English head.

Taking all these issues into consideration, we open our second research question:

– RQ2: Will gender issues interfere with the acceptance rate of mixed Italian-German and Italian-English compounds?

5. Test and participants

Seven adult bilingual speakers living in Italy participated in this pilot study. Four of them are Italian/German speakers while three are Italian/English speakers. All participants have filled out a sociolinguistic survey and an Acceptability Judgment Task (AJT) scored on a 6-points Likert scale.

The four Italian/German participants differ among themselves according to both language dominance and the age of acquisition of the two languages; specifically, two of them are 2L1 bilinguals, who have acquired the two languages since birth, while the others are L2 learners, one Italian L2 learner and one German L2 learner. In contrast to the Italian/German group, the Italian/English group consists only of L2 learners, one English L2 learner and two Italian L2 learners. All the Italian L2 participants have lived in Italy for more than 30 years and they are highly fluent in Italian. The German L2 speaker and the English L2 speaker are university students who, according to the Language University Placement Test, have a C level of the QCER in the second language. All of the participants maintain that they use the two languages frequently on a daily basis.

[9] The Italian language speculates on this freer word order: the different position of the adjective with respect to the noun correlates to a semantic difference (see Cocchi and Pierantozzi 2022).

Each of the two groups of participants was given an AJT consisting of around 100 test sentences with mixed compounds obtained from the manipulation of the corresponding monolingual compounds, as will be described in Sections 6.1 and 7.1 below. In particular, the Italian/German AJT consists of 52 mixed compounds inserted in a German context and 49 inserted in an Italian context, while the Italian/English AJT consists of 64 mixed compounds inserted in an Italian context and 55 mixed compounds inserted in an English contest.

The test sentences were also randomized with code-switched and monolingual fillers. Test sentences and fillers were spread over three separate sessions, which have been carried out online using Limes Survey. In particular, in each session, 33% were sentences with mixed compounds (test sentences), 18% were sentences with mixed DPs, 32% were code-switched ergative clauses and, finally, 16% were grammatical and ungrammatical monolingual sentences.

6. Italian-German compounds

6.1. Mixed combinations

For the Italian-German language pair we have selected the following 13 compound pairs, which are more or less equivalent in the two languages from both a morphological and a semantic point of view:[10]

(3)		Italian	German	English equivalent
	a)	ferrovia	Eisenbahn	*railway*
	b)	carta moneta	Papiergeld	*paper money*
	c)	pescepalla	Kugelfisch	*pufferfish*
	d)	pescespada	Schwertfisch	*swordfish*
	e)	lavoro nero	Schwarzarbeit	*undeclared work*[11]
	f)	grigio topo	mausgrau	*mouse gray*[12]
	g)	portachiavi	Schlüsselanhänger	*keychain*[13]
	h)	tagliacarte	Brieföffner	*paper knife*[14]
	i)	sottopassaggio	Unterführung	*subway*
	j)	sottoscala	Raum unter der Treppe	*(approx.) basement*[15]
	k)	torta di mele	Apfeltorte	*apple pie*[16]
	l)	camera da letto	Schlafzimmer	*bedroom*[17]
	m)	gamba del tavolo	Tischbein	*table leg*[18]

[10] We will provide literal translation for those compounds which are not exactly equivalent to their English counterpart, and which have not been mentioned until now.

[11] Lit. 'work black' (It.) and 'black.work' (Germ.).

[12] Lit. 'grey mouse' (It.).

[13] Lit. 'bring(V-stem).keys' (It.) and 'key.holder' (Germ.).

[14] Lit. 'cut(V-stem).papers' (It.) and 'letter.opener' (Germ.).

[15] Lit. 'under.stairs' (It.) und 'space under the stairs' (Germ.).

[16] Lit. 'cake of apples' (It.) and 'apple.cake' (Germ.).

[17] Lit. 'room for bed' (It.) and 'sleep.room' (Germ.).

[18] Lit. 'leg of-the table' (It.).

We have manipulated them in order to obtain mixed compounds, which have later on been inserted into German or Italian sentences.

These compounds have been specifically selected in order to have a variety of combinations:[19]

(4)

a)	N+N (head-final)	N+N (head-final)	
	ferrovia	Eisenbahn	*railway*
	carta moneta	Papiergeld	*paper money*
	• Mixed Compounds:		
	Eisenvia	Ferrobahn	
	Papiermoneta	Cartageld	
b)	P+N (head-final)	P+N (head-final)	
	sottopassaggio	Unterfürung	*subway*
	• Mixed Compounds:		
	unterpassaggio	sottofürung	
c)	N+N (head-initial)	N+N (head-final)	(singular)
	pesce palla	Kugelfisch	*pufferfish*
	pescespada	Schwertfisch	*swordfish*
	• Mixed Compounds:		
	pesce kugel	pallafisch	
	fischpalla	kugel pesce	
	pesceschwert	spadafisch	
	fischspada	schwertpesce	
d)	N+N (head-initial)	N+N (head-final)	(plural)
	pesci palla	Kugelfische	*pufferfish*
	pescispada	Schwertfische	*swordfish*
	• Mixed Compounds:		
	pescikugel	pallafische	
	fischepalla	kugel pesci	
	Pescekugeln	Kugelpesci	
	Fischpalle	Pallafische	
e)	V+N (exocentric)	N+N (head-final)	
	portachiavi	Schlüsselanhänger	*key holder*
	tagliacarte	Brieföffner	*paper knife*
	• Mixed Compounds:		
	portaschlüssel	chiavianhänger	
	tagliapapiere	carteöffner	
	tagliabriefe	lettereöffner	
f)	N+A (head-initial)	A+N (head-final)	
	lavoro nero	Schwarzarbeit	

[19] For all examples we show in the first column the Italian compound and in the second the German equivalent, with the English translation aside.

- Mixed Compounds:
  arbeit nero — Schwarzlavoro
  lavoro schwarz — Neroarbeit

g) A+A (head-initial) — A+A (head-final)
   grigio topo — mausgrau

- Mixed Compounds:
  grigio maus — mausgrigio
  grau topo — topograu

h) Prepositional Phrase — N+N (head-final)
   torta di mele — Apfeltorte — *apple pie*
   camera da letto — Schlafzimmer — *bedroom*
   gamba del tavolo — Tischbein — *tableleg*

- Mixed Compounds:
  apfeltorta — melatorte
  dormizimmer — schlafcamera
  tavolobein — tischgamba

i) P+N (exocentric) — PrepositionalPhrase
   sottoscala — Raum unter der Treppe — *basement*

- Mixed Compound:
  sottotreppe

6.2. Results and discussion

6.2.1. RQ1: In code-switching contexts, will bilingual speakers accept mixed compounds which combine an Italian word and a German word?
If so, is this option limited to compounds which are uniformly head-final?

Abstracting away from the grammatical contest (the main language of the clause), as well as from external factors, like language dominance, we may conclude that 12 mixed compounds out of 43 combinations have been judged as (more or less) acceptable. On average, only few mixed compounds have been accepted by 2L1 bilinguals, while L2 learners have proved to be more open to the possibility of mixing.

We have recorded a general positive consensus on the following sentences (both 2L1 and L2 speakers):

(5) Costruiranno una eisenvia
'they will build a (f.sg) railway'

(6) a) Einige Demonstranten überqueren den Unterpassaggio
'Some demonstrators cross the (m.sg) subway'
b) Alcuni manifestanti attraversano la sottoführung
'Some demonstrators cross the (f.sg) subway'

As said above, L2 learners proved to be more flexible. In particular, the combination in (7) has been also accepted:

(7) Ich zahle nur mit Papiermoneta (Italian L2)
'I only pay with paper money'

Crucially, all the compounds which originate the mixed forms in (5) to (7) above are head-final in both languages. Indeed for this pattern we have recorded the highest acceptance rate (4 out of 6 mixed compounds of this type).

Only in very few cases L2 learners accept also combinations which mix N+N compounds having a different head position in the two languages (2 out of 16):

(8) a) Ho visto due fische palla (Italian L2)
'I saw two pufferfish'
b) Mangio solo spadafisch (Italian L2)
'I only eat swordfish'

Similar negative judgments have been provided for mixed adjectival compounds, which also have a different head position (A+N vs. N+A): only 1 positive score out of 8 combinations:

(9) Questo maglione è topo grau. (German L2)

Expectedly, also mixed compounds which combine an Italian exocentric V+N compound and a German endocentric N+N head-final compound have been almost always rejected: only 1 combination out of 16 has been accepted:

(10) Ich kaufe ein Lettereöffner (German L2)
'I buy a paper knife'

Finally, other combinations which have obtained rather good scores among L2 learners are those mixing a compound in one language and the corresponding PP in the other (4 out of 6):

(11) a) Mangio una apfeltorta (Italian L2)
b) Ich esse eine Melatorte (Italian L2)
'I eat an applepie'

(12) I cassetti sono nel sottotreppe (German L2)
'the drawers are in the space under the stairs'

(13) Ich reserviere ein Schlafcamera (Italian L2)
'I book a bedroom'

Hence we may conclude that mixed compounds which combine an Italian word and a German word are in principle acceptable, but there are several limitations and interesting inter-individual variations.

We may draw a preliminary generalization and assume that the acceptance rate of a mixed Italian–German compound increases if the two languages have two equivalent compounds with the same head position (i.e. head-final), or when a compound in one

language corresponds to a N+PP in the other language. Conversely, the acceptance rate of a mixed Italian–German compound decreases dramatically if the two languages have two equivalent compounds with different head positions.[20]

These conclusions support Muysken's (2000) assumption, that it is easier to have mixed compounds in languages with the same head-modifier parameter, also in line with Poplack's (1980) Equivalence Constraint. German and Italian do not generally exhibit the same parametric choices but, as seen above, word order in Italian is not excessively rigid and this language features also some head-final compounds. Hence, the higher acceptability of mixed compounds involving Italian head-final ones is expected.

6.2.2. RQ2: Will gender issues interfere with the acceptance rate of mixed Italian-German compounds?

As concerns gender, in compound pairs having a different gender in Italian and German it is generally the selected head that assigns gender to the mixed compound, irrespectively of the language in which the clause is expressed. See in particular (6a) vs. (6b): *Unterpassaggio* is preceded by a masculine article, coherently with the Italian head noun *passaggio*, while *sottoführung* is feminine like German *Führung*.

However, also the mixed compounds showing analogical gender, as in (14) below, have not been deemed as completely unacceptable, even by early bilinguals, though they obtained a lower score with respect to (6):

(14) a) ?Alcuni manifestanti attraversano il sottoführung
b) ??Einige Demonstranten überqueren die Unterpassaggio
c) ??Alcuni manifestanti attraversano l'unterpassaggio
'some protesters cross the subway'

The combinations in (11)-(13), which combine a compound in one language with a PP in the other, exhibit a different behaviour: in (11a-b) the compounds show the feminine gender, in line with the feminine gender of the two semantic heads (It. *torta* and Germ. *Torte*); those in (12)-(13) seem to prefer instead a default gender, which is masculine in Italian, as in (12), and neuter in German, as in (13), though, in the latter case, the head noun, *camera*, would be feminine in Italian.

Finally, it is worthwhile noticing that the acceptability rate of a compound seems to increase when the head of the compound is expressed either in the dominant language of the clause, or in the dominant language of the participant (in the case of L2 learners). For instance, in (11a) vs. (11b) we observe a matching between the language of the clause and the language of the compound head; the same holds in the sole accepted combination involving an Italian exocentric V-stem+N compound (*tagliacarte*) and the corresponding German N+N head-final one (*Briefeöffner*). Therefore, these facts suggest a full integration of the mixed compound, in line with Myers-Scotton (1993, 2002).

[20] For more detail see also the discussion in Cocchi and Pierantozzi (2022).

7. Italian-English compounds

7.1. Mixed combinations

In line with 6.1. above, for Italian-English CS context we have selected the following 15 compound pairs, which are more or less (both semantically and morphologically) equivalent; some of them reflect the same choices operated for the Italian-German case:

(15)		Italian	English
	a)	ferrovia	railway
	b)	carta moneta	paper money
	c)	pescepalla	pufferfish
	d)	pescespada	swordfish
	e)	cassaforte	strongbox
	f)	grigioverde	grey-green
	g)	grigio topo	mouse gray
	h)	dolceamaro[21]	bittersweet
	i)	apribottiglie[22]	bottle-opener
	j)	schiacciapatate[23]	potato masher
	k)	tagliacarte	paper cutter
	l)	sottopassaggio	subway
	m)	torta di mele	applecake
	n)	serpente a sonagli[24]	rattlesnake
	o)	cane da guardia[25]	watchdog

Again, we have manipulated them in order to obtain different types of mixed compounds:

(16)			
	a)	N+N (head-final)	N+N (head-final)
		ferrovia	railway
		carta moneta	paper money
		• Mixed Compounds:	
		railvia	rotaieway
		ironvia	ferroway
		papermoneta	cartamoney
	b)	P+N (head-final)	P+N (head-final)
		sottopassaggio	subway
		• Mixed Compounds:	
		subpassaggio	sottoway
	c)	N+N (head-initial)	N+N (head-final)
		pesce palla	pufferfish
		pescespada	swordfish

[21] Lit. 'sweet.bitter'.
[22] Lit. 'open(stem)-bottles'.
[23] Lit. 'squash(stem).potatoes'.
[24] Lit. 'snake with rattles'.
[25] Lit. 'dog for guard'.

- Mixed Compounds:

pesce ball	sbuffafisch pallafish
fisch palla	puffer pesce
pesce sword	swordpesce
fischspada	spadafisch

d)

N+A (head-initial)	A+N (head-final)
cassaforte	strongbox

- Mixed Compounds:

cassastrong	fortebox

e)

V+N (exocentric)	N+N (head-final)
apribottiglie	bottle-opener
schiaccia patate	potato masher
tagliacarte	paper cutter

- Mixed Compounds:

apribottles	bottiglia-opener
schiaccia potatoes	patata masher
tagliapapers	carta cutter

f)

Prepositional Phrase	N+N (head-final)
torta di mele	applecake
serpente a sonagli	rattlesnake
cane da guardia	watchdog

- Mixed Compounds:

appletorta	melacake
rattlesserpente	sonaglisnake
guardiadog	watchcane

g)

A+A	A+A
grigioverde	grey-green
grigio topo	mouse gray
dolceamaro	bittersweet

- Mixed Compounds:

grey verde	grigiogreen
grigio mouse	mouse grigio
dolcebitter	sweetamaro
bitterdolce	amarosweet

7.2. Results and discussion

7.2.1. RQ1: In code-switching contexts, will bilingual speakers accept mixed compounds which combine an Italian word and an English word?
If so, is this option limited to compounds which are uniformly head-final?

From our investigation it emerges that our participants accept 19 Italian-English mixed compounds out of 37 mixed combinations, hence a much higher number with respect to Italian-German ones; specifically, the Italian/English speakers accept the 51% of all mixed compounds while the Italian/German speakers accept the 27%. This may be due to the fact that, on the one side, the Italian language contains a very high number of (more or less adapted) loanwords from English, a fact that renders English-sounding words more familiar in Italian or bilingual contexts; on the other, the English lexicon contains more words of Romance origin (akin to the equivalent Italian words) with respect to German.

The Italian L1 speaker marginally accepts only a few mixed combinations, while the two English L1 speakers accept a much higher number.[26]

However, unlike what holds in Italian-German compounds, we do not observe a definite preference for N+N compounds which share the same head (final) position (only 2 out of 6 combinations):

(17) a) il/la/the cartamoney
b) the ferroway

For the *ferrovia/railway* pair, the low acceptability of some mixed combinations is certainly due to the fact that there is no exact semantic correspondence between the two compounds (unlike in *ferrovia/Eisenbahn* seen above).[27]

We also record a clear difference in judgment in the other types of endocentric compounds, specifically in mixing compounds having a different head position, i.e. compounds which are head-final in English and head-initial in Italian (5 out of 11). In particular, those in (18) are judged fully acceptable and natural:

(18) a) the sbuffafish[28]
b) the spadafish

In (18a-b), the language of D matches the language of the head *fish*. It is worth underlining that the mixed compound in (18a), as well as those in (19) below, are derived from a compound pair where the Italian word *palla* ('ball') and the English word *puffer* have a different meaning in the two languages. Furthermore, the English noun *puffer* has an Italian verbal equivalent (*sbuffare*, whose stem *sbuffa-* is observed in (18a)). Interestingly enough, the

[26] Indeed all of the examples reported are accepted by the English L1 speakers, while the Italian L1 speaker accepts those reported in (20) below.

[27] Indeed the exact word-to-word translation of *ferrovia* would be *ironway*.

[28] Lit. 'puff(stem).fish'.

mixed V+N pattern in (18a) is judged more natural than the N+N combinations in (19) below, which are judged acceptable but not fully natural independently of the language of D:

(19) a) ?the pufferpesce
b) ?il pufferpesce
c) ?the pallafish
d) ?il pallafish
f) ?il fish palla

The observed preference for the V-N pattern in (18a) can be explained by the high productivity of this type of compounds in Italian. Crucially, this suggests that formal rules, as well as the degree of productivity of the compound patterns in the two languages, override the semantic aspect in the mixing process. Indeed, a high number of combinations involving Italian V+N exocentric compounds have been judged more or less acceptable (6 out of 8), even by the Italian L1 speaker who accepts very few combinations, unlike what observed for Italian-German mixed compounds of this type:

(20) a) il/the carta cutter
b) the/l'apribottles
c) lo/the schiaccia potatoes
d) the bottiglie-opener
g) il tagliapapers
h) il/the patata masher

Our participants also accept combinations of compound (A+A or A+N) adjectives: 7 out of 8:

(21) a) ha un sapore dolcebitter
b) ha un sapore bitterdolce
c) it tastes sweetamaro/ ha un sapore sweetamaro
d) ha un sapore amarosweet
'it tastes bittersweet'

(22) a) questo maglione è topo-grey
b) questo maglione è grigio mouse
c) questo maglione è grey topo
'this sweater is mouse grey'

Finally, in line with the Italian-German participants, the Italian-English speakers accept mixed compounds derived from mixing an English N+N (head-final) endocentric compound and an Italian equivalent PP (3 out of 6):

(23) a) the appletorta
b) il guardiadog
c) la melacake

To sum up, participants quite easily accept mixed combinations of Italian and English compounds. Interestingly, unlike the Italian-German case, this possibility is not restricted to compounds which are head-final in both languages (e.g. *cartamoney* or *ferroway*),[29] as well as to compounds which have a PP form in one of the two languages (e.g. *appletorta* or *melacake*). Many combinations of Italian head-initial and English head-final endocentric compounds have also been judged (more or less) acceptable as well (e.g. *spadafish, pallafish* or *pufferpesce*).

All in all, the main result that we have obtained is the high acceptance of combinations involving Italian V+N exocentric compounds (e.g. *apribottle, schiacciapotatoes, patata masher*, etc.), while in German this type of mixed compounds had always been rejected, with one single exception (cf. 6.2.1. above). This may be due to the fact that the English language, unlike German, features exocentric compounds (though not as many as Italian), among which also some V+N combinations (e.g. *pickpocket*). Hence mixing may be favoured for this reason.

7.2.2. RQ2: Will gender issues interfere with the acceptance rate of mixed Italian-English compounds?

In Italian-English combinations, gender feature does not interfere much with acceptability, as English inanimate nouns do not carry a gender feature. Hence the same mixed compounds may be accompanied either by the English genderless article, or by the Italian gendered one, which generally agrees with the head noun; cf. *the pallafish* or *il pallafish* in (19) above, which have received the same score.

Finally, most of the compounds under analysis are masculine in Italian, and this explains the predominance of (Italian) masculine articles accompanying the compounds. However, if the mixed compound has an Italian feminine head noun, the Italian determiner may be inflected either in the masculine, which is by the way the default gender in Italian, or in the feminine; cf. *questo appletorta* (masc./def.) alongside *questa appletorta* (fem.).

Crucially, in case of a mixed compound with an English genderless head noun, if the equivalent Italian word is feminine, the compound may exhibit the feminine analogical gender as well, as observed in *la melacake* (fem., like the Italian noun *torta*, equivalent to *cake*) in (23c), as well as in *la cartamoney* (fem.), which is accepted together with both *il cartamoney* (masc./def.) and *the cartamoney* in (17).

8. Conclusion

To sum up, though we are aware that more data would be necessary to draw more definitive conclusions, our research has shown that Italian-German and Italian-English speakers accept mixed compounds, and their grammatical judgments are not random but follow the grammatical restrictions at work in monolingual speech, in line with the Null Hypothesis of Code-Switching (Mahootian and Santorini 1996).

[29] Remember that both German and English endocentric compounds are all head-final, while the great majority of Italian ones (though not all) are head-initial.

Moreover, since compounds are treated by morphology as complex words, and mixed compounds have proved to be acceptable in code-switching contexts, our data somehow challenge the ban against switching below word level assumed by the Borrowing Hypothesis with its Free Morpheme Constraint (Poplack 1980, Poplack and Meechan 1995), as well as its rephrasing in terms of the Minimalist Program (Chomsky 1995), i.e. the PF Disjunction Theorem (MacSwan 1999 and subsequent work). Indeed, especially for the Italian-English language pair, participants accept not only mixed compounds formed out of free morphemes (e.g. N+N or A+N), but also combinations obtained by manipulating Italian V+N exocentric compounds, hence featuring an Italian verbal stem, i.e. a bound morpheme.

Crucially, the language pairs taken into consideration in this work differ both in the formal features involved in the compounding process (i.e. the head-modifier parameter, the position of inflectional features, grammatical gender) and in the degree of productivity of the different types of compounds. In particular, German and English endocentric compounds are systematically head-final while in Italian both orders are attested, albeit the highest number of productive endocentric compounds are head-initial.

Hence, given these structural properties of the languages in contact, we wondered, with our RQ1, whether the availability of the switching was to be limited to uniformly head-final mixed compounds. Surprisingly, our data showed that the head-modifier parameter seems to play an important role only for one of the two language pairs taken into consideration: indeed, in the Italian-German pair, the highest acceptance rate is found in the N+N (head-final) and N+N (head-final) combination. In short, Italian-German bilinguals seem to prefer the mixed compounds derived from compound pairs sharing the same head position; this restriction mirrors a CS constraint which is at work at sentence level: the Equivalence Constraint advanced by Poplack (1980).

Conversely, head position plays a secondary role in the Italian-English language pair, where we recorded the strongest preference for mixed compounds derived from the combination of an Italian V+N (exocentric) and an English N+N (head-final) compounds. The recorded asymmetry may be traced back to external factors such as the higher degree of productivity of exocentric compounds in English and Italian compared to German. More data are needed in order to disentangle the role of external and internal factors in the recorded asymmetry.

As for the gender issue raised in RQ2, grammatical gender interferes with the acceptability of mixed compounds in the Italian-German pair but not in the Italian-English one, as expected, given the fact that English inanimate nouns are genderless. In contrast to the Italian-German data, the match between the language and gender of D and the language and gender of the head is not a strong condition for the availability of the Italian-English switching. More options are available.

Finally, given the low number of participants and, especially, the inter-individual differences within the two groups, the data collected so far in this pilot work are to be intended as purely qualitative, showing tendencies that need to be tested in future research with massive data collection.

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Rising and falling diphthongs in Romance languages: A study of the phonological string

Leonardo M. Savoia and Benedetta Baldi
University of Florence, Italy

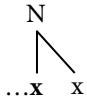
Abstract

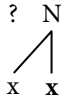
This article discusses the phonological status of diphthongs and their role in the melodic and rhythmic organization of vowel and consonant sequences. We examine the nature of rising diphthongs and their distribution in relation to syllabic structure. Structural approaches, such as GP, admit only falling diphthongs, insofar as only these respect the governing relation within the nucleus or rhyme, which requires the head to be on the left. However, rising diphthongs are widespread in languages and are subject to similar distributional constraints as falling diphthongs. The latter, in turn, also show realizations different from those generally considered canonical in the literature, such as English [ai] of my. Furthermore, not only rising but also falling diphthongs can occur in closed syllables. We argue for a model capable of unifying the treatment of diphthongs, aiming to achieve at least a descriptive adequacy. We adopt a CVCV approach, which aims to account for the organization of phonetic sequences and the licensing relations between vowels (and consonants) based on the melodic strength of the vowels.

Keywords: Diphthongs; stressed nucleus; CVCV model; relations in the sequence; phonological theory

1. Introduction

In metrical models and Government Phonology (GP) (Kaye 1990, Kaye et al. 1990), the vocalic sequences considered true diphthongs are associate with a falling melodic pattern, such as *ai, eu*, etc. of English [fain] *fine*, German [tsait] *Zeit* 'time', as in (1a). On the contrary, rising sequences, such as *wo, je,* etc., are analysed as contour segments or syllabic sequences. This approach allows for the fact that diphthongs typically occur in open syllables, where the head role in the branching nucleus is assigned to the first position, i.e. the fully vocalic part of the sequence. Thus, a binary nucleus with the head in the right position, as in (1b), is excluded.

(1) a. 

vs b. 

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Moreover, GP assumes that the nuclear head of diphthongs is an open vowel which governs a segment with a lower degree of sonority. Nevertheless, these requirements are frequently disregarded (Sections 1 and 2). Taking these points into account, we will investigate the nature and distribution of diphthongs, with the aim to define an adequate phonological framework, based on minimal phonetic requirements. The data we will analyze concern some Romance varieties[1] where stressed nuclei show various types of diphthongization:

- Rhaeto-Romance varieties, i.e. Romansh and Friulian
- Southern Italian varieties, where stressed nuclei show different realizations according to the syllabic structure
- Standard Italian and Spanish diphthongs
- Aromanian

These varieties provide counterexamples to the structural predictions of GP which show:

- falling diphthongs that, in addition to open syllables, also occur in closed syllables, as in (2a) for Romansh (cf. Section 4)
- types of falling diphthongs, in open and closed syllables, in which the nuclear head is a high vowel, as in (2b) for Friulian (cf. Sections 2 and 4),
- rising diphthongs in open syllables, as in (3a,a') for Italian, and in closed syllables, as in (3b,c), for Romansh and Spanish, discussed in Section 5.

(2)	a.	[daint]	'tooth'	Romansh (Zernez)
	b.	[vuarb]/[ˈvuarba]	'blind m/f'	Friulian (Vito d'Asio)
		[ˈpiaʃʃə]	'fish'	Ruvo (Apulia)
		[ˈmuaskə]	'fly'	

(3)	a.	[ˈmwɔve]	'(he) moves'	vs	[ˈmɔsso]	'moved'	Italian
	a'.	[ˈvjɛne]	'((s)he) comes'	vs	[ˈvɛŋgono]	'(they) come'	
	b.	[ˈswɔrda]	'deaf.f'				Romansh (Zernez)
	c.	[ˈhjerro]	'iron'				Spanish (Harris 1985)
		[ˈpwerta]	'door'				

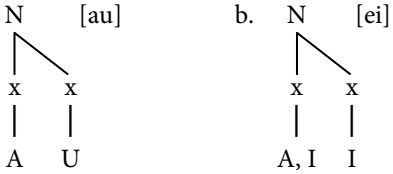
Section 6 illustrates a phenomenon of vowel hardening in a Romansh dialect and other types of diphthong reorganization that provide evidence in favor of the hypothesis that diphthongs are CV sequences, as we will discuss.

[1] All the data discussed and analyzed in this paper have been collected by the authors through field investigations with native speakers in recent years. We are very grateful to our informants for their irreplaceable and intelligent collaboration. They were aware of the type of research, knew the type of questionnaire and have given their consent to collaborate.

2. Rising diphthongs: a problem

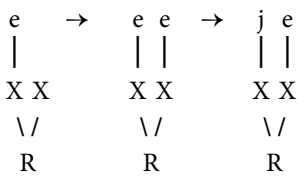
In Government Phonology (GP), the asymmetry between falling and rising diphthongs is derived from a universal constraint that requires left-right governing within constituents (Kaye 1986/1987, Kaye et al. 1990). Harris (1990) supports this solution by arguing that the head of the diphthong must be more complex than the element it governs, according to the Complexity Condition. Harris (1990: 276) considers only heavy diphthongs genuine, assuming that "in branching nuclei the governee can only ever be simplex"; so only nuclei as (4a,b) are true diphthongs.

(4) a. [au] b. [ei]



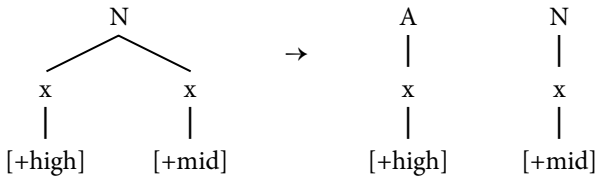
Nevertheless, in other approaches, complex nuclei including onglide sequences are admitted on the basis of general considerations concerning sonority prominence. For example, Harris (1985) analyses Spanish rising diphthongs, occurring both in open and closed syllables, cf. [ˈjerro] hierro 'iron', [ˈpwerta] puerta 'door', assuming that anyway the full vowel has the role of head in virtue of its sonority degree. Unlike Italian diphthongs, in Spanish, the sequences *ie* and *ue* also occur in closed syllable, cf. [ˈjerro] *hierro* 'iron', [ˈpwerta] *puerta* 'door'. Harris (1985) derives these sequences through a diphthongization rule which inserts a vocalic element *e/ o* in the second position of the complex rhymes in lexical bases that alternate between simple vowel and diphthong, as *njego/ negamos* '(I) deny/ (we) deny' e *pwedo / podemos* '(I) can/ (we) can'. A well-formedness constraint assigns to the syllable nucleus the highest sonority degree in the sequence, in (5), and to the second position of the nucleus the melodic prominence. As a consequence, the segment [e] of the Spanish diphthongs has the role of rhyme vocalic head, while the first segment is a semivowel. The result is that both the semivowel and the nucleus remain associated with the rhyme.

(5)



The data do not support a clear-cut distinction between rising and falling diphthongs based on their relationship with syllabic contexts. Booij (1989) faces the analysis of rising diphthongs/ sequences of Frisian, as for instance [bi̯emke] *beamke* 'tree+diminutive suffix', [fu̯otən] *fuotten* 'feet'. His proposal is based on the distributional properties that separate them from falling diphthongs, in [biəm] *beam* 'tree', [fuət] *foet* 'foot', etc. Booij notes that initial semivowel segments can combine with all vowels, also including long vowels and diphthongs, as in [fi̯ɔuər] *fjouwer* 'four'. This seems to suggest a special status of these sequences that can be accounted for by assuming a *breaking* rule that removes the first part [+high] from the nucleus and associates it with the onset, as in (6).

(6) (Booij, 1989: 326)



Needless to say, this analysis could also be applied to Spanish and Italian rising sequences. However, in Italian there is clear evidence that [i̯ɛ] and [u̯ɔ] depend on the syllabic structure. Thus, for example, [wɔ]/ [wo] in open syllables, as in [ku̯ɔtʃe] '(s)he cooks', in (7a), alternates with the simple nucleus [ɔ] in closed syllables, as in [kɔtto] 'cooked' in (7b). This supports the conclusion that the rising sequence is a true diphthong (Marotta 1988). The square brackets contain the segments corresponding to the syllable (σ).

(7) a. [σ x x x] [σ x x]
k u ɔ tʃ e

b. [σ x x x] [σ x x]
k ɔ t o

The fact that *ie* and *uo* have a distribution based on the nature of the rhyme, exactly as the falling diphthongs, leads to the conclusion that the structural constraints on the rhyme, specifically that its head is on the left, are inadequate.

3. Theoretical points

The basic principles of the phonological model proposed by Kaye (1990) and Kaye et al. (1990: 194, 211, 221) design phonetically based phonology, whereby 'Any mechanism that spreads 'something that isn't there' is banished' and any phonological process is motivated by its context. The intersegmental relationship is based on licensing, where a position licenses, i.e. authorizes another position based on the *Licensing Principle*: 'All phonological positions save one must be licensed within a domain. The unlicensed position is the head of this domain'. The so-called government is one form of licensing, which within complex syllabic constituents (Onset and Rhyme) works from left to right, while between constituents from right to left, as in the case of the coda-onset contexts. Only the nucleus (or its projection) can govern a constituent head, with the effect that only nuclei can influence each other.

An interesting point is that Kaye et al. (1990: 200) hypothesize a level of representation *Onset Rhyme*, understood as an arbitrary number of repetitions of the O R pattern. The idea is that a silent onset is also present between two adjacent nuclei, and that a consonant is followed by a nucleus, silent or realized, except in complex rhymes. Lowenstamm (1996: 14) extends the intuition that the basic elementary unit is CV, proposing that sequences are uniformly built by CV units (CVCV model). Therefore, consonant and vowel combinations include unrealized vowel nuclei and consonants. So, slightly reformulating Lowenstamm's representations, the geminate consonant [tt] of Italian word *latte* 'milk', has the representation in (8a), which differs from the more traditional metrical/ GP representation in (8b).

(8) a. [C V] [C $\varnothing_1$] [C V_2]
l a t e

b. [C V C] [C V]
l a t e

Empty nuclei are licensed by the following adjacent realized vowel, in the terms of requirement proposed by Kaye (1990); thus, in (9a), the vowel phonetically realized V_2 governs and licenses the preceding non-realized vowel $\varnothing_1$, making the geminate possible. Long vowels, such as [kɔ:rə] 'heart' (cf. (14b) in Section 4) are represented by the sequence in (9a) and not (9b). Again, V_2 makes the propagation of the content of V to the position $\varnothing_1$ possible, licensing this latter as an empty nucleus.

(9) a. [C V] [C $\varnothing_1$] [C V_2] b. [C V V] [C V]

k ɔ r ə k ɔ r ə

In (9) the government relation is limited to the relation between two adjacent positions, where a phonetically realized nucleus governs a left-handed V-position, licensing its content. Within the CVCV framework, Scheer (2004) distinguishes the government relation (Government, Gvt), which weakens or blocks the realization of the governed position, and licensing (Licensing, Lic), which supports or strengthens the licensed position (cf. Lai 2023). Furthermore, government prevails over licensing.

Scheer (2004: 4) notes that 'CVCV attempts at expressing all syllabic functions and syllable-related processes in terms of lateral relations, rather than with appeal to any kind of syllabic arborescence'. In the discussion that follows, we will adopt the model CVCV, in the direction of a minimalist analysis. In other words, we will avoid the structure-based approach to phonological analysis typical of metrical-syllabic models, in which structural constructions and specialized projections express melodic contents. We develop a minimalist analysis of strings substantially based on the operation of segment concatenation; in this, obviously, we are inspired by Chomsky's conceptualization (2020, 2021) in the direction of basic primitives. The combination of something like a C and something like a V seems to be able to trigger the recognition of sequences of syllables in the speaker's perception. This means that the structural representation of relations traditionally assumed as basic, between nuclei or between consonants and vowels, can be understood as introduced at the level of the SM (Sensory-Motor) system. Concretely, phonological sequences are organized around segments endowed with resonance/intensity properties that regulate the concatenation of consonants and vowels in order to favor their perceptibility.

Representations are formulated as autosegmental sequences of *x* positions associated with the melodic content of elements or segments[2]. The basic rule requires that in sequences of autosegments, of the type …*x x*…, a vowel is preceded by a consonant and a consonant is uniformly followed by a vowel. In the phonological string vowels determine rhythmic properties, realize the stress of the word or sentence and host tones and harmonic features. According to GP, each segment is licensed within CVCV domains by a licenser. Generally, a vowel licenses the a weak or

[2] As widely motivated in the first elaboration of the autsegmental model, the use of C and V for the positions in the string is redundant as it replicates the melodic content of segments. In other words, it is the melodic content that creates the position.

empty vowel in its field or, in some contexts, a consonant licenses the preceding consonant. In any case, licensing influences the phonetic properties of the licensee. The realized nuclei govern and license empty vocalic positions and the preceding adjacent consonant. Licensing underlies and regulates stress or diffusion/ propagation phenomena (cf. Savoia 2016, Savoia and Baldi 2016), and includes the legitimization/ authorization of ∅ positions. We must accept the idea that licensing is subject to parametric solution, in the sense that, for example, only in some languages processes such as syncope of weak vowel or harmonic assimilation are admitted. However, for the sake of clarity, we will use government for the licensing involving empty positions.

We note that the element analysis used in the representations is based on Backley (2011).

4. Diphthongs in closed syllables

As a first point, we address the issue of the presence of diphthongs, particularly falling diphthongs, in closed rhymes. This is a crucial counter-evidence to the structural requirement of the binarity of constituents, in this case rhyme. We begin by considering the distribution of stressed vowels in the Southern Italian dialect of Venosa (Basilicata), a classical vowel system sensitive to rhyme structure, where the stressed nuclei in closed rhymes are short vowels, mostly [-ATR], in (10a,a'), while in open rhymes falling diphthongs or long nuclei occur, as in (10b,b'). As in many other varieties, the stressed nucleus in antepenultimate position behaves as in closed rhymes, producing a short outcome, as in (10b"). In (10) the outcomes in open and closed syllables are compared (cf. Savoia and Carpitelli 2008, Savoia 2015).

(10) Venosa

a. Stressed vowels in open syllables

i:			u:	[+high, ATR] /	[I / U]
	e:	ə:	o:	[-high, ATR] /	[I, A / U, A], [A]
		ai au		[+low][+high]	/ [A, I], [A, U]

a'. [ai] [ˈrairə] '((s)he) laughs', [ˈmaisə] 'months'
[au] [ˈkraurə] 'raw', [ˈkausə] '(I) sew'
[e:] [ˈme:sə] 'month', [ˈme:tə] '(i) reap'
[o:] [nəˈpo:tə] 'nephew', [ˈʃo:kə] '(I) play'
[ə:] [ˈsə:lə] 'salt', [ˈlə:və] '(I) wash'

b. Stressed vowels in closed syllables

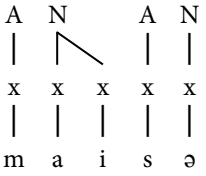
i	u	[+high, +ATR] /	[I / U]
ɪ	ʊ	[+high, -ATR] /	[I / U]
ɛ	ɔ	[-high, -ATR] /	[I, A / U, A]
	a	[+low] /	[A]

b' [ɪ] [ˈfɪʎʎə] 'son'
[ʊ] [ˈtʃʊttʃə] 'donkey', [ˈkʊrtə] 'short'
[ɛ] [aʃˈʃɛnnə] '((s)he) goes down', [auˈtʃɛrtə] 'lizard'
[ɔ] [ˈɔssərə] 'bones', [ˈvɔkkə] 'mouth'
[a] [ˈgaddə] 'cock'

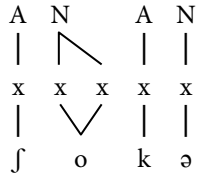
b". [ˈrɪrənə] '(they) laugh'
[ˈkʊsənə] '(they) sew'

This distribution is a good example of the structural requirements of GP, where both diphthongs and long vowels cover two nuclear positions saturating the rhyme space, as in (11a,b). In the closed syllable the nucleus is simple, (11c).

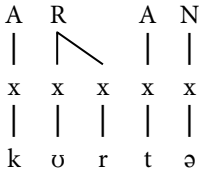
(11) a.



b.



c.

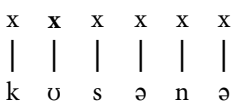


Length and complexity of the nucleus are the way to realize the stress; in other words, the stressed nature of a vowel is associated with two metrical positions, as captured by the Strong Rhyme condition, in (12), initially formulated by Chierchia (1982) for Italian stressed nuclei.

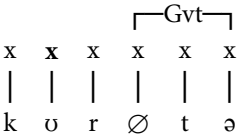
(12) *Strong Rhyme condition*: A stressed rhyme includes two positions

Authors generally consider (12) satisfied by the two positions of the nucleus or by the nucleus and the coda in its domain. However, the effect of the antepenultimate position seems to remain outside this explanation. On the contrary, it suggests that (12) is interpreted not so much by the syllabic structure as by the entire sequence. Thus, the interpretative role of the traditional syllabic structure is too restrictive. A further point of discussion is the definition of Foot, generally characterized as binary; once again, this goes against the distribution in (10b") which, instead, would seem to require a three-syllable foot (cf. The discussion in Bafile 1996, 1999). So, let us try to read the phenomena illustrated in (10) in terms of CV. What we see is that the three sequences have the same phonological organization, as in (13a,b,c). More precisely, on the basis of the hypotheses of Section 3, the empty nucleus in (13b) is licensed (governed) by the adjacent phonetically realized vowel on its right. In the case of (13c), two adjacent nuclei form a special domain, the diphthong.

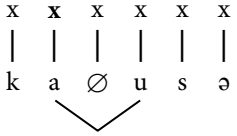
(13) a.



b.



c.



Thus, in these systems, (12) is satisfied by the context where the stressed head is followed by two CVs, or has two vowel units in its domain.

The interesting point is that this extension of the Strong Rhyme condition is not exhaustive. Indeed, there are systems in which the stressed nucleus is however complex,

regardless of the syllabic or Foot context. In the variety of Ruvo di Puglia (Apulia) complex nuclei such as [iɜ] / [iɐ], [uɐ] / [uɔ] in (14a,a') are the outcomes of etymological mid vowels in rhymes with a coda and in the anti-penultimate position of proparoxytones. In open syllable, we find long low-mid vowels [ɛː ɔː], or the diphthongs [ai au], as in (14b). The outputs of metaphony[3] [i(ː) u(ː)] are preserved with different duration in open and closed syllable, as in (14c). As shown by the examples in (14), where x in bold indicates the stressed vowel head, alternations such as [ai] ~ [iɐ], [ɛː] ~ [iɐ], [au] ~ [uɐ], [ɔː] ~ [uɐ] show up according to the syllabic context.

(14) Ruvo di Puglia[4]

a.	[ˈpiɐʃʃə]	'fish'	b.	[ˈmaisə]	'month'
	[ˈdiɐntə]	'tooth'		[ˈpɛːdə]	'footh'
	[ˈpiɐddə]	'skin'			
	[ˈvuɔkkə]	'mouth'		[ˈnauʃə]	'walnut'
	[ˈmuɔskə]	'fly'		[ˈkɔːrə]	'heart'
	[ˈkuɐrtə]	'short.f'		[ˈnɔːvə]	'new.f'
	[ˈnuɐttə]	'night'			
a'.	[ˈviɐnənə]	'they.come'		[ˈvɛːnə]	'(s)he.comes'
	[ˈviɐdənə]	'they.see'		[ˈvaidə]	'I.see'
	[nəˈpuɐtə-mə]	'nephew-my'		[nəˈpautə]	'nephew'
	[ˈsuɐrə-tə]	'sister-your'		[ˈsɔːrə]	'sister'

c. *Metaphonic outcomes of low-mid lexical stressed vow*els

[ˈviːnə]	'you.come'
[ˈdintə]	'teeth'
[ˈpiʃʃə]	'fishes'
[ˈnuːvə]	'new.m'
[ˈkurtə]	'short.m'

As illustrated by the data in (14), the falling diphthongs of the type [ai], [au], etc. and long vowels occur in rhymes devoid of the coda. On the contrary, the diphthongs with the second part [-high], as [iɜ] / [iɐ] / [uɐ] / [uɔ], are associated with rhymes closed by the coda, and with the stressed position of proparoxytones. This distribution, insensitive to the syllabic or Foot structure, shows that the requirement of Strong Rhyme for the stressed nucleus is satisfied by the prominent sonority of the vowel regardless of the presence of the coda in the tonic rhyme.

Diphthongs, then, exhibit specialized phonological properties to manifest the melodic pitch, tenseness, and duration of the stressed nucleus, rather than to reflect the structural organization of the sequence. Returning to the diphthongs in (14a), we see that the second part of the vowel group has the properties more usually associated with the rhyme head, in particular the degree of aperture. Indeed, as noted, in diphthongs such as [ai], of English

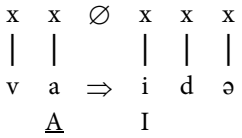
[3] Metaphony is a harmonic process widespread in the dialects of Southern Italy, which involves the assimilation of the height of the stressed vowel to the height of the final vowel. It presents different patterns, as discussed in Maiden (1991) and Savoia (2015, 2016); in the dialect of Ruvo, metaphony raises the original mid vowels to [i u] before the final /i u/.

[4] We are grateful to our main informant, Vincenzo Stragapede.

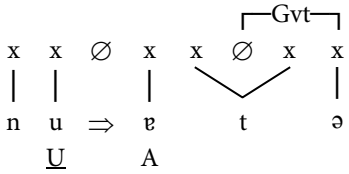
[mais] *mice*, [au] of [mauθ] *mouth*, etc., the second segment is [+high, -ATR], or, in terms of elements, [I / U].On the contrary, in the diphthongs like [iɐ]/ [iə], [uɐ]/ [uə] / [uɔ] in (14a), the first segment is [+high]/ [I / U] , while the second is [-high,+low] or [-high,-low], i.e. headed by [A], more open than the initial segment. The representations (15) provides the analyses of the two types of falling diphthongs: in (15a) we find sequence in open syllable with the (mid-)low vowel in head position, associated with the content [A]; in (15b) a falling diphthong with the head [I] in closed syllable, is represented. The positions indicated as ∅ are positions C not realized.

(15) Ruvo di Puglia

a.



b.



In discussing (13c), we have noted that the relation between two adjacent nuclei displays special properties between the two vowels. We express this by assuming that the falling diphthongs in (15a) and (15b) correspond to a domain in which the stressed nucleus, here on the left, licenses the following vocalic part (*Internuclear adjacency relation*). Such a specialized relation, expressed by the arrow ⇒, is able to license the intermediate position ∅. This implies the hypothesis that some contexts give rise a special licensing capacity, as, in the case of consonant sequences, the domain of *muta cum liquida* (cf. *Infrasegmental Government*, Scheer 2004: 37, Lai 2022: 36 ff.). In (15b), the intermediate vowel is governed by the final vowel and is not realized. The consonant content can be associated with two C positions and gives rise to a geminate.

In summary, we analyze diphthongs as vowel sequences, where one segment (the head) licenses the other. The nuclei have harmonic properties that depend on the melodic strength of the licensing element, which determines the direction of the relationship: left to right in falling sequences.

5. Rising diphthongs

We now address the problem of rising diphthongs. In Romansh spoken in Engadine and Surselva diphthongs occur both in the open position, (16a), __C#/ __CV#, and in the closed position, (16b). (cf. Savoia 2015, Baldi and Savoia 2017). The variety of Zernez (Engadine) distinguishes long vowels and diphthongs, [i:] < **i*, [y:] < **u*, [ai] < **e:*, [e(i)] < **ɛ*, [u:] < **o*, [ou] < **ɔ*, both associated with open contexts, __C(V)#, from short vowels, which occur in closed contexts, __CC(V)#. The latter also host the diphthongs [wɔ] (< **o*) and, before the sequence *nasal-C*, [ai] (< **e*). A subset of forms presents [ø] (< **ɔ*), giving rise to alternations as [uˈdzø:l]/ [uˈdzoulɑ] 'kid.m/f'. Finally, the outcome [ɔ] corresponds to /a/ in nasal contexts.

(16) Zernez

a. *open rhyme*

i:	u:
y:	
e(i)	ou
ø:	
	ɔ:
aɪ	
a:	

a'.

[na:s]	'nose'	[mais]	'month/s'
[sait]	'thirst'	[ˈsaira]	'evening'
[pe:]/[peis]	'foot/ feet'	[ˈleivrɑ]	'hare'
[uˈdzø:l], [vø:t]	'kid', 'empty.m'	[ˈvø:dɑ]	'empty.f'
[nouf]	'new.m'	[ˈnouvɑ]	'new.f',
[vu:ʃ], [nu:ʃ]	'voice', 'walnut'	[ˈroudɑ]	'wheel'

b. *closed rhyme*

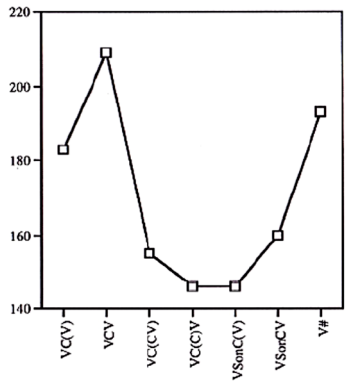
i y	u	[LF1]
ø		
ɛ	ɔ	
	wɔ	[HF1]
aɪ		
a		

b'.

[lat]	'milk'	[sɛtʃ]/[ˈsɛtʃɑ]	'dry.m/f'
[(ɛu) ˈmɛt]	'(I) put'		
[pɛl]	'skin'		
[fwɔrn(ts)]	'oven.sg/pl'	[ˈmwɔʃtʃɑ]	'fly'
[swɔrt]/ [ˈswɔrdɑ]	'deaf.m/f.'	[ˈbwɔtʃɑ]	'mouth'

Significant differences based on the t-student test contrast the nucleus duration in open and closed contexts as the plot in (17)[5] highlights, where the Y axis reports the duration in msec. and the X axis the contexts, where Son = a pre-consonant Sonorant, *r*, *l* or *N*. The value of the oxytone context …ˈV# is aligned to the averages of open contexts. The strongest difference contrasts ˈVC(V)# and ˈVCV# with closed syllables, with and original geminate ˈVC(C)V# or with the sequence *coda-onset*.

(17) Zernez (Baldi and Savoia 2017: 66)



[5] In (17) the averages are calculated on the basis of a corpus of realizations collected throughout field investigations with a native speaker, and analyzed by means of the Multi-Speech, Model 3700.

As a first step, we analyze long vowels and falling diphthongs in canonical contexts __ CV, such as [saira] 'evening', using the same analysis given in (15a,b). Long outcomes in the contexts __C# can be analyzed as a sequence in which the final empty vowel is legitimized, as in (18b). The intermediate position ∅ is licensed by the internuclear relationship between the two adjacent left-headed vowels.

(18) Zernez

a.
```
x  x  ∅  x  x  x
|  |     |  |  |
s  a  ⇒  i  r  a
   A     I
```

b.
```
x  x  ∅  x  x  x
|  |     |  |  |
s  a  ⇒  i  t  ∅
   A     I
```

The rising diphthong [wɔ] is limited to the only context of closed syllable, __CC(V)#. In the case of rising diphthongs, it is the right vowel that presents the most sonorous content including the A head, as in (19a,b)[6]. Therefore, in keeping with the idea that licensing and government are defined by the melodic properties, the second vowel is able to govern and license the left part of the diphthong. The semivowel part shows a more reduced content, devoid of a headed element, less fully vocalic.

(19) Zernez

a.
```
                 ┌Gvt┐
x  x  x  x  x  x  x  x
|  |     |  |  |  |  |
s  u  ⇐  ɔ  r  ∅  d  ∅
   U     U
         A
```

b.
```
                 ┌Gvt┐
x  x  x  x  x  x  x  x
|  |     |  |  |  |  |
s  u  ⇐  ɔ  r  ∅  d  a
   U     U
         A
```

As suggested in (19a,b), the (empty) final nucleus in these varieties is able to govern and license the intermediate nucleus ∅. Again, exactly like falling outcomes seen in Section 4, these diphthongs implement the *Strong rhyme condition* in (12), whereby the sonority prominence is the relevant property. As a result, the two types of vocalic sequences can have the same distribution.

A similar distribution characterizes Friulian varieties, in which the context __CV#[7] determines short vowels, as closed syllables (Rizzolatti 1979, Vanelli 1979, Baldi and Savoia

[6] An anonymous reviewer asks 'how is (19) different from (14b)? what is the basis of the decision as to what is headed, and what direction of licensing is present? Is this analysis not circular?'. Our analysis is based on the phonetic properties of the sequences we are investigating. The direction of licensing reproduces the different phonetic strength of the two members of the diphthong, normally recognizable in many languages, including standard Italian and Spanish. Of course, we could assume that the different prosodic direction of diphthongs is a surface effect and reduce all diphthongs to an abstract head-dependent structure. But this is exactly what we do not want to do: phonological properties, such as phonetic contrasts, are phonetic and are part of the neurological level of phonetic competence.

[7] An anonymous reviewer asks for some explanation on this point. Friulian varieties, belonging to Rhaeto-Romance group, are characterized by this particular restriction, whereby the __CV# context selects the same set of stressed nuclei as closed syllable, as documented in the reported references.

2017). If we look at the diphthongs, we see that the ascending results occur both in the open original syllables (*__CV), (20a), and in the closed ones, (20b).The examples in (20a',b') illustrate sequences with the final vowel. (20c) provides the rising diphthong [ˈrweda] 'wheel', and (20d) the falling one [siat] 'thirst'. Falling diphthongs are very different from canonical patterns such as *ai*, *au*, *ei*, *eu*, etc., but, like other systems discussed in this paper, they generally show the more open element in second non-prominent position, such as in *ia, ua*, etc.

(20) Vito d'Asio

a.	[siat]	'thirst'	a'	[ˈsɛra]	'evening'
	[nouf]	'new.m'		[ˈnɔva]	'new.f'
	[kuaʃ]	'(I) cook'			
b.	[sjet]	'seven'	b'	[ˈpjera]	'stone'
	[kwel]	'neck'		[ˈrweda]	'wheel'

c.

x	x	x		x	x	x
|	|			|	|	|
r	u		⇐	e	d	a
	U			I		
				A		

d.

x	x	x		x	x	x
|	|			|	|	|
s	i		⇒	a	t	∅
	I			A		

The wide diffusion of rising diphthongs is, obviously, a proof of their unmarkedness. For example, they occur in many Sicilian varieties regardless the syllabic context, therefore in open and closed syllables, in (21a) and (21b).

(21) S. Marco d'Alunzio

a.	[ˈpjɛrɪ]	'foot/feet'	b.	[asˈpjɛttu]	'appearence'
	[ˈkwɔrɪ]	'heart/s'		[ˈrwɔrmu]	'(I) sleep'

In Daco-Romanian and Aromanian varieties, rising diphthongs appear as the result of the stressed mid vowels in non-metaphonic contexts, as for instance, in (22a) for the Fërshërot Aromanian variety of Korça (Albania). The diphthong alternates with a simple vowel in metaphonic contexts, as in (22b). We can assign the representation in (22c) to the vowel sequences.

(22) Korça (Aromanian)

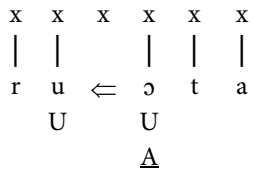
a.	[ˈfiat-a]	'the girl'	b.	[ˈfɛt-i-li]	'the girls'
	[ˈkuad-a]	'the tail'		[ˈkod-li]	'the tails'
	[ˈbuats-i]	'voice'			

c.

x	x	x		x	x	x
|	|			|	|	|
b	u		⇐	a	ts	i
	U			A		

Considering the previous discussion, it is natural to apply this analysis to Italian rising diphthongs [wɔ] and [jɛ], as in (23) (cf. Savoia and Baldi 2018). As noted, these diphthongs occur only in open rhymes, exactly like typical falling diphthongs.

(23)



We see that a sufficiently rich empirical basis shows that (i) not all falling diphthongs correspond to the canonical type adopted in the literature, (ii) rising diphthongs can present the same distributional restriction as falling ones, (iii) both falling and rising diphthongs can occur in closed rhymes. These data support a phonological model able to account for both types of diphthongs.

6. Hardening and other processes implementing CV sequences

The CVCV hypothesis finds interesting evidence in the phenomena that decompose diphthongs in CV units. The first example is the Surmiran varieties from the upper Engadin (Surses valley). In these dialects a hardening process changes the semi-vowel of the falling diphthongs [ei ɛi ou] and the second part of the long vowels [i: o:] into the obstruent [k]. A certain degree of variability emerges in the performance of informants. This process is documented in Gartner (1893), Haimann and Benincà (1972), and in Lutta (1923) for Bergün. Kamprath (1988) and Montreuil (1990, 1999) provide some proposals for analysis.

The data in (24)-(25) are produced by speakers of Mulegns and Rona, two villages of Surses Valley[8]. In the stressed position of open syllables, we find long vowels and the diphthongs [ei] and [ou]; note that [e] and [ei] are also the result of the original **u*. The second part of these diphthongs or long vowels is hardened into a velar stop, as exemplified for Mulegns in (24a,a') and for Rona in (25a,a') in the case of the front long vowels/diphthongs and in (24b)-(25b) of the back sequences. Hardening is generalized before [r] in (24a)-(25a) and [s ʃ t] in (24a',b)-(25a',b); it is also admitted before other obstruents, as in [nɛkf] 'snow', in (24a'). It is excluded before [l] and a final palatal nasal segment, as in (24d)-(25d). Comparison data in (24c)-(25c) show that the process is mostly limited to *__C(s)#* contexts, whereas in *__CV* contexts the diphthong or [i: u:] generally occur.

(24) Mulegns

a.	[nikr]	'to come'	c.	[(ia) viɲ]	'(I) come'
	[rekr]	'to laugh'		[(ia) rei]	'(I) laugh'
	[nɛkr(s)]	'black.m/s'		[ˈnɛira]	'black.f'
	[dekr(s)]	'hard.m/s'		[ˈdeira]	'hard.f'
a'.	[mɛks]	'month/s'			
	[vekt]	'empty.m'		[ˈveida]	'empty.f'
	[grikʃ]	'grey.m'		[ˈgri:ʒa]	'grey.f'
	[nɛkf]	'snow'		[(i) ˈnɛiva]	'(it) snows'
b.	[nokʃ]	'walnut'		[ˈoura]	'hour'
	[dokʃ]/ [ˈdokʃa]	'sweet.m/f'			
	[peiˈloks]/ [peiˈlous]	'hairy.m' /		[peiˈlouza]	'hairy.f'
d.	[mɛil]	'apple-tree'			
	[avjoul]	'bee'			

[8] We are grateful to our informants, in particular Niccolò Lotza (Rona) and Otto Poltera (Mulegns).

(25) Rona

a.	[vɛkr] / [vɛir]	'true.m'	c.	[ˈvɛira]	'true.f'
	[dekr(s)] / [deir(s)]	'hard.m/s'		[ˈdeira]	'hard.f'
a'.	[pɛks] / [pɛis]	'feet'		[pɛ]	'foot'
	[frɛkt] / [frɛit]	'cold.m'		[ˈfrɛida]	'cold.f'
	[grikʃ] / [greiʃ]	'grey.m'		[ˈgreiʒa]	'grey.f'
	[nɛkf]/ [nɛif]	'snow'		[(i) ˈnɛiva]	'(it) snows'
b.	[krokʃ]/ [krouʃ]	'cross'		[ˈɔura]	'hour'
	[flokr(s)] / [flour]	'flower/s'			
d.	[feil]	'thread'			

Kamprath (1988) and Montreuil (1990, 1999) propose that [k] is a parasitic segment inserted as the second part of the nucleus, i.e. as a sort of consonant *glide*, however included inside the nucleus. Although it is anomalous, this structure is supported, according to Kamprath, by the fact that this consonant is not subject to resyllabification and do not give rise to epenthesis. The latter is otherwise attested in sequences *C-Sonorant*, as in (26a), but not in sequences *Coda-Onset*, in (26b,c). Other contexts, in (26d) show variable outcomes. Moreover, these dialects lack the final cluster *kl*, because original *k-l* sequences have phonetically changed to *ʎ*, as in (26e), or show a different outcome, such as in [ˈʃpivəl] 'mirror', in (26a), where *v* replaced the original *k*.

(26) Mulegns

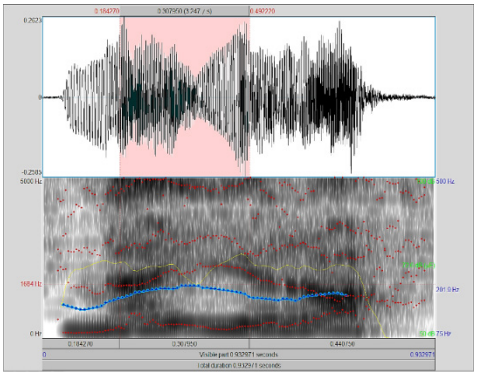
a. [ˈvɛdər(s)] 'glass/s', [ˈʃpivəl] 'mirror'
b. [furn] 'oven', [ia ˈdɔrm] 'I sleep'
c. [daint(s)] 'tooth/ teeth', [surt] / [ˈsurda] 'deaf.m/.f'
d. [ˈkotʃən]/ [ˈkotʃna] 'red.m/.f'
e. [viʎ] / [ˈviʎa] 'old.m/f'

The fact that the sequences *kr* created by hardening do not undergo epenthesis suggests that the structure of those clusters is different from that of clusters in (26a). In fact, we woud expect epenthesis before [r], i.e. *[ˈvɛkər] and not [vɛkr] 'true.m', as it is.

The spectrograms in (27a,b) compare the sequence [nɛkr] with hardening, and the corresponding diphthong in __CV context, in [ˈnɛira], (cf. (24a',c)). In (27c) the spectrogram of [la ˈnukʃ] is presented. Diphthongs have an average duration of 300 ms, for instance 307 ms in the case of [ˈnɛira] in (27a). In hardened realizations, the duration is divided between the vowel and the consonant. Thus, for example, in [nɛkr] in (27b) the vowel duration is about 138 ms and that of the consonant about 180 ms. [nukʃ] in (27c) shows similar values, i.e. 165 ms for the vowel and 190 ms for the consonant.

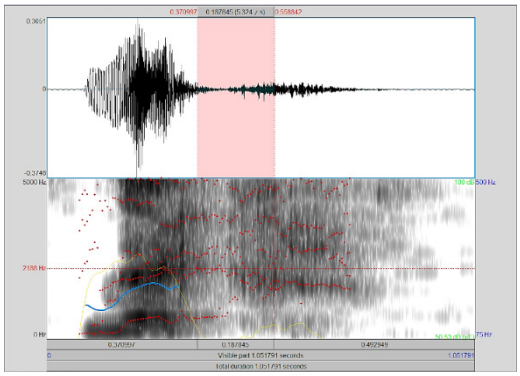
(27) Mulegns

a.



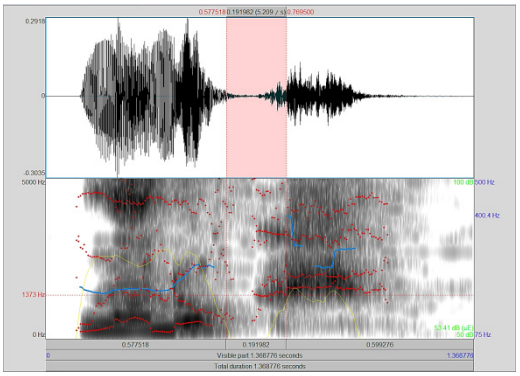
[n ɛ i r a]

b.



[n ɛ k r]

c.



[l a n u k ʃ]

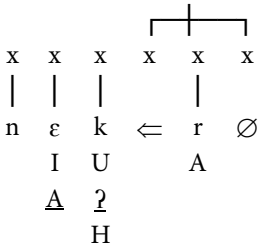
As shown by acoustic analysis, hardening is a way to realize the time extension of the diphthong or long vowel. It is realized by a velar stop [U ʔ H] in contexts where a coronal [r s t] or a postalveolar [ʃ] follow. Hardening is blocked in all other contexts (with velar, lateral and nasal segments); labials are in turn excluded except for the fricative [f]. The process, therefore, results in a sort of dissimilation. Indeed, the following segments with [U], i.e. labials and velar, are excluded and only coronals with the cavity element [A] and palatals with [I] are allowed (Backley 2011). The fricative [f] is however a possible target. This process seems to optimize the perceptibility of the two parts of the sequence and recalls the phenomena where a 'vulnerable' property of the sequence is augmented and maximized in contexts where its recognizability is relevant (cf. Kaun 2004, Nevins 2010).

However, other phonological factors are involved. In fact, in addition to the restrictions on place properties, manner of articulation is crucial, as it selects fricatives and, except for [t], excludes stops and voiced obstruents. In the framework we have outlined, the core domain created by hardening is the sequence *muta cum liquida*. Adopting the conclusion of Scheer (2004: 37) that in the *muta cum liquida* contexts the liquid licenses the obstruent (*Infrasegmental Government*), we obtain the representation in (28a). In this domain, the interconsonantal government relation licenses the empty intermediate nucleus. This may explain why hardening is associated with a context in which the final vowel is not realized and therefore cannot license the intermediate empty nucleus. In (28b), the corresponding

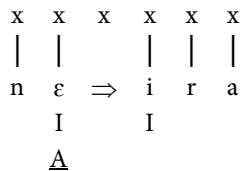
diphthong includes the *Internuclear adjacency relation* already explored in Section 4 as the basic property of diphthongs and vocalic sequences.

(28) Mulegns

a.



b.

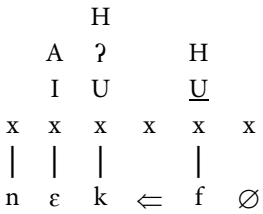


Hardening is admitted only with [r], whereas [l] is excluded; furthermore, ∅ is also allowed with *obstruent+obstruent* clusters, *…kf* and *…kf*. It is of note that in GP approach the obstruent and the liquid form a complex onset where it is the obstruent that governs the following segment; however, even GP would have a similar difficulty in accounting for the sequence *obstruent+∅+obstruent+∅#*. A possible explanation is that fricatives, as more sonorous than voiceless stops, are admitted, regardless of their cavity property. In other words, the interconsonantal relation can depend on the scale of sonority in (29), proposed for example by Kiparsky (1979: 432) to regulate syllabification.

(29) stops, fricatives, nasals, laterals, rhotics, glides, high vowels, mid vowels, low vowels

If sonority means 'perceptibility', as noted by Clements (1990), the higher sonority of [s ʃ f], that is particularly noisy obstruents, is derived. We can therefore expect them to govern [k], as in (30).

(30)



Nevertheless, the relative sonority of certain segments can vary. This is the case of the coronal [t], which many authors consider unmarked for the place specification, thus accounting for its transparency to vowel harmonies and its availability to assimilation phenomena (Paradis and Prunet 1989; cf. Clements 1990: 311 ff.). Backley (2011) notes that the coronal label includes different places, suggesting that what is common is the property [A], i.e. a high F1. This can justify the ability of [t] to present a special distribution in languages (Clements 1990: 312), and, in our contexts to follow a stop and govern it.

Finally, [l] does not work as a licensing element in the contexts we are examining. However, in these varieties, the cluster *kl* is admitted, as for instance in [i klɔman] 'they call, lit. SCl call-3pl', except for in final position. We must conclude that the melodic content of laterals as well as of nasals make them unsuitable as licensers. In the analysis of Backley (2011) they share the element [ʔ]. Hence, the coronal stop is licensed by virtue of its element [A], whereas the sonorants with [ʔ] are discarded as potential licensers. However, while nasals are

generally excluded from the second position of onsets, this does not hold for laterals. Hence we need to think that the following vowel can contribute to the interconsonantal relationship and that in the case of an empty vowel, the latter is unable to license *-l* because of its weak melodic content. As for sequences such as [ˈvɛdər(s)] 'glass/s' in (26a), they show a different organization, in which the intermediate vowel is realized in presence of an empty nucleus on its right. This metrical solution, attested in languages with the alternation syncope/ epenthesis (Kaye et al. 1990), is part of the lexical representation of the Consonant-Lateral sequences different from the diphthong contexts.

Other processes are documented that insert a segment, so as to yield a CV sequence. Limiting ourselves to the Romance domain, this is the case of those Southern Italian systems, as the Apulian dialect of Molfetta (Savoia 2015), where a second nucleus can be inserted with the result to change a sequence of two vocalic positions [$_N$ x x] to a sequence [x C x], and to give rise to alternations such as [ai] vs [ajə]. In the diphthongs in (31i) the head is [ɛ a], in those in (31ii) and (31iii) the head is [ə].

(31) Molfetta

i.	[frəmˈmɛikə] / [frəmˈmɛjəkə]	'ant'	ii.	[ˈpəitə] / [ˈpəjətə]	'feet'
	[ˈmaisə] / [ˈmajəsə]	'months'		[aˈpəirtə] / [aˈpəjərtə]	'open'
	[ˈkrautə] / [ˈkrawətə]	'raw'		[ˈprəivətə] / [ˈprəjəvətə]	'priests'
iii.	[ˈʃəukə] / [ˈʃəwəkə]	'((s)he) plays'			
	[ˈəuccə] / [ˈəwəccə]	'eye'			

Similar alternations emerge in other Italian southern dialects in contexts deriving from the velarization of an original lateral, where we have [au] / [awə] (from **lC*), as for instance in (32).

(32) Nocara (Calabria)

[ˈkawəðə] / [ˈkawðə] 'hot'
[ˈɣawətə] / [ˈɣawtə] 'high'

The CV model allows this process to be accounted for in a natural way, simply assuming the realignment between the alternants, as in (33a) and (33b). In (33a) the *Internuclear adjacence relation* is applied, generating a falling diphthong. In (33b) the melodic content of the semivowel segment is interpreted as the intermediate onset, and the following nucleus is licensed by the stressed head in its domain. This is realized as [ə], i.e. the canonical weak realization of pot-tonic nuclei in these varieties.

(33) a.

x	x	∅	x	x	x
|	|		|	|	|
m	a	⇒	i	s	ə

b.

x	x	x	x	x	x
|	|	|	|	|	|
m	a	i	ə	s	ə
	└	>	┘		

The model satisfies the Projection principle (cf. Section 2), which requires that the CV positions and their relations at the lexical level are preserved through the derivation (Kaye 1986/87, Kaye et al. 1990). Finally, the varieties we are considering show other processes able

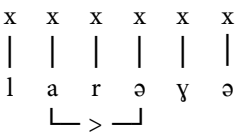
to restore CV, as the insertion of [ɣ] before initial vowels, in (34a), and the insertion of a weak nucleus in liquid-obstruent contexts, as in (34b).

(34) Nocara

a. [ˈɣawətə] 'high'
[ˈɣɛrəvə] 'grass'
b. [ˈlarəɣə] (from **largə*) 'large'
[ˈkuərəvə] (from **kuərvə*) 'raven'

In the cases in (34b), the sequence liquid+obstruent is provided with the intermediate nucleus, as in (35), according to the structure proposed by Scheer 2004 and Lai 2022.

(35) Nocara



We can think that the licensing of a weak position by the stressed nucleus is sufficient to satisfy the Strong Rhyme requirement in (12).

7. Summary and conclusions

A first generalization based on the data discussed is that diphthongs, both falling and rising, appear to implement the Strong rhyme requirement regardless of the position of the prominent part, and of the sequence organization. In other words, in the systems where diphthongs are also realized in closed syllable the properties of the stressed nucleus realize the requirement of phonetic force independently from the nature of the rhyme or the Foot (Baldi and Savoia, 2017). As we have seen, taking the CVCV as the basic scheme of sequences allows us to transfer the difference between closed and open syllables to a CV domain to the right of the nucleus. This analysis has also the effect of unifying the sequences with a coda and proparoxytones. In other words, languages that require a long or complex vocalic structure in stressed position imply a different formulation of the Strong rhyme condition (cf. Section 4). The requirement relates to the ability of the stressed nucleus to license a second position, giving rise to a diphthong, as in (36a), when the intermediate position is not realized, or a bisyllabic string if the intermediate consonant is realized (cf. (35)), in (36a).

(36) a. b.

Returning to the topics covered in the article, we started from the observation that GP provides structural restrictions that exclude rising diphthongs. Nevertheless, the latter exhibit distributional properties very similar to those of falling diphthongs and long vowels. Our

conclusion is that a canonical GP analysis loses sight of the relationship between the diverse types of complex nuclei. GP possibly can represent the rising diphthongs as a hiatus sequence of two vowels where the head is on the right position at the nuclear projection level (cf. Charette 1991). This solution is not substantially different from the one proposed in this article.

We have adopted the CVCV model, which analyzes the sequence as a succession of elementary melodic units regulated and organized by their sonority properties and basic principles concerning perceptibility and degree of sonority of segments. This theoretical framework seems more suitable for dealing with important phonological phenomena concerning the sequence organization. In particular, we have explored the phonological nature of rising diphthongs and their distribution in some Romance languages. We conclude that long vowels and diphthongs can be analyzed as a sequence of vowels between which a licensing relation works that is able to authorize the intermediate silent C. The head role of vowels is based on its melodic content in relation to that of the other vowels in the relevant domain. Finally, we have discussed the interconsonantal relationship, where an empty vowel can be licensed.

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A critical study of group-defining categories in the discursive construal of national identity

Nina Shtok
Vistula University, Poland

Abstract

On 24 February 2022, Russia launched a full-scale military invasion of Ukraine. The beginning of this war marked a significant turning point with far-reaching consequences for the countries involved. Russian political discourse has responded swiftly to the conflict with a marked increase in nationalist rhetoric. This surge underscores a renewed emphasis on national unity and a collective sense of purpose, alongside a growing imperative to safeguard Russian integrity and sovereignty. The discourse has increasingly framed the war as a battle against external threats, positioning Russia as a defender of traditional values and a bulwark against perceived Western encroachments. This nationalist narrative, actively promoted by the government, serves to mobilise public support for its policies. Official speeches by the head of state play a central role in disseminating this ideology. Accordingly, this paper sets out to analyse selected addresses by the Russian President delivered during the conflict's initial year to uncover the discursive mechanisms shaping Russian national identity. It relies on a discourse-historical approach, which provides effective tools for advancing this endeavour.

Keywords: national identity, discourse, discursive strategies, discursive themes

1. Introduction

The concepts of 'nation' and 'national identity' have consistently held a prominent place in discourse studies. Their significance has grown, particularly since the commencement of the full-scale Russian-Ukrainian war on 24 February 2022. During that period, nationalist sentiment, which emerged prominently in Russian political discourse in 2014 with the annexation of the Crimean Peninsula, reached its peak. This sentiment has been strongly promoted by the Russian political apparatus to solidify domestic support for what was stated as protecting *'our country'*, *'our historical future as a nation', 'the very existence of our state and its sovereignty'* (Address by the President of the Russian Federation, 24 February 2022; http://en.kremlin.ru/events/president/news/67843). Political speeches, state-controlled media,

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cultural events, educational materials, and various other potential channels and tools for propaganda have been actively exploited to construct and reinforce national unity.

While the conflict in Ukraine continues to escalate and patriotic fervour has intensified in Russia, to date there has only been limited research on the discursive mechanisms used to establish or reconstruct the Russian nation. This particular issue is considered in the given paper, which aims to investigate the national group-defining elements formulated in Russian political discourse, along with the discursive and linguistic strategies employed in their creation. These elements serve as conceptual constructs delineating a collective as a nation: 'fundamental categories that codify the ways people define themselves and others as group members' (van Dijk 1998: 151). They encompass diverse categories such as territory, language, history, as well as more abstract concepts like values, culture, and patriotism. Collectively, these elements shape individuals' understanding and perception of what constitutes a nation and foster a sense of self-identification with it. This research purpose logically leads to two research questions that the study aims to address. The first question probes which exact membership or group-defining elements of the Russian nation are constructed in the Russian war-related discourse. The second question pertains to the discursive and linguistic strategies employed to construct these national continuity elements.

The methodological framework of the study was shaped by the Discourse-Historical Approach, which offers a conceptualization of the key notions the study relies upon, as well as a discourse-analytical toolkit to analyse the discursive construction of national identity. It was developed by the Vienna School of Discourse Analysis and was initially applied to the study of antisemitic discourse during the 1986 Austrian presidential campaign of Kurt Waldheim (Wodak, et al. 1990). Further research extended to areas such as racism, discrimination against immigrants, and nationalism. The most influential study within the Discourse-Historical Approach (DHA) focused on the discursive construal of national identity in Austrian public, semi-public, and semi-private discourse (Wodak et al. 2009). In the given study, this analytical framework will be applied to analyse the speeches delivered by the Russian president during the first year of the conflict, specifically those addressing the ongoing war.

The research also draws on numerous studies that have emphasized the pivotal role of political discourse in the formation of various national identities. There is a specific focus on those incorporating data analysis methods framed by discursive strategies, including the construal of national identity in Austria (de Cillia et al. 1999, Wodak 2009, 2022,), in Poland (Krzyżanowski 2008), the discursive construction of European identities in institutional and non-institutional contexts of European Union countries (Krzyżanowski 2010), the construction of Palestinian national identity (Amer 2012), French newspaper representations of nationalism (Costelloe 2015), and thematic analyses of discourse (van Dijk 1980, 1998, 2014; Krzyżanowski 2010; Billing 1995; Anderson 2016). The present research aims to expand upon the existing body of literature by examining the discursive themes and strategies employed to define the elements of the Russian nation.

2. Theoretical background of the study: nations and national identities in political discourse

There is no need to reiterate how complex the notions of 'nation' and 'national identity' are, given their long history and the numerous definitions proposed in various academic fields. However, for the purpose of this research, it is essential to establish clearer boundaries for these concepts, starting with the term 'nation' which forms the foundation for a national identity.

A nation is perceived as a discursive, politically affiliated formation, the construal of which serves various purposes, including garnering support for the government and its leader, gaining approval for political agendas, justifying military conflicts, and ultimately maintaining absolute power. As Malešević argues (2006: 27) nations 'do not and cannot exist on their own. They emerge as specific group labels in a particular moment of time and with a particular social and political reason'. This perspective, which underscores the dynamic nature of nations and their flexibility in adapting to the will and aims of political actors, is central to the current study.

Nations are also 'imagined communities' (Anderson 1988), with the vast majority of their members having never met and likely never will. However, the idea of belonging to the same community and sharing its constituting elements permeates the minds of many people. It is logical to question why this happens. If these communities are imagined, why are they so adept at instilling a sense of belonging among their believers? Wodak, et al., argue that the answer to this question lies in the discursive nature of such communities: 'it is constructed and conveyed in discourse, predominantly in narratives of national culture' (2009: 22).

Thus, the construction of nations frequently involves the intentional crafting of a national culture. The process serves as a unifying force within a community, shaping its shared values and nurturing a sense of a common elevated goal. Nations often 'ideologically cling on the notion of culture, whether as an anthropologically understood lived culture (culture as a distinct way of collective existence) in ethnic relations, or a socio-political understanding of high culture (culture as civilisational refinement expressed in artistic excellence) in nation-formation' (Malešević 2006: 27). As such, the study approaches the notion of nation as a 'mental construct' (de Cillia, et al. 1999: 153) that is discursively constituted through ingrained cultural and social doctrines.

Elucidating the concept of identity also proves to be a complex task. Our identity or 'mental self-presentation' (van Dijk 1998) is partially defined by our affiliations with different groups (collective identity), where a nation is one of them. Thus, a collective identity is a 'mental representation of self as a collection of group memberships, and the identification processes that are related to such membership representations' (van Dijk 1998: 120). National self-identification builds on membership concepts (group-defining elements) embraced by a nation which are not limited to a cognitive realm of shared opinions, attitudes, believes or cultural and social doctrines. They also involve 'a complex array of typical or routine practices, collective actions, dress, objects, settings, buildings, monuments, prominent historical events, heroes and heroines, and other symbols' (van Dijk 1998: 123). These are also

flags, uniforms, social structures, organisations and many other tangible membership categorisations (van Dijk 1998: 123-125).

In the context of the formation of national identity, the study adheres to the approach of Wodak (2001, 2009, 2022) and Krzyzanowsky (2010, 2017), defining it as a discursive construct which is produced, reproduced and transformed by discourse. The construct becomes particularly pronounced during times of crises or wars when an 'ideological consciousness of nationhood can be seen to be at work. It embraces a complex set of themes about 'us', 'our homeland', 'nations' ('ours' and 'theirs'), the 'world', as well as the morality of national duty and honour' (Billing 1995: 4).

3. The methodological paradigm

3.1. Research Data

The primary sources for this research are transcripts of speeches delivered by the President of the Russian Federation during the first year of the war. These speeches can presumably offer valuable insight into the construal of the elements defining the national collective in Russian war-related political discourse, given the prominent role of the President in shaping it. Putin, as the head of state and its most representative member, acts as 'the voice of the nation' and 'a person generating identity and integration' (Wodak 2009: 72). His speeches reflect and reinforce dominant national narratives, shaping the perception of national identity.

The transcripts were sourced from the official Kremlin webpage, including both its Russian (http://www.kremlin.ru/events/president/transcripts/speeches/page/7) and English (http://www.en.kremlin.ru/events/president/transcripts/page/45) versions. A total of 63 transcripts of speeches were analysed in this study. They span a diverse range of topics, including those directly related to the ongoing conflict, speeches commemorating significant dates in the Russian calendar, greetings, addresses to different professional groups, speeches given during various meetings, and more.

This cursory examination of the extensive dataset facilitated the selection of the corpus for further in-depth analysis. Thirteen speeches were chosen based on their relevance to the specific discourse - the war in Ukraine (Special Military Operation in the analysed discourse). Some of them marked landmark events in the course of this war (announcement of the war or partial mobilization), some commemorated past victories (the Great Victory Day, Anniversary of Crimea's reunification), and others were dedicated to a seemingly non-military event (such as New Year, for example). However, they all centre around one topic: the war. These are speeches in which nationalist sentiment is particularly pronounced, and thus, they provide the data that best suit the research purpose and questions. Moreover, these are speeches addressed to the entire nation, which also makes them highly relevant to the study of national identity construction.

Table 1: *Corpus of Texts*

Addresses of the President of the Russian Federation	
Date	**Topic**
24 February 2022	Decision to carry out Special Military Operation
18 March 2022	The anniversary of Crimea's reunification
09 May 2022	Victory parade on Red Square
22 August 2022	Video address on National Flag Day
21 September 2022, 09:00	Decision on partial mobilization
21 September 2022, 18:00	Gala concert devoted to the 1160th anniversary of Russian statehood
30 September 2022	Signing of treaties on accession of Donetsk and Lugansk people's republics and Zaporozhye and Kherson regions to Russia
27 October 2022	Valdai International Discussion Club meeting
20 December 2022	Ceremony for presenting state decorations
31 December 2022	New Year Address to the Nation
2 February 2023	Gala concert for 80th anniversary of defeating German Nazi forces in Battle of Stalingrad
22 February 2023	Glory to Defenders of the Fatherland
23 February 2023	Congratulations on the occasion of Defender of the Fatherland Day

Due to the constraints of word limit within this paper, it is unfeasible to comprehensively analyse all the envisaged research data. However, the research in its subsequent stages aims to integrate data from media and private discourse.

3.2. The research methodology

The study relies on the approach developed within the paradigm of Critical Discourse Studies. It incorporates data analysis methods framed by discursive strategies (Krzyżanowski 2008, 2010; Reisigl and Wodak 2016; Wodak 1999, 2001, 2009, 2022) and thematic analysis (Krzyżanowski 2010; Billing 1995; Anderson 2016).

The thematic analysis aims to unveil the major thematic topics, which are seen as summarising propositions indicating the importance of information within the text (van Dijk 1991). In this sense, topics or themes formulate the representational group-defining elements of a nation which rely on 'the most precious resource of the nationalist, thus, is on the one hand, 'our land', territory, etc., and on the other hand the symbolic resources of 'our' culture,

language, etc.' (van Dijk 2008: 201). They are the foundational categories that construct the ideological framework of a nation. This part of the research relies on inductive analysis, which involves 'decoding the meaning of text passages – usually taking place via several thorough readings – and then ordering them into the list of themes and sub-themes' (Krzyżanowski 2010: 81). Hence, this phase of the research aims to address the first research question.

These categories are introduced into the discourse through various discursive strategies – 'a more or less intentional plan of practice (including discursive practice) to achieve a particular social, political, psychological or linguistic goal' (Reisigl, Wodak 2016: 33). Thus, several discursive strategies have been borrowed and adapted from the empirical studies on the discursive construction of national identities conducted by de Cillia, Reisigl, and Wodak (1999), Wodak (2001), Reisigl and Wodak (2001, 2016), Reisigl (2017), and Wodak and Rheindorf (2022): construction, predication, perpetuation or justification, transformation, mitigation, and intensification.

Thus, the construction or referential strategy shapes membership in the given national collective by naming persons, objects, phenomena, and events related to this group. Its primary aim is to create and reinforce intra-national unity, solidarity, inward sameness, as well as inter-group differentiation and heterogeneity. Predication strategy is essential in positive self-presentation and negative other presentations, ascribing positive and negative qualities to ingroups and outgroups, respectively. The perpetuation strategy serves to create and reproduce a threatened national identity, and legitimation strategy is one of its types. It refers to the ways in which discourse is used to legitimise or justify certain actions, policies, or ideologies, presenting them as valid, acceptable, or just within a given political context. The transformation strategy is employed to bring about transformations of a national identity or its components into another identity, as well as changes in social, political, or cultural practices. Mitigation strategy aims to reduce the force of an assertion – making it less direct or moderating potential negative effects. Conversely, intensification strategy amplifies the impact, emphasising the significance or emotional weight of an assertion.

This analytical stage is also conducted sequentially, proceeding sentence by sentence through the text. It involves scrutinising the text to identify discursive strategies that shape the nation-forming elements in the discourse as well as linguistic forms in which they are realised. This method allows for a detailed observation of how language, rhetorical devices, and argumentation schemes contribute to the portrayal and establishment of key elements crucial to the formation of national identity in Russian political discourse. It is employed to explore the second research question.

4. Research findings

4.1. Core elements of Russian national identity

Thematic analysis was employed to identify recurring patterns in the data – *discursive topics* (Krzyżanowski 2010, 81) which specify elements essentially defining a collective group as a nation. The study has identified two categories of these themes. The first category revolves

around state-forming elements or concrete attributes associated with a nation-state (the state as a legal entity), such as the country and its borders, its constituent entities, governmental bodies, president, constitution, and the military. The other category of discursive topics corresponds with more abstract concepts intrinsic to a nation: motherland/fatherland/homeland, history and cultural heritage, values, traditions, symbols, religion, social norms, heroes.

In the following section of the article, an analysis of the discursive strategies employed to transform these elements into ideological constructs of Russian national identity will be conducted. However, due to formal requirements regarding the article's length, it is not feasible to analyse the discursive construal of every element. Therefore, the analysis will focus only on those which are most prominent in the analysed data.

4.2. Constructing nation-constituting elements through discourse

4.2.1. State-based elements

The thematic analysis revealed that a common territory, defined by geographical boundaries, holds a central role in the analysed data. Hence, the first group-defining element is 'our' territory, secured by national borders – our country, Russia. This element is formulated within the discourse through a constructive strategy that primarily utilises toponyms for its realisation, such as *'Россия'* (Russia), *'Российская Федерация'* (the Russian Federation). The linguistic means also include nouns that reinforce its sovereignty, for example *'границы'* (borders), *'государство'* and *'страна'* (country), *'суверенитет'* (sovereignty). The possessive pronoun *'наш/а'* (our) plays a significant role as well. It consistently modifies almost all references to the national territory in the selected presidential speeches. Therefore, it becomes 'our territory', 'our land' or 'our country'.

In all of the analysed addresses, Putin consistently emphasises the threats to the state's integrity and sovereignty, which can be interpreted as a direct threat to the nation itself. The perpetuation strategy emerges as the most effective means to 'support and reproduce a national identity perceived to be under threat' (Wodak, Rheindorf 2022: 26). It is presented linguistically through abstract nouns such as: *'угроза'* (threat), *'опасность'* (danger), a variety of noun phrases with an adjective premodifier like *'фундаментальные угрозы'* (fundamental threats), '*абсолютно неприемлемая для нас угроза*' (absolutely unacceptable thereat), '*реальная угроза*'(real threat), '*ядерный шантаж*' (nuclear blackmail) or '*атомная катастрофа'* (nuclear disaster). Additionally, numerous verb phrases are employed to present the threat to the country: '*ослабить и развалить Россию*' (to weaken and break up Russia), '*раздробить наше государство*' (to divide our state).

NATO, America, the West, or the collective West are consistently constructed as the source of these threats. In this case, the perpetuation strategy is implemented through the use of three tropes: metaphor, personification, and metonymy:

(1) *Невероятно – невероятно, но факт: нам снова угрожают немецкими танками Leopard, на борту которых – кресты,..*
However incredible, it is a fact – we are again being threatened with German Leopard tanks with crosses on board. (02 February 2023)

Perpetuation is metaphorically realized through German Leopard tanks with crosses on board, which symbolise the perceived military aggression. It evokes a strong historical connotation to the terrors of the Great Patriotic War, when Nazi Germany invaded the Soviet Union.The threat also emanates from America and Western countries/the West/Collective West, which are personified linguistically through terms like *'агрессор'* (aggressor) and *'колониалисты'* (colonialists). Metonymy is also employed to represent the aforementioned organization and regions as threats to the national identity through political regimes of dominance which are assumed to exist there (political regime for country): *'гегемония'* (hegemony), '*диктатура'* (dictatorship), and '*деспотизм'* (despotism).

A legitimization strategy – a specific type of perpetuation – is also utilised in the discursive construction of this nation-state element. The realisation of this strategy relies on a simple scheme of argumentation: 'if there are specific dangers and threats, one should do something against them' (Wodak 2006: 75). This framing justifies the military attack on a neighbouring country as an act of self-defence, deemed inevitable:

(2) *Россия дала упреждающий отпор агрессии. Это было вынужденное, своевременное и единственно правильное решение.*
Russia launched a pre-emptive strike at the aggression. It was forced, timely and the only correct decision. (09 May 2022)

The linguistic resources employed to establish the legitimacy of this attack are attributive adjectives such as *'упреждающий'* (preventive), '*вынужденный'* (forced), *'неотложный'* (urgent), *'неизбежный'* (inevitable), *'своевременный'* (timely) as well as adjective phrases like *'абсолютно необходимый'* (absolutely necessary), *'единственно возможный'* (the only possible), *'единственно правильное'* (the only correct). These are most commonly used in combinations with euphemisms presenting the military offensive as *'защита'* (defence), *'решение'* (decision), *'самозащита'* (self-defence), *'шаги'* (measures/steps), and related expressions.

The threat to the country, and consequently, to the nation, purportedly emanating from the policy of the collective West towards Ukraine, perceived as directed against Russia, is consistently intensified in Putin's speeches. This is where we can observe the efficiency of the intensification strategy realised through hyperbole: 'to modify illocutionary force of utterance in respect of their epistemic or denoting status' (Reisigl, Wodak 2016: 44).

(3) *А для нашей страны – это в итоге вопрос жизни и смерти, вопрос нашего исторического будущего как народа. И это не преувеличение – это так и есть. Это реальная угроза не просто нашим интересам, а самому существованию нашего государства, его суверенитету.*
For our country it's a matter of life and death, a matter of our historical future as a nation. This is not an exaggeration. It's not only a very real threat to our interests but to the very existence of our state and its sovereignty. (24 February 2022)

Other components of the nation-state revealed in the analysed speeches encompass the subjects of the Russian Federation or their people, including those considered 'newly-attached'. These elements are presented through toponyms: *'Луганская Народная Республика'* (Lugansk People's Republics), *'Донецкая Народная Республика'* (Donetsk People's Republic), *'Запорожская и Херсонская области'* (Zaporozhye and Kherson regions), *'Крым'* (Crimea). The unequivocal ownership of the territories and people living there by deictic usage the modifier *'наш/и'* (our) is systematically emphasized in the analysed speeches:

(4) *Хочу, чтобы меня услышали киевские власти и их реальные хозяева на Западе, чтобы это запомнили все: люди, живущие в Луганске и Донецке, Херсоне и Запорожье, становятся нашими гражданами навсегда.*
I want the Kiev authorities and their true handlers in the West to hear me now, and I want everyone to remember this: the people living in Lugansk and Donetsk, in Kherson and Zaporozhye have become our citizens, forever. (30 September 2022)

Given the perceived threat to the country, the military inevitably emerges as another prominent discursive topic. The army is particularly praised and admired in Putin's speeches delivered a day before and on Defender of the Fatherland Day. A nomination strategy is employed to construct this element, named as militarisation in Van Leeuwen's classification of social actors (van Leeuwen 1996: 38-41). It is implemented through a wide array of military vocabulary: *'солдаты и офицеры Вооружённых сил России'* (soldiers and officers of Russia's armed forces), *'Вооружённые силы России'* (Russian armed forces), *'солдаты и офицеры'* (soldiers and officers), '*добровольцы*' (volunteers), '*воинские части Донецкой и Луганской народных республик*' (military units of the Donetsk and Lugansk people's republics) and similar items.

Transformation strategy is also actively employed with the 'aim to transform a relatively well-established national identity and its components into another identity the contours of which the speaker has already conceptualised' (Wodak 2009: 33). Thus, the army becomes more than a conventional military force. It embodies a unified collective of courageous and committed sons and brothers:

(5) *И лучшим подтверждением тому является то, как воюют, как действуют наши ребята в ходе этой военной операции: плечом к плечу, помогают, поддерживают друг друга, а если надо, то как родного брата прикрывают своим телом от пули на поле боя.*
The best evidence of this is how our fellows are fighting and acting in this operation: shoulder to shoulder, helping and supporting each other. If they have to, they will cover each other with their bodies to protect their comrade from a bullet in the battlefield, as they would to save their brother. (18 March 2022)

In these examples, a strong emphasis is placed on intra-national unity and solidarity through kinship nouns. It is also another instance of metaphor when soldiers are presented as brothers to each other. Moreover, the Russian noun *'(наши) ребята'* does not exactly mean '(our) fellows' as suggested in the official translation. This informal term is commonly used in everyday conversations when addressing a group of people in a friendly or familiar context, typically children. The familial terms aim to create an emotional bond – a sense of closeness, care, and personal connection – that extends beyond the soldiers' roles as military personnel.

4.2.2. Cultural and social elements

The other category of national themes encompasses more abstract notions of father/motherland, religion, cultural heritage, national societal norms, values and traditions. Homeland seems to be the most strongly foregrounded element in the analysed data. It is 'our' special place, sacred and essential. It serves as a powerful symbol, representing not just geographical territory but a deeply emotional and cultural connection to the collective identity of the nation.

The Russian language has several synonyms for the word that signifies homeland, some of which are present in the analysed data. Thus, in one of Putin's speeches, it is our 'Fatherland', which is equated to our Father in Heaven and then to Father. These words in Russian share a common root. Consequently, the predication strategy elevates the homeland's status to that of a divine entity and then to father, effectively presenting this abstract concept into something deserving of any sacrifice:

(6) *Мы встречаемся с вами в преддверии Дня защитника Отечества. В этом словосочетании, в этих словах есть что-то мощное, огромное, я бы так сказал, мистическое и святое. Недаром одна из самых известных молитв начинается со слов «Отче наш»: «отче» – отец, и в этом есть что-то очень близкое каждому человеку.*
We are having this meeting on the eve of Defender of the Fatherland Day. This phrase, these words have something powerful, enormous, I would even say mystical and sacred in them. No wonder one of the most popular prayers begins with the words 'Our Father'. 'Father' is a word that conveys something very close to every person.' (22 February 2023)

This predication is substantiated by personification – a type of metaphor which 'plays a decisive role in animating imagined 'collective subjects' – as, for example, 'races', 'nations' and 'ethnicities. Their apparent concreteness and vividness often invites hearers or readers to identify or to feel solidarity with the personified entity or against it' (Reisigl, Wodak: 2001, 58). Thus, the father persuasively represents the fatherland as a 'powerful' parental figure whose authority is absolute and unquestionable.

The same mechanism is observed in the subsequent abstract when referring to the homeland as Motherland. Furthermore, it is *'Родина-мать'*, the term which translates word-for-word to 'Homeland-Mother' (not reflected in the official translation):

(7) *Мы ведь говорим тоже и «Родина-мать». Речь идёт о семье, речь идёт о чём-то огромном, мощном и в то же время близком сердцу каждого человека: это и Родина, и семья. А по большому счёту и Родина – это семья: в нашем сердце это одно и то же.*
After all, we also say 'Motherland'. This is about a family, something huge and powerful and at the same time close to everyone's heart. It is the Motherland and the family. Ultimately, the Motherland is the family and they mean the same for us in our hearts. (22 February 2023)

In this case, the predication strategy is also realised through personification, attributing the traits and significance of a mother to the territory where people live. Putin again then extends the personification to the family. This rhetorical device can be employed to reinforce the concept of collective responsibility, duty, and sacrifice for the nation.

Simultaneously, legitimation strategy is employed to construct a narrative wherein this war is the defence of the homeland. It is legitimised through very similar lexical means to those of the country:

(8) *Обращаюсь сейчас к нашим Вооружённым Силам и к ополченцам Донбасса. Вы сражаетесь за Родину, за её будущее,..*
Сегодня вы защищаете то, за что сражались отцы и деды, прадеды. Для них высшим смыслом жизни всегда были благополучие и безопасность Родины.
I am addressing our Armed Forces and Donbass militia. You are fighting for our Motherland, its future…
You are defending today what your fathers, grandfathers and great-grandfathers fought for. The wellbeing and security of their Motherland was their top priority in life. (09 May 2022)

History is another element of the national collective. It is constructed in the discourse through a legitimation strategy which finds its expression in the argumentation scheme 'history teaching lessons' (Wodal et.al. 2009: 205-207). According to Reisigl, this argumentative scheme can be described as follows: 'because history teaches that specific actions have specific consequences, one should perform or omit a specific action in a specific situation (allegedly) comparable with the historical example referred to' (Reisigl, Wodak 2001: 80). To put it simply: history taught us a lesson and we learnt the lesson well. Thus, in his speeches, Putin often refers to the Great Patriotic War (1941-1945), claiming, for example:

(9) *Мы хорошо знаем из истории, как в 40-м году и в начале 41-го года прошлого века Советский Союз всячески стремился предотвратить или хотя бы оттянуть начало войны. Для этого в том числе старался буквально до последнего не провоцировать потенциального агрессора, не осуществлял или откладывал самые необходимые, очевидные действия для подготовки к отражению неизбежного нападения. А те шаги, которые всё же были в конце концов предприняты, уже катастрофически запоздали. (…) Второй раз мы такой ошибки не допустим, не имеем права.*
If history is any guide, we know that in 1940 and early 1941 the Soviet Union went to great lengths to prevent war or at least delay its outbreak. To this end, the USSR sought not to provoke the potential aggressor until the very end by refraining or postponing the most urgent and obvious preparations it had to make to defend itself from an imminent attack. When it finally acted, it was too late. (…) We will not make this mistake the second time. We have no right to do so. (24 February 2022)

The same argumentation scheme applies to the collapse of the Soviet Union, with the 'Collective West' blamed for its downfall, and to the Chechen crisis of 1998-2009, where the West was similarly accused of supporting terrorist groups in Chechnya.

In the analysed data, a prominent focal point emerges concerning the emphasis on values – 'atomic/decomposable building blocks of the evaluations that are involved in social opinions, as attributes that are predicated of any socially relevant object (people, events, actions, situations, etc.): truth, equality, happiness, and so on' (van Dijk 1998: 74-75). The discursive construction of this element of national identity revolves around positive self-presentation. Predication, in this case, is the fundamental process of ascribing qualities that make everything that is 'ours' seem better, more worthy, deserving more, and superior to what is 'theirs':

(10) *Да, собственно, и до последнего времени не прекращались попытки использовать нас в своих интересах, разрушить наши традиционные ценности и навязать нам свои псевдоценности, которые разъедали бы нас, наш народ изнутри, те установки, которые они уже агрессивно насаждают в своих странах и которые прямо ведут к деградации и вырождению, поскольку противоречат самой природе человека.*
They sought to destroy our traditional values and force on us their false values that would erode us, our people from within, the attitudes they have been aggressively imposing on their countries, attitudes that are directly leading to degradation and degeneration, because they are contrary to human nature. (24 February 2022)

This quote marks the initial mention of values in Putin's war speeches. It was crucial to label our values as 'traditional' and theirs as 'false' at the very beginning. The linguistic means of realisation of positive traits include adjectives *'традиционные'* (traditional), *'высокие'* (high), *'великие нравственные'* (great moral). This rhetoric persists throughout the course of the war, where 'traditional' primarily refers to the gender composition of a family, with a father being male and a mother being female. It also aligns with an anti-LGBTQ+ predication, which prevails in the current political discourse in Russia. However, 'traditional' values extend beyond gender roles to encompass such 'atomic building blocks' as, for example, solidarity and the unity of society, loyalty, as well as compassion, truth, fairness, professionalism, courage, love for the homeland, human rights and freedoms, humanity, mercy and compassion. For example, these values were exemplified in a speech delivered just a few hours after the declaration of mobilization:

(11) *Это верность правде и справедливости, уважение к семье, любовь к детям, это прочная основа традиционных ценностей, таких как милосердие, сострадание и взаимовыручка, готовность добиваться благополучия не для себя одного, а для всех, для всей страны, для всей России и перед лицом общей угрозы вставать вместе, стеной – «за други своя», за Отечество.*
These values embrace loyalty to truth and justice, respect for the family, love for children, a solid foundation of traditional values such as mercifulness, compassion and mutual assistance, and the desire to make life good not just for yourself but for everyone, for the entire country, for all of Russia and, in the face of a common threat, to stand together as one "for one's own friends" and for the Fatherland. (21 September 2022, 18:00).

These elements, combined with the state-based ones, form a multifaceted depiction of the nation. The identified discursive tools amplify the significance of national attributes, fostering a narrative that aligns with consolidation, unity, and a collective sense of identity.

5. Conclusion

The paper focused on the discursive mechanisms at play in shaping national identity within the context of war-related political discourse in the Russian public sphere. It identified the thematic foundations of Russian national identity and revealed the key discursive strategies employed, along with their linguistic manifestation in the analysed data. The scope of topics related to the Russian nation is extensive, covering various aspects. On one hand, it includes state-related elements such as territory and the perceived threats to it, which are particularly

significant in the context of the ongoing war. On the other hand, there are more abstract cultural and social elements, such as homeland, values, traditions, and others.

The discursive construction of the national territory relies on a constructive strategy, primarily manifested through various referential means, notably toponyms. The same strategic and linguistic means are employed to present the subjects of the Russian Federation, including those that are 'newly-attached'. The construction of the state's territory also oscillates between perpetuation and legitimation strategies which are prevalent in the discourse. Together, they contribute to perpetuating a sense of threat to the borders, sovereignty, and integrity of the country, while also fostering the urge to protect it. Perpetuation highlights the threat to the state and, hence, to the nation, using nouns and noun phrases to convey abstract and concrete dangers. Additionally, this strategy produces the source of these threats through a range metaphors, personifications, and metonymies. The legitimation strategy, in its turn, serves to justify the military conflict initiated by the government as an 'inevitable' and 'timely' response aimed at defending the country. The significance of the military is emphasised in the analysed discourse through a transformation strategy, portraying Russian soldiers as 'our sons and brothers' fighting to protect the threatened nation.

The analysis has revealed numerous cultural and social elements forming a nation. These include, among others, homeland, national history, and values. The construal of the abstract notion of homeland relies on the predication strategy, attributing to it the status of both mother and father, and also elevating it to a sacred and divine entity, likened to 'our Father in Heaven'. These equations are realised through personifications. The legitimation strategy is actively employed to create a threat to the homeland, delivering a potent message that rationalises military intervention and encourages people to safeguard that which is most dear. National history is also discursively constructed to legitimise the war through an argumentation scheme 'history teaching lessons' (Reisigl, Wodak 2000, 80). Putin draws upon historical events like the Great Patriotic War, the dissolution of the Soviet Union, or the Chechen crisis to frame the military attack as an act of self-defence to avoid consequences well-known from the country's history.

Another element discursively construed as imperilled is 'values'. From his very first address, Putin draws a clear distinction between 'our' traditional values and 'their' false ones, portraying 'our' traditional values as threatened by 'theirs'. Predication in this case is employed through descriptive adjectives as well as comparative structures.

Both groups' components are organized within the discourse to convincingly demonstrate how much the nation is threatened, thereby encouraging its defence by portraying the military attack as an inevitable and provoked means of protecting everything dear to us – the Russian nation. This effect is achieved through the utilisation of discursive strategies that create, perpetuate, transform, predicate, mitigate, or intensify various facets of national identity. The realisation and impact of these strategies will be further explored in subsequent stages of this study, delving into media discourse analysis as well as investigation of a more subjective perspective from individuals residing in Russia.

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What lies beyond and within humour: A relevance-theoretic approach to propositional meanings in the sitcom *Modern Family*

Magdalena Wieczorek
University of Siedlce, Poland

Abstract

Advancing the proposal that conversationalists frequently engage in humorous communication to convey propositional meanings, the paper aims to employ pragmatic inferential mechanisms specified in a relevance-theoretic framework in order to explicate the viewer's recovery of additional cognitive effects in sitcom discourse. On this observation, it is assumed that processing of humorous utterances may result in the recipient's being amused and/ or in making more insightful observations concerning goals a speaker wishes to attain. For example, an interactant would like to communicate a potentially impolite meaning, which is mitigated by means of humour. The corpus is drawn from the American situation comedy *Modern Family* (2009-2020), created by Steven Levitan and Christopher Lloyd. The focus in the paper is on how the viewer can grasp meanings that are (un)intentionally communicated by the production crew while s/he is sitting comfortably in the armchair. The main thrust of the present paper is twofold. First, extra cognitive effects can be best described in terms of propositional meanings they communicate, which in turn necessitates a relevance-theoretic notion of weak communication. Second, I postulate that accessing humorous effects is just the first step in order to fully understand a conversational episode in the sitcom, granted that viewers may be eager to spend more processing effort in exchange for extra cognitive rewards. It is frequently the case that the recipient's mental representations are strengthened or challenged by the production crew's (cultural) representations. More specifically, it will be demonstrated that the functions of conveying and/ or challenging of social norms, disclosing character-specific information and providing cultural references aim to strengthen or challenge the viewer's personal beliefs.

Keywords: relevance theory; humour; sitcom; propositional meaning; weak communication

1. Introduction

The body of literature devoted to the immediate goal of humour to amuse the audience is extensive, which comes as no surprise given the fact the communicator relays a humorous message to predominantly provide pure entertainment. There is an appealing strand of research that regards humour as a carrier to a number of different meanings that are relevant

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to the ongoing conversation. Functionalist literature abounds in the studies of effects that humour can conceivably create on the part of the recipient. While some writings note this fact only in passing, there are many scientists that refer to this explicitly. Some researchers go even a step further, claiming that humour can have an array of functions at once, which makes this phenomenon a powerful conversational tool (Ziv, 1984, 2010; Palmer, 1994; Holmes, 2000, 2006; Hay, 2000; Meyer, 2000; Holmes and Marra, 2002a, 2002b; Martin, 2007; Kuipers, 2008; Piskorska, 2016; McKeown, 2017; Schnurr and Plester, 2017). As will also be demonstrated, besides amusement, another intent of a production crew (a group of scriptwriters, producers, directors, etc.) in amusing the viewers is to build and foster solidarity, which helps to gain loyal viewership. Last but not least, humorous communication is a remarkable means for pursuing discrepant goals, i.e. to display a sense of social cohesion and to subvert authority and status quo (see Section 2).

This study of television discourse is based upon three pillars: Relevance Theory, functionalist studies as well as the participatory framework. First, Relevance Theory (henceforth RT) is a cognitive-pragmatic framework whose core theoretical assumption is that human cognition and communication are relevance-oriented (Sperber and Wilson, 1986 [1995]). This lays foundation for ostensive-inferential communication, being overt and intentional, where it is stated that any ostensive stimulus directed at the recipient conveys the presumption of optimal relevance. On the basis of sitcom discourse, any fictional dialogue that grabs the viewer's attention and directs it on the production crew's (or fictional character's) intention is an ostensive stimulus. More importantly, it will be shown that RT offers a promising explanation of how the recipient accesses humorous and non-humorous (propositional) effects, which does not require additional mechanisms. What the viewer is expected to do is to follow the path of least mental effort, which would be rewarded in terms of effects. It primarily depends upon the interactant and his/ her current psychological state, among others, how much effort s/he is eager to expend. As Piskorska (2016) convincingly advocates, an extensive range of different implications is explored by means of the RT comprehension heuristics.

Second, the participation framework is one of the pillars for the study given the fact it helps to neatly capture the interactional aspect of sitcom discourse and clearly define a research object. There has been an ongoing debate on the roles of all participants who may possibly take part in a speech event, whose focal point is to go beyond the traditional dyad, viz. speaker and hearer. In general terms, irrespective of the fact whether it is natural or scripted (fictional), communication bifurcates into the *inter-character's/character* and the *recipient's* levels (Dynel, 2011[1]; see also Burger, 1984, in Bubel, 2008; Clark, 1996; Yus, 2008; Messerli, 2017). While the former covers interactions among fictional characters, the latter consists of interpretations that the production crew (i.e. directors, producers or scriptwriters, dubbed collective sender (Dynel, 2011)) intends the audience to construct on the basis of conversations held among fictional characters. As a result, there are two layers upon which the

[1] Although Dynel's model and its nomenclature is presented in this section, her participation framework is not the first move to expound on reception and production ends, as indicated in references.

structure of television discourse is built: *fictional* and *collective sender's*. The present paper hinges upon the latter layer, viz. conversations held between the production crew and the TV recipients. More specifically, it will be demonstrated, employing a relevance-theoretic comprehension heuristic, how the collective sender employs humorous segments in order to make the audience access a variety of propositional meanings.

As regards the conceptualisation and position of the televisual recipient with respect to other participants in different frameworks, there are many studies that sometimes present divergent views. Here I would like to summarise four competing approaches to shed some light on various approaches to audience design[2]. First, Bell (1984) considers a viewer in terms of a referee, the absent third party, whose importance is immense to any interactant as the referee has some bearing upon the speech of the speaker. Second, Clark and Carlson (1992) as well as Clark and Schaefer (1992) reckon that a sitcom recipient can occupy one of the two roles: an addressee or overhearer. Third, Bubel (2008) posits that every fictional unit is devised with an overhearer (implied spectator) in mind whose process of interpretation is facilitated by the use of the same language or code. Consequently, an overhearer in fictional discourse is tantamount to an overhearer in natural talk. Last but not least, Dynel (2011) puts forth that the viewer is a recipient (or metarecipient) on the collective sender's layer. In my opinion, those various views can be, at least partly, reconciled. On this approach, the claim would be championed that the role of the TV recipient is defined and redefined with respect to the collective sender's intention. As a result, a recipient assumes a dynamic role, i.e. s/he can sometimes be an overhearer who remains silent throughout diegetic interactions and, more importantly, of whose presence fictional characters seem to be unaware, whereas s/he can also become a co-conversationalist that is directly addressed by other characters.

This claim is further supported by the nature of communication in the sitcom *Modern Family*. In short, there are three groups of interactions, viz. 1) purely fictional discourse that covers regular communication among fictional interactants who seem to be oblivious to the omnipresent eye of the camera, 2) reality-like discourse where fictional characters are engaged in the interview sequence uttered into the camera, and 3) fiction intertwined with reality, in which regular conversations are held which are interrupted by fictional characters' sudden peep into the eye of the camera. The cases where viewers are involved in the co-construction of meaning in the sitcom (reality-like discourse) have a direct influence upon the propositional meaning(s) worked out by the audience. In particular, some functions are performed as soon as a fictional character makes a direct eye contact with the recipient as if the former participant requested more close involvement from the latter. In other words, a fictional character's swift glance at a telecinematic recipient shows s/he is cognisant of his/ her presence and thus may wish to communicate a message more directly.

To meet the objective of the study, the paper is structured as follows. Section 2 first presents a broader picture of an RT comprehension procedure, with special emphasis on the weak communication as being central to the explanation of non-humorous effects.

[2] It should be underlined that there are other two-layered frameworks applicable to cinematic discourse such as Brock (2011, 2015) or Rossi (2011). It is my intention to provide the gist of various views.

Furthermore, this section will perform a qualitative analysis of one humorous dialogue, with a view to showing an importance of weak implicatures and thus propositional meanings that are at the recipient's disposal. In section 3, I concentrate on four functions served by dint of humour, i.e. conveying and/ or challenging of social norms, disclosing character-specific information as well as providing cultural references[3]. Those effects aim to strengthen and/ or challenge the recipient's individual representations. Section 4 draws the main conclusions from the analysis of sitcom units in the light of RT.

2. An RT comprehension procedure and humorous and non-humorous effects[4]

RT is a comprehensive framework which can be utilised to analyse a number of communicative phenomena, for example humour, irony, metaphor, translation and interpreting, language acquisition, second language teaching, media discourse and Internet communication, (im)politeness and phatic communication[5]. As regards the study of humour, it has been proven to be applicable to the analyses of jokes (Yus, 2003, 2017, Wieczorek 2019), puns (Solska, 2012, Yus, 2016), stand-up performances (Yus, 2002, 2016), or novels, to name but a few. The majority of those works agree that humour results from the clash between two interpretations, especially in the realm of jokes and puns. A considerable benefit of studying humour in terms of RT is that its comprehension procedure fits perfectly with incongruity(-resolution) models (Yus 2003). The concept of incongruity, understood in linguistics as a mismatch or clash between two meanings/ interpretations, is regarded as a necessary and sometimes sufficient condition for humour appreciation.

Wilson and Sperber (2004) view utterance comprehension as a two-stage enterprise, viz. decoding and inference. The role of pragmatic inferential processes is to develop a linguistically encoded logical form into a fully propositional form. Granted that utterance that can contain ambiguities or referential ambivalences, inferential enrichment of a logical form is

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[3] The fact that needs highlighting is that the fulfillment of a specific function on the recipient's part entails the communication of a specific meaning.

[4] The paper discusses some of the findings from my PhD dissertation (Wieczorek, 2021), whose objective was to describe all the additional cognitive effects the production crew would like to attain on the part of the television recipients. It was demonstrated that humour in the sitcom was utilised with a view to satisfying the following functions: highlighting shared experiences, disclosing character-specific information, sharing, advising, soliciting support, defending, metalinguistic humour, discourse management, controlling behaviour, criticising, conveying and challenging social norms, fostering/ reducing as well as avoiding conflict, releasing tension/ coping, providing a linguistic and non-linguistic play, providing a cultural reference, showing off and conveying a serious message. In general terms, those are various effects to affiliate with different audiences, the long-term results of which is to corroborate the common ground and thus maintain constant viewership. For the sake of space, the focus here is put on the functions of conveying and/ or challenging social norms, disclosing character-specific information as well as providing cultural references, which have the capacity to provide the clash between the recipient's and production crew's representations.

[5] Consult Yus' comprehensive online bibliography that contains literature on RT, which is regularly updated and is conveniently sorted according to the area of research: https://personal.ua.es/francisco.yus/rt.html.

necessary. In addition, the interactant supplies contextual assumptions and follows the RT comprehension heuristic procedure to obtain the meaning a speaker intends to communicate:

> **Relevance-theoretic comprehension procedure**
> a) Follow a path of least effort in computing cognitive effects: Test interpretive hypotheses (disambiguations, reference resolutions, implicatures, etc.) in order of accessibility.
> b) Stop when your expectations of relevance are satisfied (or abandoned).
>
> (Wilson and Sperber, 2004, 613)

Wilson and Sperber (2004, 613) detail the hearer's task to access the speaker's meaning by identifying three subtasks in the comprehension process:

> **Subtasks in the overall comprehension process:**
> a) Constructing an appropriate hypothesis about explicit content (in relevance-theoretic terms, EXPLICATURES) via decoding, disambiguation, reference resolution, and other pragmatic enrichment processes.
> b) Constructing an appropriate hypothesis about the intended contextual assumptions (IMPLICATED PREMISES).
> c) Constructing an appropriate hypothesis about the intended contextual implications (IMPLICATED CONCLUSIONS)

What the originators of RT underline is that the construction of explicit meaning, identification of contextual assumptions and derivation of implicit meaning runs in parallel and thus is not ordered sequentially. Sperber and Wilson aver that comprehension is an online process, in which the recipient's search for the speaker's meaning is constrained by not only the presumption of relevance but also individual expectations about potential relevance of a stimulus. In view of this, the hearer's specific expectations and general presumption of relevance contribute to hypotheses about explicatures and implicatures via backward inference (Wilson and Sperber, 2002, 2004).

On the RT account, implicatures are straightforwardly explained as propositions that are not communicated explicitly. They are divided into *implicated premises* and *implicated conclusions*. Premises are assumptions retrievable from memory or constructed on the basis of assumption schemas, both of which can provide context. These premises help in the construction of the speaker's intended interpretation. Implicated conclusions, on the other hand, are created on the basis of premises and explicature (Sperber and Wilson, 1986 [1995]). Implicitness is a matter of degree, thus, implicatures are stronger or weaker. Strong implicatures are essential propositions that must be created to formulate a relevant interpretation and hence the hearer is expected to derive them. In contrast, weak implicatures may not be crucial for an overall interpretation and consequently are drawn on the interpreter's sole responsibility (Sperber and Wilson, 1986 [1995]; Wilson and Sperber, 2004). All the inferential processes mentioned in the comprehension procedure can be exploited for the sake of humorous effects in jokes, where the setting (initial part of a joke) creates certain expectations of how the text can develop, but the punchline invalidates those expectations and forces the hearer to formulate a highly relevant interpretation (Yus, 2003). One of the merits of explaining humour through the lens of RT is that its heuristics squarely converges with

incongruity-based approaches to humour (Suls, 1972), the importance of which is generally accepted among humour scholars.

The weak communication account is particularly salient for the explanation of not only humorous effects (Jodłowiec, 1991, 2008; Piskorska and Jodłowiec, 2018), but also additional cognitive effects derived by a sitcom recipient. It has been argued to facilitate the processing of humour in verbal jokes where the punchline makes manifest or more manifest[6] a wide array of weak assumptions. The mental state created when those assumptions suddenly arise in the recipient's mind is termed *cognitive overload* (Jodłowiec, 2008). Granted that those weakly communicated implicatures will never become full representations in the hearer's mind, they can help to clarify why many people find it difficult to explicate why specific jokes lead to amusement.

Although the viability of weak communication is tested in jokes where the humour-inducing element occupies final position, this notion is pertinent for other humorous phenomena. In other words, an affective response elicited by an array of weak assumptions is the same in the case of jokes and other forms of discourse, such as fictional discourse. It will be demonstrated that the cognitive overload has the potential to comprehensively account for all propositional meanings that the recipient supposedly accesses. A humorous episode in (1) is a good candidate for a practical exemplification of the cognitive overload effect for the realisation of propositional meanings in a weak way:

(1) **Context**: Phil organises a bachelor party for his father and he invites his father-in-law, Jay.

Phil: Dad's bachelor party's gonna be epic. (…) Boom! Chicken wraps, white wine, fudge.
Jay: *Is this a bachelor party or a party where ladies sit around watching "The Bachelor"*? (S08E15)

On the recipient's level, humour is dependent upon the turn provided by Jay. By means of lexical adjustment[7], the recipient should construct two concepts based on the double meaning of the phrase *bachelor party* that Jay explicitly states: *BACHELOR PARTY** (an all-night stag party) and *BACHELOR PARTY*** (a party during which people watch a dating television series called *The Bachelor*). The viewer should construct the explicature that, in Jay's opinion, Phil's party resembles the one for women, i.e. with chicken wraps and white wine. Jay intends to indirectly criticise Phil for organising a boring stag party. The explicitly communicated meaning may make the audience construct some warranted implicature that Jay may have preferred a more traditional stereotypical stag party with excessive amounts of alcohol and unhealthy food, visiting strip clubs, and preferably, being able to reminisce only part of this

[6] Sperber and Wilson (1986 [1995]) argue that an assumption is manifest in a given discourse context when it is perceptible or inferable, which means that a recipient is able to represent it mentally and hold is as (probably) true. Since manifestness is a matter of degree, some assumptions can be more manifest than others and thus they are more likely to be entertained by the recipient.

[7] On an RT account, lexical adjustment is a type of free enrichment processes, whose result is an ad hoc concept, i.e. an occasion-specific sense of words/ phrases whose meaning is fine-tuned in a specific context (Wilson and Carston, 2007).

wild night. There is a high degree certainty that those assumptions are evidenced in the viewer's individual store of assumptions.

Apart from deriving genuine amusement, Jay's comment can "force" the recipient to spend more mental effort and thus extract some or all of the propositional discourse meanings (in brackets, I label the functions involved):

- a recipient can believe that it is better sometimes to criticise implicitly in order not to hurt one's feelings (highlighting shared similarities; Hay, 2000)
- Jay likes criticising his son-in-law Phil (disclosing character-specific information)
- a recipient can be advised that guests at the bachelor party expect a lot of alcohol, dancing and unhealthy food (advising)
- criticism, though implicit, can lead to the end of conversation or is used to take control of the flow of conversation (discourse management; Norrick, 1993)
- criticism in the form of mockery can be used to communicate a meaning, for instance an attempt to correct one's deviant behaviour, and hence it is not always used for its own sake (controlling one's behaviour; Hay, 2000)
- Jay's shameful behaviour towards Phil with whom many viewers affiliate can convey the meaning that it is not acceptable to criticise others (criticising; Hay, 2000, Holmes and Marra, 2002a)
- it is not socially acceptable (or, not highly recommended) when a father-in-law criticises his son-in-law (challenging social norms; Ziv, 1984)
- implicit criticism can mitigate a conflictive situation (reducing conflict/ tension; Martin, 2007)
- neutralised acts of criticism can be used to release tension or deal with the problem at hand (releasing tension/ coping; Ziv, 1984, Hay 2000)
- criticism can take the form of a linguistic play, which mitigates the negative import (providing a linguistic play)
- the relationship between a father-in-law and a son-in law indicates a clash between the former who always criticises and the latter who tries his best (providing a non-linguistic play)
- a stereotype about stormy relationship between a father- and son-in-law is strengthened; older people are difficult to be satisfied/ are highly critical (providing a cultural reference)
- implicit criticism can become a sign of one's mental power (showing off; Martin, 2007)
- people tend to criticise when their expectations towards actions of others are not fulfilled (conveying a serious message)

It must be highlighted that lack of the recovery of the above meanings does not endanger the definitional purpose of sitcom dialogues, which is amusement. That is to say, those additional cognitive effects are derived independently of humorous effects. In other words, I would like to make a claim that while some viewers may aim at easy relevance and hence derive humorous effects, other recipients may not only find humorous turns amusing, but also find pleasure in accessing other effects communicated by dint of humour, for instance when

viewers' and production crew's beliefs held in cognitive environments are corroborated. This is what Solska (2023) dubs *depth of processing*: "the processing of utterances can be shallow…or reflective, as when we pause and ponder an utterance, applying and reapplying the relevance-driven comprehension procedure in search for additional meanings that might not be instantly manifest" (Solska, 2023, 144).

3. Strengthening and challenging the viewer's individual representations

This section endeavours to discuss several ways in which the production crew[8] feels eager to affiliate with the TV recipients by strengthening and/ or challenging their individual representations, which capitalise on humour. By this token, humour either corroborates or invalidates similarities in cognitive environments, which along RT lines are mental representations. More specifically, the article discusses the effects of conveying/ challenging social norms, disclosing character-specific information and providing a cultural reference that hinge upon the dichotomy of strengthening and challenging the recipient's representations. In this section I provide the analysis of seven humorous episodes from the sitcom *Modern Family* in order to elucidate the above-mentioned division.

According to Wilson and Sperber (2002), a stimulus is considered relevant when it connects with contextual assumptions to yield cognitive effects (benefits) from processing it. More specifically, a potentially relevant stimulus is when it leads to the derivation of *positive cognitive effects*, understood as worthwhile inputs to our representation of the world. Consequently, the interpreter's attention is devoted only to those stimuli which are more relevant than others. Cognitive effects are attained as soon as a new piece of information combines with a contextual assumption by means of strengthening, abandonment or revision of existing assumptions or connecting with an old assumption to give rise to contextual implication (Wilson and Sperber, 2004). As for the interrelationship between different cognitive effects and humour, Yus (2002, 2005) advances the view that humour in stand-up comedies frequently dwells upon the comedian's strengthening or challenging of the audience's individual cultural information. I would like to extend this claim by suggesting that not only cultural representations, but also any individually held information, for instance concerning system of beliefs, can be bolstered or questioned. This claim would be substantiated in the analytical part of this section.

In Yus' (2005) parlance, the interpreter's personal representations are strengthened when a similar assumption is made mutually manifest by a comedian during the performance. Next, the hearer's personal beliefs can be challenged when an existing assumption, commonly held by many people, is made mutually manifest, which markedly differs from an assumption made by a humourist. Whilst the process of challenging requires the transfer of assumptions from a collective (or, comedian's) storage to audience's personal storages, the process of strengthening is reverse, viz. from private to collective. As for the viability of this proposal to

[8] It is assumed here that the production crew wishes to affiliate with viewers in order to maintain dedicated viewership.

analyse a sitcom, there seems to be a lack of certainty whether a given humorous segment strengthens, challenges or refines one's (cultural) representations, given the fact that it is unfeasible to predict the recipient's individual background knowledge. Consequently, such studies which show a plethora of different effects (for example, sharing stereotypical information) created upon the viewer are valuable since these point to various strategies that the production crew employs in order to appeal to a large audience around the world.

The last issue that requires mentioning is the private/ metarepresented (cultural[9]) beliefs dichotomy, as it cross-cuts the strengthening/ challenging dichotomy (Yus, 2002, 2005). Private beliefs bifurcate into intuitive, being acquired through perception and inference, and reflective, being attained through communication. Metarepresented beliefs, on the other hand, are presumed to be widely held by a specific cultural group. The reason why this distinction is relevant for the explanation of non-humorous effects is that different audiences may derive quite disparate cognitive effects, and thus, some views aired by the production may be consistent, while others may be inconsistent, with those endorsed by the telecinematic recipients. In RT terms, some cases would illustrate considerable overlap between the production crew's and recipient's cognitive environments (strengthening), whereas others would exemplify the lack thereof (challenging). To illustrate this, the humour in the sitcom usually resides in Jay's mocking his homosexual son Mitchell, by comparing his behaviour and personality to a woman. As long as a recipient shares the same negative opinion and has the inclination to pass derogatory remarks towards homosexual people, his/her private representations would be consistent with a metarepresented belief expressed by the production crew[10]. In addition, those representations would be strengthened by Jay in the sitcom. Marking this humorous segment as a case of strengthening of a private representation is only possible when the production crew and viewers share the same belief about, for instance, homosexuals. However, when the recipient's and production crew's representations are not compatible, then such cases are marked as examples of challenging of personal beliefs.

The propositional meanings in the humorous segment (2) analysed below are pivoted on the pattern of strengthening and challenging certain beliefs. More specifically, it fulfils the functions of conveying and challenging social norms at the same time, though such cases are rare in my data. Furthermore, Meyer (2000) rightly puts forward a claim that enforcing social norms produces a dividing effect upon the hearers, as laughter can discipline and thus divide the audience into those who misbehave and those who comply with the code of proper conduct. In extract (2), humour on the recipient's level[11] is dependent on Mitchell's use of creative metaphor to vividly describe Cameron's addiction to sugar. To start with, the phrase

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[9] For the reason explained in this section, I put the word *cultural* in brackets, although the author referred only to cultural representations.

[10] Even though it is Jay who derides his son, the recipient may attribute Jay's utterances to the production crew. That is to say, to maintain the clarity of which communicative level is studied (see the Introduction), I refer to the production crew whose potential beliefs are shared through fictional characters' mouths, however the recipient's interpretations are constructed on the basis of dialogues of specific fictional characters.

[11] It needs to be underlined that humour on the recipient's level very rarely converges with humour on the fictional layer, since comedies are designed for the benefit of viewers.

Days of Red Vines and Roses is a blend of the two references: *Days of Wine and Roses* (the film depicting a couple struggling with addiction to alcohol and chocolate) and *Red Vines* (a brand of red licorice candy). Having specific information about the meaning of those names leads to the derivation of emergent properties: addiction to alcohol is similar to addiction chocolate; not only an addicted person but also his/ her next of kin suffer; when talking about addiction, one may choose not to talk about it directly. As a result, the recipient can glean the meaning implicated by Mitchell: Cameron is as addicted to sweets as alcoholics are to alcohol:

(2) **Context**: Cameron, Mitchell and their daughter play the trick-or-treat game. Mitchell notices that his partner indulges in sugary sweets.

[Mitchell and Cameron talk into the camera]
Mitchell: Cam doesn't react well to candy.
Cameron: Which is why I never eat it. Except on Halloween. And I admit, in years past, I may have overindulged.
Mitchell: Which leads to a crazy high followed by a tearful, self-loathing crash. *It's a Days of Red Vines and Roses*. (S08E05)

The two functions related to social norms include the one that strengthens while the other challenges viewers' social norms. As Meyer (2000, 320) remarks, "[h]umor allows a communicator to enforce norms delicately by leveling criticism while maintaining some degree of identification with an audience". Although the production crew may introduce a conflict situation to the viewers by breaking the widely accepted cultural norms, such cases of challenging are not regarded as hostile, given the fact those conversational "moves" are cloaked under humour (see workings on humorous frame, e.g. Coates, 2007). As for the conveying-social-norms function, it covers humorous segments whereby the production crew's system of beliefs intersect with the recipients', corroborating their thorough understanding as regards social norms. One of the patterns where the function was assigned encompasses cases in which the fictional character's unacceptable behaviour is critically appraised by others, prompting the recipients to conform to norms. Example (2) is a case in point. The propositional meanings that the recipient gleans on the basis of (2) would be tantamount to: it is a norm/ typical behaviour that a person addicted to any substance suffers when s/he lacks something s/he loves; it is a norm that a close friend or family member is mad because of others' addiction and thus sympathises with their beloved ones when they are in a difficult situation.

As regards challenging social norms, private assumptions should clash with assumptions made mutually manifest in the sitcom. Such cases are frequent, which can explain why the content of the sitcom appeals to a large audience: the telecinematic recipients are enchanted by witnessing the world being markedly different from their own life, for instance the one in which blistering verbal attacks do not sever relations among family members. The weakly communicated meaning that a recipient can access is that it is not socially acceptable that a partner, instead of supporting an addicted person, goes as far as to openly criticise him/ her.

The disclosing character-specific information function is marked when a fictional character expresses personal beliefs or attitudes towards socially valid issues. As soon as a recipient acquires some knowledge concerning any fictional character, conversational

segments that follow in subsequent episodes either strengthen or challenge and eventually lead to the revision of already held assumptions. In other words, the recipient is cued to modify certain details about a fictional character or store new items of information. The propositional meaning communicated in dialogue (2) reinforces the recipient's private belief concerning Cameron that he is quite sensitive and is prone to tearful moments.

The last function that predicates on the strengthening/ challenging dichotomy is providing a cultural reference. Such humour results from referring to stereotypes that perpetuate in culture as well as to cultural artefacts, such as famous films, books, or people. An additional effect that the fulfilment of this function entails is that such comedy discourse establishes authenticity, as it is more embedded in a real cultural context. A humorous unit presented above communicates a propositional meaning on the basis of strengthening of the stereotype concerning homosexuals that they are regarded as effeminate individuals whose personality is woman-like, for example they are likely to cry a lot. In addition, Mitchell's turn alludes to the film *Days of Wine and Roses*, implicating that Cameron's addiction to sweets is as devastating to his family as addiction to alcohol.

One of the reasons for performing the conveying-social-norms function is to corroborate mutual understanding and hence underline the things that the production crew and viewers have in common. Another set of instances in which this function was assigned encompasses the units in which the fictional characters conform to the pattern of social norms that are widely acceptable and probably held by most members of society. Extract (3) draws upon a norm that if a boy wants to be successful in picking up a girl at the party, he may make a humorous remark, as girls love to laugh.

(3) **Context:** A girl at the party does not understand why Manny wears the Trumbo costume (it looks as if Manny, aka Trumbo, is writing in a bathtub).

A girl: Rambo?
Manny: No, Trumbo. Dalton Trumbo. He wrote in the bathtub.
A girl: Why?
Manny: Maybe, as a screenwriter, *he knew he was going to take a bath on the back end.* [chuckles]

Humour results from Manny's use of the punning phrase, which can be interpreted in a double way. The phrase *to take a bath* requires a relevance-theoretic process of lexical adjustment, the result of which are two ad hoc concepts, viz. TAKE A BATH* (to have a shower) and TAKE A BATH** (to lose money in a business deal). Both concepts are relevant in the context of the present conversation as Manny would like the girl to move back and forth between two possible interpretations of the phrase. It is also possible to say that the explicature which should arise in the viewer's mind consists of the information enclosed within the latter concept, i.e., Dalton Trumbo was convinced that being a screenwriter will make him lose money eventually.

The dialogue in (3) also serves the function of disclosing character-specific information about Manny who is unlike his peers in everything he does, such as in choosing a costume. Most teenagers would probably choose a more recognisable figure, such as a famous actor or superhero from Marvel comic books. As regards the providing a cultural reference function, Manny's turn mentions Dalton Trumbo, an actual screenwriter. Nevertheless, the recipient's

storage of assumptions may lack information about Trumbo and, in order to preserve amusement, the production crew included Dalton's description in Manny's turn.

Modern Family is a sitcom whose humorous effects largely draw upon reinforcing or challenging the recipient's individually held beliefs, for example family life, relationship among siblings or parents, or treatment of minority groups (concerning the function of providing a cultural reference). Mills (2009) reckons that sitcoms are an important vehicle for the demonstration of cultural capital. Not only do viewers like watching events that are distant from their own life, as already stated, but also they derive pleasure from becoming cognisant that individual cultural representations are shared by others. The latter situation Yus (2005) dubs the *joy of mutual manifestness*, which corroborates common ground between the recipients and humourist. Extract (4) strengthens a common stereotype of men being keen on impressing each other and thus choosing to speak of women in derogatory terms.

(4) **Context:** Phil meets a well-known weatherman on the news, which makes him overly excited. Rainer finds out that Phil is an estate agent and tries to find a common language with him.

Rainer: You know, I think you sold my neighbor's house, Doris Jacobs.
Phil: [trying to recall] *Uh, white, mid-century, big back porch*?
Rainer: That's her.

Following an RT comprehension procedure, the recipient needs to find a referent for Phil's description of Doris Jacobs' house, which is white, has a big back porch and dates back to mid-century. Rainer's last line introduces incongruity and makes the viewer backtrack in order to find a contextually salient interpretation. Humorously switching a referent from the description of the house to the woman, Rainer intends to amuse Phil and build positive relations. The recipient employs an RT process of reference assignment and derives the explicature: Phil's reminiscence fits both the house and woman interpretations. Besides the explicitly communicated content, there are many weakly communicated implicatures: men ridicule women to show mental power, men like to talk about women in terms of objects, or men prefer to talk about women in derogatory terms when there is no woman in the vicinity.

In addition, Rainer's clever remark fulfils the function of challenging social norms. The information that the recipient should derive is that it is not a socially acceptable norm that men should engage in conversation where women are treated unfairly, or are seen as inferiors whose roles in society are defined in terms of objects.

There are also humorous units which contribute to strengthening of the same stereotypical assumption throughout the season, i.e., Colombian doctors, or doctors in third-world countries in general, are under-qualified. More specifically, while analysing dialogue (5) it seems that being an orthopaedist in Colombia does not require any medical training in medical school and, as such, you may become an orthopaedist right after having graduated from junior high school. In (6), Jay admits that after having graduated, Manny may as well go to Colombia and become a radiologist, thus no medical training seems necessary. What is more, excerpts (5) and (6) provide a challenge of social norms: it is not a norm that one does not have to be medically qualified to become a doctor.

(5) **Context:** Javier, Manny's biological father, comes to Jay and Gloria's to take his son to celebrate his achievements and graduation.

Javier: Manny, the first member of my family to ever graduate from high school.
Jay: Wait a minute. *Don't you have a brother in Colombia who's a doctor*?
Javier: Yes.
Gloria: *He just does orthopaedic surgery, no brain or heart.*

(6) **Context:** Jay congratulates Manny on his graduation day from high school.

Jay: [to Manny, smiling] Congratulations on the first of what I'm sure will be many diplomas. *Unless you want to skip all that and move to Colombia and become a radiologist.*

The comic effects in extract (5) derive from the clash between Javier's brother being an orthopaedic surgeon in Colombia and the fact that Manny is the very first member in his entire family to become a high school graduate. The function of disclosing character-specific information is also strengthened when Gloria accepts the way things are undertaken in Colombia. As regards humour in (6), it is based upon the clash between Manny's chance of becoming a radiologist in Colombia and the recipient's knowledge that it takes many years of training to become a specialist. Jay's turn additionally strengthens the information about him that he is fond of teasing.

On the opposite pole of the continuum of strengthening and challenging of stereotypes there are cases in which humour subverts the widely held stereotypes. Extracts (7) and (8) reverse the stereotypical information: the former subverts the usual way of speaking about children that parents always underline child's positive features (7) or that it is not typical of women to drink alcohol (8).

(7) **Context:** Lily's positive grade record makes her parents astonished as they expected that it should have been much worse. The school principal advises her parents to move Lily to a more challenging curriculum.

Mitchell: I know! All these years we thought that she was, uh God, what's the word?
Cameron: *Different? Peculiar? Odd? Mean?*
Mitchell: So many words. But she was just really smart. Holed up in her room every day after school, she wasn't …
Gloria: …*plotting to kill us*?
Cameron: I was gonna say daydreaming.

Humour in (7) is based on Mitchell's inability to offer at least one feature of Lily's character that is deemed positive and Cameron's effortlessness in providing Lily's negative characteristics. While the viewer makes an assumption that Cameron would find suitable praising adjectives, as is constantly strengthened in the sitcom that Cameron is blindly in love with their daughter, he starts enumerating Lily's traits such as being odd, mean or peculiar and that she probably spent a lot time in her room to attempt at Mitchell's and Cameron's murder. In addition to reversing a stereotype, this dialogue challenges a social norm: it is not a norm that parents regard their child as a possible murderer or a mean human being. Moreover, the function of disclosing character-specific information is performed as the viewer is afforded an insight into Cameron's mind, which subverts the existing assumption: he is

aware of Lily's strange behaviour, which contradicts Cameron's usual view of Lily as the most astonishing daughter.

Let us study the last dialogue in which humorous effects capitalise on two possible interpretations of the phrase *wine country*, which, for the proper understanding, requires the process of ambiguity resolution. There is an incongruity between the recipient's meaning of a wine country being a place where wine tasting is organised, and the meaning assigned by Phil and Claire, being the trampoline where Chardonnay is served.

(8) **Context:** Gloria, Claire's stepmother, wants to spend more time with Claire after having agreed to look after the high school children at the ball.

Claire: Sure, it's the least I could do, because tomorrow you are going to help Luke with his homework while *I visit wine country*.
Gloria: [gasps] I want to go.
Phil: That's just what she calls *lying on the trampoline drinking Chardonnay*.

The viewer should be amused when s/he finds out that a normal activity of drinking wine on a trampoline is referred to in creative terms. Creativity manifests itself in the incongruity between drinking Chardonnay on a trampoline and visiting wine country. In other words, instead of stating it bluntly, Phil chooses the phrase *wine country* for "drinking wine on a trampolire". Taking the contextual information about Claire as being eager to drink wine and the viewer's background knowledge about Claire that she is shown drinking alcohol on numerous occasions, the character-specific information is strengthened. Furthermore, this dialogue serves the function of challenging social norms, as it is not socially acceptable that mothers, or women in general, drink alcohol.

4. Conclusions

While there are many works devoted to the description of humorous effects in RT, the issue of how humour can be used to communicate a variety of propositional meanings in sitcom discourse has been sidelined. The present paper attempted to plug part of this gap. My major aim was to describe additional cognitive effects provided by means of humour in a weak way, pivoted on strengthening and challenging of individual representations held by televisual recipients. Strengthening encompassed episodes where the production crew's and viewers' cognitive environments cross-cut each other. As a result, humour is not only used with a view to providing amusement, but also to corroborating shared cognitive environments. Challenging included cases where the metarepresented beliefs were divergent from the recipient's individual beliefs. The challenging-representations units can also create a positive effect upon viewers since people can be entertained by watching events that are different from those they witness in real life. An interesting string of research in the context of challenging of the recipient's beliefs is undertaken by Kuipers (2006 [2015]), who investigated the interrelations between social class and taste cultures. More specifically, she claims that taste cultures are relative to differences in status and power. Highbrow comedy, in her parlance, is more intellectually challenging, ambivalent, with avant-garde features and relies heavily on cultural capital than popular and easily accessible lowbrow humour. While highbrow comedy

challenges the viewers, which is the reason why highly educated people appreciate it, lowbrow comedy is produced for the sake of amusement. In addition, those two humour styles are mutually exclusive: "people who like popular humor are generally puzzled by highbrow comedy, whereas people who favor intellectual humor look down upon popular humor" (Kuipers, 2006 [2015], 100), although highbrow style lovers are not necessarily fully aware of lowbrow humour. An area of further research is to determine the target audience of *Modern Family*.

Special attention was paid to four functions that hinge upon the strengthening/ challenging dichotomy, which include conveying and/ or challenging of social norms, disclosing character-specific information and providing cultural references. That is to say, all those functions have the potential of either strengthening of the viewer's personal assumptions, as the information communicated in a humorous episode converges with the one disseminated by the production crew, or challenging of the recipient's personal beliefs as soon as a humorous dialogue makes manifest quite disparate information from this held privately by a TV recipient. Moreover, determining whether specific humorous segments convey or challenge certain information was unfeasible since viewers' private beliefs condition his/ her reception. What is more, any researcher and production crew will find it difficult to fully envisage the recipients' private beliefs, although there is a mutual agreement on what is customarily held by members of society. Nevertheless, in RT, it is believed that a communicator has a mind-reading ability, which comes in handy to predict how a piece of discourse can be interpreted (Sperber and Wilson, 2002). Since the target audience of any fictional discourse is not uniform, it is important for the communicator to predict what kind of a stimulus will be highly relevant in a given context. The production crew, at least to some extent, makes conscious accurate predictions about the meanings to be elicited and conveyed in scripted communications. To rephrase, among others, scriptwriters consciously predict mental states of the viewers as well as guide their comprehension process to safeguard the recognition of humorous intention and possibly other cognitive effects.

Another line of further investigation, besides determining the target audience of *Modern Family*, is to describe other functions of humour, which are potentially contingent on the strengthening/ challenging recipient's beliefs such as humour as a means for developing the knowledge of the presented world.

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Pragmatic marker *to* in Hausa (West Chadic, A.1; Nigeria)[1]

Patryk Zając
Department of African Languages and Cultures, Faculty of Oriental Studies, University of Warsaw

Abstract

In Hausa language function words contribute to sentence structure mainly on the syntactic level. They can specify the attitude or mood of the speaker. The broad class of function words includes a sub-class of items known as Pragmatic Markers (PMs). So far interpretations of PM *to* in Hausa were based on its semantic rather than structural contributions to the utterance content. There is a lack of a closer look on *to* from the pragmatic perspective. The aim of this article is to demonstrate how the interpretation of *to* within the framework of PM can contribute to describing this item's functions in discourse in a more precise way, i.a. for the purpose of preparation of resources for studying the Hausa language by foreigners such as bilingual dictionaries. I propose the interpretation of *to* as a PM with the binary category of procedural and representational meaning. It will be demonstrated with the examples extracted from radio conversations that PMs framework allows to comprehensively describe *to* marker in terms of its contextually determined functions and meanings.

Keywords: Pragmatic Marker; Hausa; radio; conversation; modal particle

[1] Hausa is the third most widely spoken non-European language in Africa after Arabic and Swahili. It has approximately 50.7 M native speakers, mainly inhabitants of northern Nigeria and bordering southern regions of Republic of the Niger. Almost 26.2 M people speak Hausa across (Western) Africa (also in diaspora) as their second language (Eberhard, Simons & Fennig 2022). Hausa society as well as language since ca. 14th century have been under the influence of Islam (Adamu 1976: 5) which resulted in the significant presence of Arabic elements in Hausa lexicon (Baldi 2008; Greenberg 1947). The status of Hausa in West Africa was built upon the historical process of acculturation and integration of other ethnic groups into the Hausa society, among which the most numerous and influential are Fulanis (Piłaszewicz 1995: 13). Linguistic and literary studies on Hausa have long tradition at universities in Africa (i.a. Nigeria, Niger), Europe (i.a. Poland, Germany, Italy, United Kingdom, France, Austria), America (USA, Canada) and Asia (i.a. Japan) (Wolff 2019).

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1. Introduction

In Hausa language function words contribute to sentence structure mainly on the syntactic level. They can specify the attitude or mood of the speaker. This class of words is represented by the number of predominantly one- and two-syllable items labelled as *exclamations* or *interjections* (depending on their function) which have merely vague or general meaning, e.g. *ai, af, fa, mana, ungo*[2] as well as the commonly used word *to*[3]. "The[ese] words are difficult to define precisely because a great part of the meaning is pragmatically determined" (Newman 2000: 176). These items function in language as i.a. subordinators, coordinators, prepositions as well as various types of expressions and particles (some of them were demonstrated in Zając 2019: 19).

The broad class of function words includes a sub-class of items known as Pragmatic Markers (PMs) which are "linguistically encoded clues which signal the speaker's potential communicative intentions" (Fraser 1996: 168). They are found in grammatical and lexical stock of a language. Verbs, nouns, adverbs and even idioms are "pressed into service" as PMs (Fraser 1996: 170–171). "[F]or the most part, the meaning of the expression when used as a PM, is the same as when it is used as a propositional formative and it is only its function which differs" (Fraser 1996: 170–171).

The question of what is the primary feature of the PM is not definitely solved:

> For many scholars, the central function of pragmatic markers is to express the relation or relevance of an utterance to the preceding utterance or to the context.
>
> (Brinton 1996: 30)

The lack of agreement on terminology among the researchers resulted in studying lexical items that are covered by the term PM under various names and labels, i.a. pragmatic particles (Östman 1995), discourse particles (Abraham 1991), pragmatic formatives (Fraser 1987), pragmatic expression (Erman 1987), pragmatic connectives (van Dijk 1979), pragmatic operators (Ariel 1994), conjuncts (Quirk et al. 1985), sentence connectives (Halliday & Hasan 1976), phatic connectives (Bazzanella 1990), cue phrases (Knott & Dale 1994), signalling devices (Polanyi & Scha 1983), indicating devices (Dascal & Katriel 1977), discourse connectives (Blakemore 2002), discourse operators (Gaines 2011), Discourse Markers (DMs) (Schiffrin 1987) and PMs (Brinton 1996; Fraser 1996).[4] In the view of a more recent study PMs are members of the same "family" if not essentially the same thing as DMs, and Modal Particles (MPs), since the categories of pragmatics, discourse and modality overlap in language:

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[2] The rules of transcription based on standard orthography (cf. Amfani et al. 2011): *c* = /tʃ/, *f* = /ɸ/, *j* = /dʒ/, *sh* = /ʃ/, *ts* = /s'/, *y* = /j/. Short and long vowels are not marked. There is no tonal notation and no distinction between two phonemes represented by letter *r* (/ɽ/ and /r/). Modified Latin letters are used to denote glottalized consonants: *ɓ*, *ɗ*, *ƙ*, *'y*.

[3] The varying tonal pattern of *tô/tò* will be discussed later in the article. In that case long vowels are marked with a horizontal bar above the letter; a low tone with gravis; a falling tone on long vowel with circumflex.

[4] Works cited are mentioned by Azi (2018: 49), Fraser (2009: 394) and Kibiki (2019: 30).

> The difficulties in delimiting these entities [MPs, PMs and DMs] and investigating their mutual relationships stem from a variety of reasons. The most important of these reasons, in our view, is precisely the terminological *cul-de-sac* that appears to characterize this field: the debate on the boundaries between these categories, in fact, has often been an obstacle rather than a stimulus to a more thorough understanding of their specificities and commonalities, and has generally obscured what these items have in common.
>
> (Fedriani & Sansó 2017: 1)

Two closely related linguistic terms, namely DM and PM happen to be used interchangeably (at least to some extent). Azi (2018: 51–52) gave a detailed discussion on the terminology and concluded that spoken discourse is a domain of PMs as opposed to written discourse which is associated with DMs. According to Fraser (1996: 170, 186; 2009: 295–298) the term DM is narrower than what is understood under the term PM. In other words, DMs are considered to be a subtype of PMs and are "mainly related to «textuality and coherence» of a text, whereas PMs have various functions that cannot be limited to the same basic functions of DMs". PMs "appear to perform a larger number of interactional functions that are mainly related to spoken discourse" (Azi 2018: 51).

> These expressions [i.e. DMs] occur as part of a discourse segment but are not part of the propositional content of the message conveyed, and they do not contribute to the meaning of the proposition, *per se*. However, they do signal aspects of the message the speaker wishes to convey.
>
> (Fraser 2009: 295)

There is quite a number of papers on PMs (including DMs) in languages spoken in Africa, i.a. Standard Arabic (Hussein & Bukhari 2008) along with Arabic dialects of the North Africa such as Maghrebi and Egyptian (Bidaoui 2015) and Nigeria: Šuwa/Shuwa (also known as Nigerian Arabic) (Owens & Hassan 2010), Swahili (Dunn 1990; Habwe 1999; Kibiki 2019), Swahili and Amharic (Nicolle 2000). To the best of my knowledge there are no works in which PM framework is applied to the analysis of Hausa except for a discussion of PM *to* use in code-switching Nigerian Arabic-Hausa conversations recorded in Maiduguri (Owens & Hassan 2010)[5]. So far interpretations of *to* in Hausa were based on its semantic rather than structural contributions to the utterance content. There is a lack of a closer look on *to* from the pragmatic perspective.

1.1. "To" meanings and functions

To is a word used frequently in Hausa to modify the mood of an utterance. In one of the oldest comprehensive Hausa dictionary written by Schön (1885) *to* is listed as an *adverb* meaning 'now'. In another early work on Hausa, Delafosse (1901: 124) gave *to* meaning as 'bien, à la bonne heure'. Mischlich (1906) classified *to* as an *interjection* and gave its German

[5] The lack of the detailed studies of Hausa PMs was also acknowledged by Owens & Hassan (2010: 211). Here are examples of some other frequently used Hausa PMs used especially in spoken discourse: *gaskiya (ƙwarai)* '(indeed) this is the truth', *gaskiya ne/ce* 'this is the truth', *(ƙwarai) da gaske* '(indeed) this is true', *haka ne* 'it is like that', *shi ke nan* 'that is it', *e/i* 'yeah'.

(and additionally English) translation as follows: تُ[6] 'jawohl, gut, es ist recht (das englische *all right*)'. Also Smirnova (1982: 68) put *to* in the same grammatical category while translating it as 'there you are'. In Bargery (1934) the definition is also very short, and therefore not comprehensive: *to* 'quite so; yes; all right; well'. A roughly identical translation of *to* which was labelled this time an *exclamation* can be found in Newman (2007): *tô* '1. OK, that's all right. 2. well then'; whereas Abraham (1962) provides some contextual meanings and additionally, cross-reference to other entries: *tȍ* '1. very well!' 2. ~ daidai = 1. 3. *a* ~ 'well then...' (= *a'a*) 4. *tȍ?* a. 'really?' b. 'fancy!' 5. Vd. *ai*; *ɗagogo*.

All the above definitions (translations) of the word *to* do not in fact indicate its numerous pragmatic functions in a text[7] interpreted as a *communication event* (Duszak 1998: 13–14, 28–32). However, Robinson and Burton (1905), who worked during colonial times, gave the definition as follows: 'well! so! yes! good!, when a native does not quite understand what is said he will frequently reply *to*'. This definition indirectly presents an observation that this word serves some pragmatic communicative purposes. Another observation on functions of *to* is provided in Hausa grammar by Migeod (1914: 208): "Used on receiving an order and signifying acceptance. Also as an informal expression of thanks".

All "lexical meanings" of *to* discussed above are in fact selected contextual translations or contextual equivalents of this word in European languages.[8] As it was indicated before, the word in question is a function word and not a content word. Therefore, its use can be described more efficiently through enumerating its pragmatic functions and not by the proxy of lexical equivalents in other languages.

Noteworthy, some pragmatic properties of *to* marker were indicated by Hodge & Umaru (1963: 18). According to them *to* indicates assent in one of the 3 moods: indifferent, respectful or sarcastic. The detailed research on the use of *to* (Gonciarz 1986: 23, 56, 59)[9] demonstrated that it occurs exclusively at the beginning of a sentence. *To* is formally and semantically related to the content of the whole sentence that follows it rather than to its particular fragments. However, the item's connection to the content of the following sentence is loose

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[6] The 19th and early 20th century Hausa dictionaries provide the entries both in *boko* (Latin-based) and *ajami* (Arabic-based) script. Quite interestingly, *to* that is realised usually with the long vowel /ō/ is written with short /o/ indicated by *ḍamma* ◌ُ rather than with long /ō/ represented by letter *wāw* و. The short variant was attested in contemporary Nigerian Arabic-Hausa code-switching conversations recorded in Maiduguri (Owens & Hassan 2010: 214).

[7] I use term *text* in a broad meaning that covers both graphic (mostly written) and phonic (mostly spoken) speech acts (Duszak 1998: 13). The term *speech act* is to be understood in reference to J. L. Austin's Theory of Speech Acts (1962) developed i.a. by J. Searl (1969) and other contemporary philosophers of language and linguists.

[8] On the problems of equivalence in translation relevant for this matter see: Hejwowski (2004: 81–82).

[9] Gonciarz (1986: 40, 57–58) classified *to* as a MP. The category of MPs in Hausa consists of items that cannot be classified as nominal or verbal items. This set of words is therefore diverse in terms of form and function (Pawlak 1998: 53): they "...serve to express a personal attitude, state of mind, emphasis or contrast, corrective, conversational flow, or other pragmatic or discourse functions. They are often essentially untranslatable..." (Newman 2000: 326). These items are considered "an additive" or what Hausas call *gishirin Hausa* 'salt of Hausa' (cf. Newman 2000; Schmaling 2001: 3).

because the general syntactic function of *to* is to indicate the continuation of speech or the sentence relation to the preceding sentence (Gonciarz 1986: 24, 37, 41). This is in accordance with an observation made by Owens & Hassan (2010: 235) that predominately *to* introduces a sentence (152 cases in their corpus) rather than appearing as a single token without continuation of the talking (16 cases). According to the aforementioned study *to* has at least 7 pragmatic functions (Owens & Hassan 2010: 212–216, 233). "In general terms, *to* can be characterized as a marker of transition from one event or state of affairs to another. (...) It can variously be translated as 'right, okay, I got you, so, oh'" (Owens & Hassan 2010: 214). Significantly, *to* is a marker characterised by a "greater salience" i.e. it allows more involvement by the other speaker and very often suggests that s/he will take over the next turn (Owens & Hassan 2010: 232–234). In spoken and written Hausa *to* is a word which can be omitted without an utterance necessarily losing its meaning and function (except when appearing as a single token without continuation of the talking). All correct sentences with *to* element that are possible to be generated in Hausa, would still be grammatically accepted if *to* was deleted.

Finally, worth noticing are tonal variations of *to* registered by some lexicographers (even though these are minor tone and meaning variations, they should be mentioned). This is to compare: *tō/tò̄* (Bargery 1934) vs *tò̄* (Abraham 1962) vs *tô/tò̄* (Newman 2007). Some researchers suggested that tonal variants of *to* can be interpreted as two separate lexical units (Gonciarz 1986: 41–42, 57, 59, 60; Kraft 1973: 51):

tô '1. good, great', '2. agreed, well then, it seems that we came to the agreement'[10] (a pause occurs after the word)

tò̄ 'in this case..., well then, so'[11] (usually employed when there is no pause between it and the following word)

Four interesting variations in the use of *tô/tò̄* depending on tonal pattern and vowel length are indicated in Hodge & Umaru (1963: 18–19) who named it an *affirmative particle*:

tō 'respectful reply to an elder who has made a request or given an order (frequently used by children)'

tô 'assent (between equals)'

tô (question tone, high with short fall) '1. reply when a person disagrees but doesn't want to say anything', '2. expression of doubt', '3. in connection with other words: *tô, shi ke nan* "well, that's how things are"'

tò̄ōò̄ (drawled low high tone) 'expression of surprise at learning something'

tòtòtòtô (indefinite number of lows followed by high falling) 'expression of surprise'

2. Aim and scope

The aim of this article is to demonstrate how the interpretation of *to* within the framework of PMs can contribute to describing this item's functions in discourse in a more precise way, i.a. for the purpose of preparation of resources for studying the Hausa language by foreigners such us bilingual dictionaries.

[10] Original text in Polish: '1. dobrze, wspaniale', '2. zgoda, a więc dobrze, no to jesteśmy umówieni'.

[11] Original text in Polish: 'w takim razie, no to, więc'.

I will demonstrate functional properties of *to* that determine its pragmatic use with illustration from spoken media discourse, following the framework presented by O'Keeffe (2012). The examples were extracted from 3 conversations held on air in BBC Radio station.

Presenters and guests on BBC Radio are encouraged to speak Standard Hausa which is following recognised norms of the language and was indicated as the language to be used on radio and television (Newman 2000: 1). This rule is predominantly obeyed however, some phonetic and lexical features of other dialects can be spotted incidentally in the speech of particular speakers.

3. Methodology

To affects not only structure of a clause or a sequence of clauses as it was already established in cited works, but is an element serving to organise a much wider structure, i.e. discourse. Although *to* can be occasionally found in written texts, it is a typical conversational marker (Owens & Hassan 2010: 208) that modulates "the organization of conduct within interaction" (Clayman & Gill 2012: 120).

The use of *to* as a PM will be illustrated with examples[12] excerpted from conversations with methods of Conversation Analysis (as described in Clayman & Gill (2012) and ten Have (1999)) such as: sampling, transcribing, a detailed inspection of recordings and transcriptions, observation, searching for systematic manners and communication practices. According to Schiffrin (1987: 13, 24) (conversational) discourse consists of 5 "planes": *exchange structure*, *action structure*, an *ideational structure*, a *participation framework* and an *information state* which are all interconnected and integrated in order to make communication successful. In Schiffrin's model the *discourse coherence* is being achieved by the means of what she calls "DMs" that integrate "various components of the discourse" (Lenk 1998: 42). The question that is being investigated in the current article is how does PM *to* "integrate" conversation or in other words what are its pragmatic functions on the plane of a conversation *exchange structure* and thus, what meaning types can it carry.

Referring to Fraser's classification of PMs (1996; 2009), it will be demonstrated that *to* depending on the context of its use can carry either representational or procedural meaning which correspond to PMs sub-types. These two types of pragmatic meaning are in a binary opposition (Fraser 1996: 170; Kibiki 2019: 30). A representational meaning denotes concepts, and thus is to some extent fixed. Here are the examples of use of PMs with representational meaning (marked in bold) provided by Fraser (1996: 174):

> **I am (herby) asking you** to be there on time. [PM of request][13]
> Can you **please** help me? [PM of request]
> **I want to thank you** for the advice. [PM of gratitude]

[12] The transcription symbols used are taken from the set provided by Jefferson (2004) and Clayman & Gill (2012) and their full list is provided in the last section.

[13] My comments in square brackets.

In turn, a procedural meaning (corresponding to the function) is relation of a sentence to the preceding discourse. Therefore, it emerges in a context. Fraser (1996: 186) underlined PMs' procedural meanings role in instructing an addressee how the utterance to which the marker is attached is to be interpreted (modality), e.g.

A: Mary has gone home.
B: a) She was sick. [no PM, no clues on interpretation]
b) **After all**, she was sick. [PM of explanation]
c) **Thus**, she was sick. [PM of conclusion]
d) **Moreover**, she was sick. [PM signalling that there is more of relevant information]
e) **However**, she was sick. [PM of contrast]

4. *To* in Hausa as a Pragmatic Marker

4.1. Procedural meaning

The PM *to* sometimes does not carry any representational meaning but only a procedural one which can be further specified with reference to PM sub-categories and their functions rather than any "lexical" meaning.

4.1.1. Emphatic[14]

To can serve as an emphatic commentary PM. Fraser (1996: 179) considers commentary PMs to have both representational and procedural meaning. However, an emphatic *to* in Hausa could be omitted without changing the meaning of the statement it is used in, and therefore emphatic PM *to* is an item with only procedural meaning. Consider the examples of emphatic PM *to* used in common expressions below:

(1) A. *I* ***to,*** *haka* *ne.*
yes PM like_that COP
'Yes, **all right**, it is like that.' [emphasis marker]

B. *I,* *haka* *ne.*
yes like_that COP
'Yes, it is like that.' [no PM, no clues on interpretation]

(2) A. ***To,*** *wannan* *gaskiya* *ne.*
PM this truth COP
'**Okay**, this is true.' [emphasis marker]

B. *Wannan* *gaskiya* *ne.*
this truth COP
'This is true.' [no PM, no clues on interpretation]

[14] I would like to thank the anonymous reviewer for pointing out the importance of this function of *to* and providing examples which I used.

(3) A. ***To***, *a* *ra'ayi-na...*
PM PREP opinion-mine
'**As for** my opinion.' [emphasis marker]

B. *A* *ra'ayi-na...*
PREP opinion-mine
'In my opinion.' [no PM, no clues on interpretation]

Statements marked A are "strong", and somehow getting more attention than statements marked B. Statements A use emphasis, and their counterparts in B lack such emphatic mood (while having the same meaning).

4.1.2. Elaborative

To can carry a procedural meaning and function as an elaborative DM[15] signalling topic continuation (dwelling on a particular topic), a refinement or the follow-up of the preceding discourse, signalling that "the utterance following constitutes a refinement of some sort on the preceding discourse" (Fraser 1996: 187–188; Fraser 2009: 296, 301). Here is the example extracted from the Conversation 1[16] being an excerpt of BBC Radio programme, in which *to* was used turn-initially, cf.

(4) ***Tȍ*** *wannan* *babba-n* *banki* *ne* *wanda* *ake* *kira*
PM this big-GEN bank COP which IMPERS.CONT.REL call

babba-n *banki-n* *ba -da* *lamuni-n* *gine-gine* *ga* *al'umma-r* *Najeriya.*
big-GEN bank-GEN give credit-GEN constructing for society-GEN Nigeria

'**To come to the point**, this is a big bank which is known as a central bank giving credit for [houses] construction to the people of Nigeria.'

Example (4) contains words of the speaker (Ahmed Ɗan Giwa) who is not in direct contact with the radio presenter that gave the introduction. In order to fit in the radio programme structure his turn was extracted from a recording and paste into a new linguistic context. It gives the impression of an elaboration in reference to the presenter's turn while in fact the conversation was recorded earlier by a reporter (Yusuf Ibrahim Yakasai). Surely, the interviewed man did not know the final structure of the program (the exact linguistic context and order in which fragments of his utterance will be put on air) while he was being recorded. Hence, he started his turn (example (4)) with an opening marker *tȍ* which indicates the follow-up to the previous (cut-out) turn of the itinerant reporter. By the use of *tȍ* he also stated that it is his own opinion on the topic that he is presenting (cf. Gonciarz 1986: 42, 57) and indicated continuation of the discussion on the topic (cf. Owens & Hassan 2010: 233).

In the following example (5) *to* is used in turn-medial position. It was extracted from Conversation 2 which is a continuation of the conversation between the speaker (Ahmed Ɗan

[15] DMs are a sub-category of PMs.

[16] The excerpts from which examples were extracted are attached in the section following the Conclusion.

Giwa) and the reporter (Yusuf Ibrahim Yakasai) without any further participation of the studio-based presenter. In the example (5) the first *tò* pronounced by the speaker is signalling "transition from one (...) state of affairs to another" and topic continuity (Owens & Hassan 2010: 232–234). Strictly procedural meaning of *tò* in this context, again confirms its function of an elaborative DM (Fraser 1996: 187–188; Fraser 2009: 296, 301), cf.

(5) *Kowa mutum zai ga cewa akwai lokaci-n da zai zamanto*
all man 3SG.FUT see-GEN that there_is time-DEF that 3SG.FUT become

inda za -ka biya mata albashi-nka, ***tò*** *sai aka ce tò ya gaishe ka*
where 2SG.M.FUT pay her salary-yours PM PRTC IMPERS.CPL.REL say PM 3SG.M.CPL greet you

'Every man will see there is a time, when [that time] comes you will pay your salary, **well** they just say that indeed "it has greeted you"'.

4.1.3. Inferential

The PM *tô* can also serve as an inferential DM which signals that "the force of the utterance is a conclusion which follows from the preceding discourse" (Fraser 1996: 188; Fraser 2009: 298). This function of *tô* was noted also by Gonciarz (1986: 41–42, 57) as well as by Owens & Hassan (2010: 232–234). In example (6) extracted from the Conversation 2 it was used in this function turn-medially by the speaker (the preceding discourse is omitted here due to the space limits), cf.

(6) ***Tô*** *sai aka ((indistinct)) da wani National Housing Fund Scheme...*
PM PTRCL 3SG.CPL.REL with certain National Housing Fund Scheme...
'**And then** ((indistinct)) with a National Housing Fund Scheme...'

Another example of inferential pragmatic function is extracted from Conversation 3 whose topic is local elections. *Tô* starts the opening of the comment on the situation that came up (Gonciarz 1986: 41–42, 57), cf.

(7) *Tô daga mataki-n tana ɗauko, hukumomi ne gida-nsu, ta kammala.*
PM from steps-DEF 3SG.F.CONT carry local_governments COP house-their 3SG.F.CPL complete
'So, [one of] those steps is transporting [ballots], local governments are their home, [then] it is finished.'

4.1.4. Discourse Managing Marker

PM *tô* can function also as a Discourse Management Marker, i.e. it serves to organize the ongoing discourse (Fraser 2009: 297). In the example (8) *tô* introduces a short summary. Moreover, PM *tô* in this context serves also as a type of rhetorical expression (Owens & Hassan 2010: 232–234). *Tô* in example (8) extracted from Conversation 3, is used in the beginning of the reporter's (Ibrahim Isa) turn (reply), cf.

(8) ***Tô*** *hali-n da ake ciki dai har yanzu ana mataka-n kanana hukumomi ne...*
PM state-GEN which IMPERS.CONT.REL in PRTCL until now IMPERS.CONT steps-GEN small.PL governments COP
'Yeah. The current situation is: steps are being taken [on the level of] local governments...'

4.2. Representational meaning

To can carry not merely procedural but also representational meanings which denote concepts. They are generally fixed. Those meanings, in contrast to procedural ones, were relatively well described by the lexicographers without referring to the PM framework.

4.2.1. Agreement

Tô while carrying a representational meaning can serve as a Lexical Basic Marker in the form of a Pragmatic (Message) Idiom expressing agreement (according to the classification by Fraser 1996: 176). It is used turn-initially as a turn claimer (a participant who uttered *tô* claimed their turn). This feature of *tô* has been observed also by Owens & Hassan (2010: 214, 233). Radio Presenter 2 in Conversation 3 is using *tô* to express agreement (Fraser 1996: 176), indifferent assent (Hodge & Umaru 1963: 18) and a positive attitude towards the interlocutor (Gonciarz 1986: 41–42, 57), cf.

(9) ***Tô*** *an* *gai -da* *Ibrahim* *Isa* *kuma* *yanzu* *haka* *kai-tsaye*
PM IMPERS.CPL greet Ibrahim Isa PRTCL now this_way directly

muna *tare -da* *shi* *daga* *can* *birni-n* *na* *Lokoja*
1PL.CONT together_with him from there city-DEF GEN Lokoja

'**OK** we have already greeted Ibrahim Isa and now we have direct connection with him [from there] in the city of Lokoja'.

Interesting example can be found in Conversation 2 in which *tô* was used in the initial position by the speaker (Ahmed Ɗan Giwa) as a turn claimer. The moment when *tô* was being pronounced interfered with laughing and for this reason it was transcribed as *t(h)ô*. It is a reaction of the speaker to the reporter's (Yusuf Ibrahim Yakasai) question suggesting that government workers are the ones who own big houses. It seems that the speaker shares this opinion however, do not want to admit it too directly as if it was something to condemn. Probably he does not want to express his true personal opinion about government workers on record. The PM signals here a sarcastic assent (Hodge & Umaru 1963: 18). The PM *tô* makes a reference to the preceding utterance while signalling the speaker's own opinion on the matter and expressing his positive attitude towards the reporter. These pragmatic functions of *to* were spotted also by Gonciarz (1986: 42–43, 57), cf.

(10) Yusuf Ibrahim Yakasai: *Masu -gida* *manya* *ma'aikata-n* *gwamnati*
house_owners big.PL employees-GEN government

su *yi* *manya* *iri-n* *ko* *watakila?*
3PL.SBJV do big.PL type-DEF PRTCL maybe

Ahmed Ɗan Giwa: ((laughing)) ***tô*** *hehee* ((both laughing))
PM <laugh>

Yusuf Ibrahim Yakasai: 'Important house owners. The government employees – they wish to do big kind, probably?'

Ahmed Ɗan Giwa: '((laughing)) A, [well] **yes**, hehe. ((both laughing))'

4.2.2. Evidential

Another way that *tò* carrying representational meaning can be used is as a rhetorical expression (Owens & Hassan 2010: 232–234). The second *tò* in example (11) below demonstrates the use of *tò* as an *evidential* Commentary Pragmatic Marker in a form of a rhetorical expression that signals confidence about the truth of the basic message (Fraser 1996: 179–180), cf.

(11) *Kowa mutum zai ga cewa akwai lokaci-n da zai zamanto*
all man 3SG.FUT see-GEN that there_is time-DEF that 3SG.FUT become

*inda za-ka biya mata albashin-ka, tò sai aka ce **tò** ya gaishe ka*
where 2SG.M.FUT pay her salary-yours PM PRTC IMPERS.CPL.REL say PM 3SG.M.CPL greet you

'Every man will see there is a time, when [that time] comes you will pay your salary, well they just say that **indeed** "it has greeted you"'.

5. Conclusion

I proposed the interpretation of *to* as a PM with the binary category of procedural and representational meaning. As it was demonstrated on the examples extracted from radio conversations, PMs framework allows to comprehensively describe *to* marker in terms of its contextually determined functions and meanings. Therefore, it can be situated in different sub-categories of PMs depending on the context of use.

It was demonstrated with reference to the examples that *to* can carry:

1) procedural meaning and:
   - functions as an *emphasis* Commentary Pragmatic Marker emphasizing the force of the basic message of the statement it is used with (this function does not occur in instances where *to* is a statement or a conversational turn on its own);
   - functions as an *elaborative* DM signalling topic continuation (dwelling on a particular topic), a refinement or the follow-up of the preceding discourse;
   - functions as an *inferential* DM which signals that the utterance is a conclusion which follows from the preceding discourse;
   - functions as a Discourse Managing Marker, i.e. it serves to organize the ongoing discourse, e.g. introduces a short summary;
2) representational meaning and:
   - functions as a Lexical Basic Marker in the form of a Pragmatic (Message) Idiom expressing *agreement*;
   - functions as an *evidential* Commentary Pragmatic Marker in a form of a rhetorical expression that signals confidence about the truth of the basic message.

The former approaches to *to* meaning allowed to categorise it simply as a polysemous item. Hausa PM *to* happened to be labelled in a rather vague way as, i.a. "an agreement

marker", "a continuer" or "a silence filler". Applying PMs framework to the analysis of *to* adds to understanding of how this item functions in Hausa as to contrast with limited and sparse dictionary definitions as well as working definitions in language manuals. The pragmatically viewed functions that were demonstrated can be the basis for extending those definitions towards more user-friendly definitions, indicating meanings of *to* on operational level. This would contribute to better understanding of this item by learners of Hausa.

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Appendix

Transcription of excerpts

Conversation 1

This is a conversation during the 'morning programme' on BBC Hausa Radio. It is the beginning of a new audition section. Quite typically for a radio programme (O'Keeffe 2012: 443–444), in the first turn the presenter carries out the identification and recognition of the conversation participants and topic. The presenter is introducing a conversation between a BBC reporter and the head of the bank which gives Nigerians loans for the purpose of buying and building houses. The conversation was recorded earlier.

BBC Radio Presenter: ((introduces the participants and the topic of the conversation)) ...a wata hira da BBC, akitekt Ahamed Ɗan Giwa, wanda shi ne shugaban bankin >ya bayyana wa Yusuf Ibrahim< Yakasai, yadda ayyukan bankin suka kasance da kuma inda aka nufa kan batun samad da muhalli a Najeriya.

Ahmed Ɗan Giwa: **Tȍ**.=wannan babban banki ne wanda ake kira babban bankin ba da lamunin gine-gine ga al'ummar Najeriya. Aikinsa shi ne ya ba da bashin gina gida ga ɗan Najeriya ko kuma…

(*Shirin Safe* 10.11.2019)

BBC Radio Presenter: ((introduces the participants and the topic of the conversation)) ...in a conversation with BBC, [mister] architect Ahmed Ɗan Giwa, who is a head of the bank explained to Yusuf Ibrahim Yakasai how the bank has been implementing its policies as well as [explained] how is [the plan of] "gaining position" in Nigeria going to be implemented.

Ahmed Ɗan Giwa: **To come to the point**, this is a big bank which is known as a central bank giving credit for [houses] construction to the people of Nigeria. Its job is to give a loan for building a house to a Nigerian citizen as well as...

(*translation*[17] *by the Author*)

Conversation 2

Conversation 2 is a continuation of the conversation between the speaker (Ahmed Ɗan Giwa) and the reporter (Yusuf Ibrahim Yakasai) without any further participation of the studio-based presenter. The speaker informs that up to 80 % of Nigerian citizens including "government workers" (Hau. *ma'aikantan gwamnati*) cannot afford a house despite being paid monthly. Topic of the conversation is circulating around the goal (Hau. *aniya*) of the bank that is to "support the society" (Hau. *taimaka wa al'umma*) by giving them long term loans with a fair commission for buying, constructing and fixing houses *na zamani* 'keeping modern standards'. Conversation 2 contains 4 examples of the PM *to* use. These examples are evidence that use of *to* marker in radio conversation is a method of building an interaction between the participants of a speech event. This perhaps might be a common practice (Clayman & Gill 2012: 130).

Yusuf Ibrahim Yakasai: M:asu gida manya (.) >ma'aikatan gwamnati s:u yi manya irin ko watakila?<

Ahmed Ɗan Giwa: ((laughing)) a(h)- aa- **t(h)ô:** hehee- ((both laughing))

Ahmed Ɗan Giwa: Ko(wa) mutum za- a-(i) ga ce(wa) akwai ll- hh a: a- ha: lo:kacin da zai zamanto inda za ka biya mata albashinka, **tồ** sai aka ce **tồ** ya gaishe ka. Ka kai ka samu wannan amani↓. **Tô=**sai aka ((indistinct)) da wani (.) National Housing Fund Scheme (.) .hh

Yusuf Ibrahim Yakasai: >Wa[to:]?<

Ahmed Ɗan Giwa: [>Wannan<] ASUSU ne.

Yusuf Ibrahim Yakasai: ↑Mm-hmm↓.

(*Shirin Safe* 10.11.2019)

Yusuf Ibrahim Yakasai: Important house owners. The government employees – they wish to do big kind, probably?

Ahmed Ɗan Giwa: ((laughing)) A, [well] **yes**, hehe. ((both laughing))

Ahmed Ɗan Giwa: Every man will see there is a time, when [that time] comes you will pay your salary, **well** they just say that **indeed** "it has greeted you". You have reached to get this trust. **And then** ((indistinct)) with a National Housing Fund Scheme...

Yusuf Ibrahim Yakasai: ...which is...

Ahmed Ɗan Giwa: It is a fund.

Yusuf Ibrahim Yakasai: Mm-hmm.

(*translation by the Author*)

[17] The translation text is written in standard English orthography. The features of spoken language that were indicated in Hausa transcriptions are omitted in translation. Round brackets contain ( ) author's best guess of what was said; square brackets [ ] contain author's comments and clarifications.

Conversation 3

This is a example of conversation in the BBC Hausa Radio 'evening programme'. The participants of the interaction are two studio-based radio presenters and a field reporter (Ibrahim Isa) who is speaking on the phone (relatively low quality of the connection). The topic is local elections.

BBC Radio Presenter 1: ((speaker is introducing the topic, indistinct noises in the background)) ...Ibrahim Isa, sashen Hausa na BBC .h daga Lokoja, a Najeriya.

BBC Radio Presenter 2: .hhh **Tô**.=an gai da: Ibrahim Isa kuma yanzu haka kai tsaye muna tare da shi daga: can: birnin na: >Lokoja↓<=>IBRAHIM< KANA JINA↑?

Ibrahim Isa (Reporter): ((on the phone)) E:, ina jinka Aliyu.

BBC Radio Presenter 2: **Tô**=kamar: uuw- wane hali ake ciki game da: ƙida:ya ƙuri'un da aka riga (karkaɗa)?

Ibrahim Isa (Reporter): ((on the phone)) .hh **Tô**.=halin da ake ciki dai:: har yanzu ana:: matakan:: ƙanana hukumomi ne. Wato bayan an kammala tattara sakamako daga: rumfuna, daga nan kuma akan koma cibiyoyi haka: na gunduma, daga can kuma ake wucewa ƙaramar hukuma. **Tô**.=>daga matakin tana ɗauko hukumomi ne< hiransu ta kammala. Tss- za su wuto hedikwoter hukumar zaɓe, domin: gabatad da:: abin da kowa (shekara) hukuma ta samu na sakamako…

(*Shirin Yamma* 16.11.2019)

BBC Radio Presenter 1: ((speaker is introducing the topic, indistinct noises in the background)) ...Ibrahim Isa, BBC Hausa division, from Lokoja in Nigeria.

BBC Radio Presenter 2: **OK** we have already greeted Ibrahim Isa and now we have direct connection with him [from there] in the city of Lokoja. Ibrahim, do you hear me?

Ibrahim Isa (Reporter): ((on the phone)) Yes, I hear you, Aliyu.

BBC Radio Presenter 2: **OK.** How is the situation when it comes to counting the votes that have been already (casted)?

Ibrahim Isa (Reporter): ((on the phone)) **Yeah**. The current situation is: steps are being taken [on the level of] local governments. It means that after collecting of the results from our stalls is completed, then usually they are received by the administrative district centres like that. From then on [the results] go outside local government area. **So**, [one of] those steps is transporting [ballots], local governments are their home, [then] it is finished. They [i.e. the local governments representatives] will go to the electoral commission headquarter in order to present the report on the results which the commission receives every (year)...

(*translation by the Author*)

Transcription conventions

[ ]	Square brackets show beginning and ending of the overlapping talk
(.)	Period in parentheses is a very brief silence (less than 0.1 sec.)
((on the phone))	Transcriber's comments are enclosed in double parentheses
( )	Empty parentheses denote indecipherable utterance
(shekara)	Text within parentheses is transcriber's "best guess" as to a speaker's utterance
.	Period indicates downward intonation, not necessarily the end of a sentence.
?	Question mark indicates upward intonation, not necessarily a question.

:	Colon(s) indicate that a sound is stretched. The more colons, the longer the sound.
.hh	h's with preceding period indicate audible inbreath; the more h's, the longer the inbreath
hh	h's with no preceding period indicate audible outbreath; the more h's, the longer the outbreath
(h)	Parenthesized "h" indicates plosivness, often associated with laughter, crying, breathlessness, etc.
>word<	Enclosed talk is spoken more quickly than surrounding talk.
WORD	Upper case indicates greater loudness than surrounding talk.
a-	Dash indicates a cut-off of the preceding sound.
=	Equal sign indicates utterances before and after have no intervening silence.
↓↑	Arrows indicate shifts into especially high or low speech.

(Adapted from Jefferson 2004 and Clayman & Gill 2012)

Abbreviations

CA	Conversation Analysis
CAD	Critical Discourse Analysis
DM	Discourse Marker
Hau.	(in) Hausa
PM	Pragmatic Marker

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Aspect and pragmatics in Polish with a view to Sorbian

Karolina Zuchewicz
Universität Leipzig, Germany

Abstract

In this paper, I discuss the meaning of the perfective aspect in Polish by taking a look at the so-called general-factual contexts, i.e., contexts that refer to completed events. Slavic languages rely on both perfective and imperfective aspect in such cases but differ concerning specific restrictions on aspect choice (Altshuler 2014; Dickey 2000; Gehrke 2022, 2023; Grønn 2004; Klimek-Jankowska 2020, 2022; Łaziński 2020; Mehlig 2011; Mueller-Reichau 2018; Wiemer 2001, 2008, among many others). Whereas speakers of East Slavic languages mostly choose the imperfective aspect in general-factual contexts, speakers of West Slavic languages face a stronger competition between imperfective and perfective forms. This paper highlights the role of pragmatics in aspect choice in general-factual contexts in Polish. It makes use of the notion of pragmatic contract (Israeli 1996 for Russian) and argues that, while the presence of a contract correlates with a preference for the perfective aspect, the absence of a contract triggers a preference for imperfective forms. These assumptions are verified with data from the *Narodowy Korpus Języka Polskiego* (Przepiórkowski et al. 2012). The paper further shows that the pragmatic contract does not influence aspectual distribution in Upper Sorbian, pointing to a difference in the aspectual systems of the two West Slavic languages and confirming the status of Polish as transitional between East and West Slavic.

Keywords: aspect; pragmatics; Polish; West Slavic

1. Introduction

The presence of grammatical aspect in the verbal (and non-verbal) domain is a typical trait of Slavic languages including Polish (cf. Cetnarowska 2017; Długosz-Kurczabowa and Dubisz 2001; Filip 2005; Isačenko 1962; Młynarczyk 2004; Rozwadowska 2000; Rozwadowska and Willim 2004; Wierzbicka 1967, among many others). This means that verbs build aspectual pairs, triplets, quadruples, etc., consisting of imperfective and perfective lexemes, as shown in

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the following Polish examples. The imperfective usually has an ongoing (1) or a habitual interpretation (3), whereas the perfective introduces a temporal delimitation of an event (2).[1]

(1) *Iza czytała gazetę / jadła tosta,*
Iza read.IPFV.PST newspaper.F / eat.IPFV.PST toast.M
którą / którego wciąż czyta / je.
which.F / which.M still reads / eats
'Iza was reading a newspaper / eating a piece of toast, and she is still reading / eating it.'

(2) *Iza przeczytała gazetę / zjadła tosta,*
Iza read.PFV.PST newspaper.F / eat.PFV.PST toast.M
 # [którą / którego wciąż czyta / je].
which.F / which.M still reads / eats
'Iza has read a newspaper / eaten a toast, # and she is still reading / eating it.'

(3) *Iza czyta wieczorami / mało je.*
Iza read.IPFV.PST evenings.on / a little eat.IPFV.PST
'Iza usually reads in the evening / doesn't eat much.'

The meaning of the Slavic perfective in general and of the Polish perfective in particular has been extensively discussed. The essence of perfectivity can be established by studying the so-called general-factual contexts, i.e., contexts in which, in a nutshell, imperfective and/or perfective verbs can be used to refer to events located/localizable in the past; cf. (4) for Polish and (5) for Russian. However, as illustrated in the following examples, Slavic languages differ as to the preferred aspectual choice in these contexts (Altshuler 2014; Dickey 2000; Gehrke 2022, 2023; Grønn 2004; Klimek-Jankowska 2020, 2022; Mueller-Reichau 2018, among others), a fact which used to be traced back to the heterogeneous meanings of either the imperfective or the perfective.

(4) *Jako dziecko spadłam z drzewa.*
as child fall.PFV.PST from tree
'As a child I (once) fell from a tree.'

(5) *Ja padala s dereva.*
I fall.IPFV.PST from tree
'I (once) fell from a tree.'

Mueller-Reichau (2018: 292), my glossing

General-factual contexts constitute the main focus of the present paper. I will contribute to the ongoing discussion by showing that, in such contexts, the meaning of the Polish perfective

[1] Past tense is used in the first two examples since it is the only morphological tense available for both the imperfective and the perfective. In example (3), the present tense form, in combination with the adverbials *wieczorami* and *mało*, gives rise to a habitual interpretation of the respective events. This interpretation is less common in the case of perfective derivatives (but see Boneh and Jędrzejowski 2019 for the respective examples and for a discussion about the relationship between perfectivity and habituality); the use of perfective verbs in the morphological present tense form usually yields future reference with the entailment of an event being about to be complete at some point after the utterance time.

and especially its restrictions in use are mainly determined by pragmatics. I apply the notion of pragmatic contract (Israeli 1996 for Russian) to Polish and show that the presence or absence of a contract systematically disambiguates between the preference for the perfective (in the former case) or the imperfective aspect (in the latter case). Importantly, I treat acceptability as a gradual and not a binary phenomenon here. This is a crucial assumption because it indicates that the two aspects are in a contrary and not a contradictory relationship to each other, meaning that a given aspectual form is hardly ever completely ruled out (but see Klimek-Jankowska 2022).

I further apply the notion of the pragmatic contract to Upper Sorbian and show that it does not determine the aspectual choice in this language. Thus, perfective as an indicator of a contract works for Russian (East Slavic) and Polish (West Slavic) but not for Upper Sorbian (West Slavic). This indicates similarities between the West and East Slavic perfectives and differences within the West Slavic perfective, and it justifies the placement of Polish in the transitional zone (Dickey 2000).

In this paper, I restrict myself to so-called (resultative) existential general-factuals. Their main characteristic is that they assert but do not presuppose the existence of an event in question (Klimek-Jankowska 2022 for Polish; cf. section 2.2.). Furthermore, the focus is on the result of a general-factual event (in contrast to the neutral variant, where there is no such focus). They need to be distinguished from actional, anaphoric, or presuppositional general-factuals (Grønn 2004; Mehlig 2011; Mueller-Reichau 2018; Padučeva 1996, among others).

An existential general-factual event would be *Czytałam ten esej o Polsce* 'I have read.ipfv this essay about Poland'. The verbal predicate asserts the existence of at least one event of reading a particular essay about Poland at some undefined time in the past. The event of reading took place on one or more occasions and it was probably completed each time (see also Klimek-Jankowska 2022). Further instances of existential general-factual events are illustrated in examples (4) and (5) above; it is being asserted that an event of falling from a tree happened to the speaker in an undefined past time. A presuppositional general-factual event would be *To Matejko namalował ten obraz* 'It was Matejko who painted.pfv this painting'. In this case, the existence of an event of painting is presupposed; a typical context for uttering the above sentence would involve people standing in front of the painting in a museum and wondering about who painted it. In the above Polish examples, the imperfective is the preferred choice in the existential general-factual context and the perfective is preferred in the presuppositional general-factual context. In Russian, however, the imperfective appears in the latter case. In line with Mueller-Reichau (2018) and Klimek-Jankowska (2022), I assume that aspectual preference across different types of general-factual contexts should be investigated separately.

2. Existential general-factuals across Slavic: Current state of research

2.1. General-factual imperfective or general-factual perfective?

The fact that in East Slavic languages the imperfective aspect tends to be considered the strongly preferred option in general-factual contexts (but see Israeli 1996) has led to a broad adoption of

the term 'general-factual imperfective' (based on Maslov's 1959 *obščefaktičeskoe*; see also Padučeva 1996, among others). However, the heterogeneous distribution of (im)perfective forms across East and West Slavic languages in general-factual scenarios has disproven the 1:1 relationship between general-factuals and imperfective aspect. An extensive study on such a distribution was done by Dickey (2000). Dickey (2000: 5, 102) locates Polish on the transitional zone between East and West Slavic, where the usage of imperfective achievements in the context of general-factuals is 'very uncommon' or 'colloquial', but still possible. This usage is assumed to be typical for East Slavic and ruled out for West Slavic. Dickey (2000: 95, 106) proposes that the Western imperfective refers to quantitative temporal indefiniteness, meaning that a situation verbalized by the perfective verb must be assignable to more than one point in time.

A similar observation was made by Wiemer (2001), who pointed out the complementary distribution of (im)perfective achievements or punctual verbs like 'lose' in general-factual contexts in Polish and Russian, with the former calling for the perfective and the latter for the imperfective aspect. An analogous aspectual opposition between Polish and Russian occurs when the perspective switches from narration to retrospection, as observed by Łaziński (2020: 130). Cases of a less visible competition between the two aspects in Polish general-factuals are discussed in Wiemer (2008).

The idea that it is distinct meanings of the perfective and not the imperfective that are responsible for the heterogeneous distribution of aspectual forms in general-factual contexts across Slavic has been proposed by Mueller-Reichau (2018). According to his analysis, in West Slavic languages (Polish, Czech, Sorbian), the perfective aspect is supposed to express AspP-uniqueness: uniqueness at the level of the aspectual phrase (Mueller-Reichau 2018: 300). This means that all events that are non-unique at the level of the verbal phrase (VP) can be represented as unique via the choice of the perfective aspect. This is why, when referring to an accidental event, the perfective is the preferred choice in Polish but not in Russian; cf. (4) vs. (5). An accidental event is unique in contrast to a non-accidental event because the former is less likely to undergo repetition. Importantly, according to the author, if a general-factual event is unique at the level of the event description in West Slavic, the imperfective is ruled out, see (6) for Polish, which speaks in favor of the "general-factual perfective" in this branch of Slavic languages. The event in (6) is VP-internally unique because it cannot happen more than once that one cuts down that same flower in that particular house; it can happen many times that one falls from the same tree though. In that sense, both events are unique, but only the former is VP-internally unique; this is why aspectual choice should only be possible in the latter case.

(6) *Jako nastolatka ścięłam jedyny kwiat rosnący w domu.*
as teenager fell.PFV.PST only flower grow.PTCP.PRS in house
'As a teenager, I cut down the only flower that was growing in the house.'
Inspired by Mueller-Reichau (2018: 301)

However, I assert that if the context at least implicates the plurality of VP-internally unique events, the imperfective takes over. I assume that iterativity is a licensor for general-factual imperfectives in the case of VP-internally unique events in Polish (cf. also Gehrke 2023 for Russian). This means that there is no semantic blocking for the imperfective and that its distribution is governed by pragmatics. This observation is crucial for the present paper.

(7) *Jako nastolatka ścinałam jedyny kwiat rosnący w domu*
as teenager fell.IPFV.PST only flower grow.PTCP.PRS in house
zaraz po przeprowadzce.
right after move
'As a teenager, I cut down the only flower that was growing in the house right after the move (every time we moved).'

2.2. Context-dependent general-factual (im)perfective

Klimek-Jankowska (2022) conducted an extensive experimental study on aspectual choice in general-factual contexts in Polish.[2] One hundred twenty-five (125) participants were instructed to fill in the missing verb in different contexts by translating the respective English infinitive form given in brackets. Having the English lexeme provided, participants automatically had to make an aspectual choice while translating it into Polish. Four types of scenarios were investigated, two of which are of relevance to the present paper: the neutral existential, (8), and the resultative existential scenario, (9):

(8) *To nie jest wielki wyczyn użyć nowoczesnej kosiarki do trawnika.*
it NEG is big achievement use modern lawnmower for lawn
Ciekawe czy Jan kiedyś … (mow.pst)[3] *trawnik prawdziwą kosą?*[4]
interesting if Jan ever lawn real scythe
'It is not a big achievement to use a modern lawnmower. I wonder whether Jan has ever mowed.(i)pfv the lawn with a real scythe?'

Klimek-Jankowska (2022: 29), my glossing and translation

(9) *Widzę, że nasza krowa jest jakaś niespokojna.*
see.IPFV.PRES.1SG that our cow is some restless
Jesteś pewna, że ją dzisiaj … (milk.pst)?
be.PRES.2SG sure that her today
'Our cow seems restless today. Are you sure that you milked.(i)pfv her today?'

Klimek-Jankowska (2022: 29), my glossing and translation

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[2] For further discussion of these results in Czech and Russian speakers, see Klimek-Jankowska (2022).

[3] This is not exactly the way in which the items were presented in the experiment, but it mirrors the strategy of combining Polish sentences with a placeholder for a critical verb followed by the respective English infinitive in brackets. For the details of the experimental design, see Klimek-Jankowska (2022).

[4] An anonymous reviewer asks about the contribution of the interrogative mood. Both assertions and question constructions can host or relate to a general-factual event. This applies to an existential and a presuppositional subtype. Regarding the interaction with the pragmatic contract, an interrogative mood of a general-factual phrase indicates that the pragmatic contract is not fulfilled (yet) or that one of the interlocutors aims to find out the epistemic state of mind of another interlocutor concerning the fulfillment of the contract. A declarative mood indicates that the state of mind about the (non-)fulfillment of the contract is being asserted. These distinctions play an important role in the aspectual distribution as indicated in section 4.3. In questions, the validity of the contract is marked by the imperfective, temporally non-restricted marking of phrases like 'as I (have) asked you to'. In assertions, however, the perfective marking is preferred in phrases like 'as you (have) asked me to' since the asking doesn't remain valid at the time of utterance (the decision about the fulfillment of the contract is being announced).

In the case of existential neutral contexts like (8), the result of the past event (past events are marked grey in the above examples) is not connected in any way to the previously mentioned context sentence (Klimek-Jankowska 2022: 16), which was supposed to trigger the choice of the imperfective. In contrast, in the case of existential resultative contexts, the result of the past event might be causally related to the context sentence, which was expected to lead to the preference for the perfective.

It was shown that existential neutral contexts almost exclusively triggered the imperfective, whereas existential resultative contexts rather triggered the perfective, but in a 60% vs. 40% distribution. According to Klimek-Jankowska (2022: 26), potential causality makes the temporal location of an event pragmatically specific (in line with Ramchand 2008a, 2008b), which leads to the preference for the perfective aspect. Accordingly, in (9), the question under discussion (QUD) is whether the cow had been milked before she became restless, or, more precisely, whether non-milking caused her to be restless. In my view, potential causality is an important but not the most crucial factor for triggering the perfective in the case of existential resultatives. I assume that *na pewno* 'certainly' / 'really', included in four out of five test sentences, might have been the actual trigger for the preference for the perfective. This is because *na pewno* introduces the presence of an agreement about something or the presence of a task that was previously assigned to the hearer/interlocutor by the addressee/interlocutor, i.e., it comes with the expectation of the fulfillment of an action. This expectation has been referred to as a pragmatic contract (Israeli 1996) and has been shown to determine the aspectual choice in Russian general-factuals. I assume that the pragmatic contract governs the aspectual distribution in Polish too.

An anonymous reviewer points out that the Polish *na pewno* can have two different meanings. It can function as an epistemic adverb 'certainly' or as a commitment adverb 'really'. The question remains as to which type of *na pewno* triggers the preference for the perfective aspect in general-factual contexts in Polish. The second type involves the speaker's commitment to the truth of the proposition and is therefore incompatible with uncertainty, as indicated by the reviewer; this is not in line with the use of *na pewno* in questions, which is why I do not consider this type responsible for the general-factual perfective. I assume that, in general-factual contexts, *na pewno* functions as an epistemic discourse marker (not necessarily an adverb) or as an epistemic particle of a "confident" subtype (following Rozumko 2016). According to Wierzbicka (2006: 291), typical epistemic adverbs are incompatible with questions and must include the components 'I think' and 'I don't say I know' in their semantic representation. As mentioned above, questions are a common environment for a general-factual *na pewno*. In questions, *na pewno* implies a lack of certainty on the speaker's part. In assertions, however, it can appear in contexts where the semantic requirement 'I don't say I know' is not met: *Marek na pewno wydoił krowę – sam widziałem* 'Marek certainly milked the cow – I saw it myself'. (In contrast to typical epistemic adverbs: *Marek chyba wydoił krowę – #sam widziałem* 'Marek probably milked the cow – #I saw it myself'. But consider also: *Marek na pewno wydoił krowę, a przynajmniej tak mi się wydaje* 'Marek certainly milked the cow, at least it seems to me that he did', where *na pewno* is compatible with uncertainty). General-factual *na pewno* seems to open up a scale with different degrees of certainty. Furthermore, the commitment responsible for the choice of the

perfective aspect in general-factual contexts isn't based on the speaker's commitment but on the agreement between the interlocutors (that can but does not have to involve the speaker): *Czy Marek na pewno skosił trawę? Wiem, że obiecał to Janowi* 'Is it certain that Marek mowed the lawn? I know that he promised this to Jan'. In line with Wierzbicka (2006: 287), the non-necessity of speaker-orientedness is a characteristic feature of (epistemic) discourse markers/particles that distinguishes them from epistemic adverbs. To sum up, I assume that the general-factual *na pewno* has an epistemic base, but that it's not a typical epistemic adverb. A more elaborate investigation will be the subject of my future research. In the following, I will describe the notion of a pragmatic contract in more detail.

3. Pragmatic contract in Russian

As mentioned above, according to Israeli (1996), aspectual choice in Russian general-factuals can be determined by the presence or absence of a pragmatic contract, meaning that, even in Russian, general-factuals are not restricted to the imperfective aspect. Israeli applies this condition to non-creativity verbs like 'read' and claims that the perfective is mandatory if there is a pragmatic contract between discourse participants.[5]

Israeli (1996: 15) refers to a relationship between the speaker (P^{s}_{1}), the participant of the narrated event (P^{n}), and/or the interlocutor(s) (P^{s}_{2}) as a contractual relationship if there is an understanding between $P^{s}_{1/2}$ and/or P^{n} that the performance of the action was expected (cf. also 'expectedness presupposition' in Leinonen 1982: 90). Accordingly, the imperfective is used if there is no contract or if the speaker thinks that the contract has been broken; otherwise the choice tends to be the perfective. Example (10) is an instance of the absence of a contract.

(10) *Vy čitali Vojnu i mir?*
you read.IPFV.PST War and Peace
'Have you (ever) read War and Peace?'

Israeli (1996: 16), my glosses

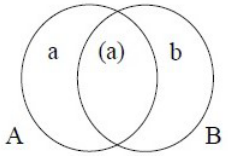
In (10), there is an interaction between two speakers, hence $P^{n} = P^{s}_{2}$. Since there is no prior agreement that the addressee is obliged to or would for some specific reason read War and Peace, the imperfective is used. In contrast, if someone has received a book as a gift, they are supposed to read it, i.e., the successful event of gifting creates a contract between the giver and the recipient, (11), with *uže* being optional.

(11) *Vy uže pročitali knigu, kotoruju ja vam podarila?*
you already read.PFV.PST book which I you gave
'Have you already read the book that I gave you?'

Israeli (1996: 19), my glosses

[5] It needs to be pointed out that, in Russian, in contrast to Polish, the status of the target state validity strongly restricts the availability of the perfective in general-factual contexts and thus the applicability of the pragmatic contract. For instance, the sentence 'Did you open the window?' cannot be verbalized by the perfective if the window is closed at the speech time because the target state does not hold true (Mueller-Reichau 2018 among others).

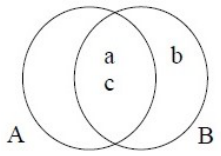
In a discourse situation, contract-related differences between the imperfective and the perfective can be illustrated via Venn diagrams, where circles A and B represent the sets of knowledge of P^s_1 and P^s_2, respectively, and variables a, b, and c represent pieces of information. We can start with the imperfective, Figure 1.



P^s_1 and P^s_2: Have you read.ipfv War and Peace?
a = {∃ novel War and Peace} 'There exists a novel War and Peace.'
b = {I read War and Peace}

Figure 1: *The representation of knowledge sets in the absence of a pragmatic contract indicated by the use of the imperfective aspect; '(a)' means that the existence of the novel can belong to the intersection of the knowledge sets of P^s_1 and P^s_2 (common ground), but it does not have to (scheme based on Israeli 1996: 18)*

In Figure 1, the existence of the novel can, but does not have to, belong to the common ground between speaker and hearer (marked with '(a)'). The answer to the question belongs to the hearer's knowledge set. The perfective, Figure 2, introduces a shared expectedness about the instantiation of an event (a pragmatic contract) as part of the common ground, 'c'; the fact that a pragmatic contract holds makes 'a' an obligatory part of the common ground as well.



P^s_1 and P^s_2: Have you read.pfv War and Peace?
a = {∃ novel War and Peace} 'There exists a novel War and Peace.'
b = {I read War and Peace}
c = {There is an assignment or an expectedness with respect to the reading of War and Peace.}

Figure 2: *The representation of knowledge sets in the presence of a pragmatic contract indicated by the use of the perfective aspect; 'a' and 'c' both belong to the common ground (scheme based on Israeli 1996: 19)*

We have just seen that the perfective, in contrast to the imperfective, signals the presence of a pragmatic contract between the interlocutors. Additionally, the imperfective aspect is obligatory with so-called reminders (Israeli 1996: 21), which highlight the presence or suggest the breaking of a contract: *Ja ved' govoril* 'I did tell.ipfv you', *Ja ved' prosil* 'I did ask.ipfv you', *Ja ved' napominal* 'I did remind.ipfv you'. In the next section, I will show that the same distribution of the two aspects can be observed in Polish.

4. Pragmatic contract in Polish

Polish general-factual sentences can be verbalized using both perfective and imperfective aspect, depending on, among other things, whether the speaker aims to present an event as episodic (former case) or potentially repeatable (latter case), or whether they indicate a possible causal relation between two events, as observed by Klimek-Jankowska (2022).

Essentially, only the perfective aspect is felicitous under a pragmatic contract, (12). The reminder verb is preferably marked for the imperfective aspect (the crucial aspectual combination is marked grey). The choice of the temporally unrestricted imperfective indicates that the question is still valid at the utterance time (i.e., that the pragmatic contract remains in force). The event of walking the dog in (12) is verbalized using the perfective aspect because

its result (completion) matters for the fulfillment of the contract (in line with the preference for the perfective if the focus is on the result, as discussed in Klimek-Jankowska 2022). A possible context for (12): A and B are sitting in the kitchen; their dog is lying next to the radiator. A asks B to quickly walk the dog and leaves the house to get groceries. A comes back and sees the dog in the same place as before. A says to B [disappointed]:

(12) *#Wyprowadzałeś*[6] / *wyprowadziłeś* *psa,* *tak* *jak* *cię* *prosiłam?*
walk.IPFV.PST.2SG / walk.PFV.PST.2SG dog so how you asked.IPFV
'Did you walk the dog, as I (have)[7] asked you to?'

If there is no contract, the imperfective is the preferred choice. Consider (13) as A's question to B in the following discourse situation. A comes back after a trip and is happy to see B. A notices their dog lying next to the radiator and asks B:

(13) *Wyprowadzałeś* / *?*[8]*wyprowadziłeś* *psa?* *Jak nie, to chętnie to zrobię.*
walk.IPFV.PST.2SG / walk.PFV.PST.2SG dog If not, I will be happy to do it.
'Did you walk the dog?'

4.1. Strong indicators of the presence of a contract: Parenthetical constructions with speech-act verbs

Example (12) consists of a general-factual sentence modified by a parenthetical structure[9] containing a speech-act verb 'ask somebody to do something'. I assume that speech-act verbs are strong indicators of the presence of a pragmatic contract, meaning that the imperfective is ruled out there; see (12) and (14) below. More precisely, the presence of a parenthetical structure with a speech-act verb indicates that the event to which a general-factual sentence refers has been previously discussed by the interlocutors. This means that there has been an utterance in which the speaker asked/requested that the hearer do something, i.e., change the

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[6] The imperfective is the only choice once there is explicit reference to multiple events of walking the dog in a row (A was away for ten days and asked B to walk the dog during her absence). This indicates a strong correlation between imperfective aspect and iterativity in Polish (cf. also Gehrke 2023 for Russian).

[7] The English translation with the present perfect implies that the asking has happened more than once. The translation with the simple past indicates that the asking happened once or possibly more than once during a past time period. Both situations and thus the respective translations can apply to Polish, which is why I have put the auxiliary 'have' in brackets. I won't discuss this issue in more detail.

[8] '?' indicates that the respective form is not completely ruled out but is clearly dispreferred compared to its aspectual counterpart.

[9] An anonymous reviewer alternatively proposes treating the parenthetical construction as a modifying clausal adjunct consisting of the adverb *tak* 'so' modified by the relative *jak*-clause specifying the content of what *tak* should refer to. When investigating the status of these clauses, one needs to pay attention to the following contrast: *Skosiłeś trawę, (tak) jak cię prosiłem*? 'Have you mowed the lawn as I (have) asked you to?' vs. … *tak, jak cię prosiłem*? '… the way I (have) asked you to {only in the middle and not at the back of the garden}'; the second structure seems to presuppose that the garden has been mowed somehow and the question remains as to how. In both readings, the pragmatic contract is in force, and the perfective aspect is the preferred option. A detailed investigation of the syntactic status of these clauses will be the subject of future research.

reality in a certain way. Making the addressee perform a particular action results in the realization of the perlocutionary act (Austin 1962). In that sense, if a parenthetical construction contains a speech-act verb (for instance *kazać*, *nakazać*, *przykazać*, *rozkazać* 'tell/order sb to do sth', *prosić*, *poprosić* 'ask'), it indicates an expectation of the performance of an action (the instantiation of the perlocutionary act). This shows that the pragmatic contract is in force, which triggers the choice of the perfective aspect within the general-factual clause. Parenthetical constructions containing speech-act verbs are strong indicators of the presence of a contract because speech-act verbs make the contract explicit.

(14) *#Otwierałeś / otworzyłeś tu jakieś okno,*
open.IPFV.PST.2SG / open.PFV.PST.2SG here some window
tak jak cię prosiłam / tak jak ci kazałam?
so how you asked.IPFV / so how you order.(I)PFV[10]
'Did you open a window here, as I (have) asked you to?'

(15) is an instance of the lack of a pragmatic contract and the clear preference for the imperfective aspect. Imagine the following scenario: It is winter and it is cold outside. A enters the room, B is inside the room. A realizes that the heating is not working and utters (15) to B [laughing]. The fact that the heating hasn't been working is part of the common ground between A and B. It follows from the context that, besides the absence of a contract, the result does not matter in the current discourse in any way, since the speaker does not expect the answer to be positive.

(15) *Otwierałeś / ?otworzyłeś tu jakieś okno?*
open.IPFV.PST.2SG / open.PFV.PST.2SG here some window
'Did you open a window here?'

4.2. Weak indicators of the presence of a contract: Na pewno, rzeczywiście

Slightly weaker indicators of the presence or validity of a contract and thus the preference for the perfective in existential-resultative contexts in Polish are markers like 'certainly' that indirectly signal expectedness. Four out of five test sentences used in Klimek-Jankowska (2022: 29) include the marker *na pewno* 'certainly' / 'really' or its sentential variant *być pewnym* 'be sure', which might have triggered the choice of the perfective aspect independently of/in addition to the causal relation between a general-factual event and a contextually given event.

(16) *Widzę że zwiędły kwiatki na parapecie.*
see.IPFV.PRES.1SG that wilted.PFV.PST.3PL flowers on windowsill
Czy ty na pewno je dzisiaj podlałeś?[11]
if you for sure them today water.PFV.PST.2SG
'It seems that the flowers have wilted on the windowsill. Are you sure that you watered them today?'
Based on Klimek-Jankowska (2022: 29), my glossing and translation

[10] *Kazać* is a biaspectual verb in Polish.

[11] The introduction of a general-factual sentence with *czy ty* 'if you' seems to implicate the presence of an arrangement too.

Without 'for sure' the imperfective is the preferred option despite a probable causality.

(17) *Widzę* *że* *zwiędły* *kwiatki* *na* *parapecie.*
see.IPFV.PRES.1SG that wilted.PFV.PST.3PL flowers on windowsill
Podlewałeś *je* *dzisiaj?*
water.IPFV.PST.2SG them today

Compare also the contrast between (18) and (19): both signal a possible causal relation between the contextually given and the general-factual event, but only the former example indicates the presence of a contract. The lack of a contractual relationship between interlocutors automatically results in the favoring of the imperfective, (19).

(18) *Widzę* *że* *nasza* *krowa* *jest* *jakaś* *niespokojna.*
see.IPFV.PRES.1SG that our cow is some restless
Jesteś *pewna,* *że* *ją* *dzisiaj?* *wydoiłaś?*
be.PRES.2SG sure that her today milk.PFV.PST.2SG
'Our cow seems restless today. Are you sure that you milked her today?'
Based on Klimek-Jankowska (2022: 29),[12] my glossing and translation

(19) *Widzę* *że* *nasza* *krowa* *jest* *jakaś* *niespokojna.*
see.IPFV.PRES.1SG that our cow is some restless
Doiłaś *ją* *dzisiaj?*
milk.IPFV.PST.2SG her today

Following this line of reasoning, the preference for the imperfective aspect in existential neutral contexts might have been triggered by the absence of a contract and not (only) by the lack of a causal relation between two events. In the next section, I will present my corpus study on the relationship between pragmatic contract and aspect choice in Polish by investigating contexts with strong indicators.

4.3. Corpus study on Polish

I investigated the distribution of imperfective and perfective aspect within the contractual and the reminder phrase (strong indicators: speech-act embedding) in the *Narodowy Korpus Języka Polskiego* 'National Corpus of Polish' (NKJP; Przepiórkowski et al. 2012). The goal was to verify whether the perfective dominates within the former and the imperfective within the latter phrase, and what the quantitative distribution of the two aspects looks like within the two phrases. I looked up all occurrences of sequences containing an arbitrary verb (except for a modal) in the form of an l-participle (contractual phrase) that is embedded under an imperfective or a perfective speech-act verb like *kazać*, *nakazać*, *przykazać*, *rozkazać* 'tell/order sb to do sth', *prosić*, *poprosić* 'ask', or *instruować*, *poinstruować* 'instruct' in the form of an l-participle and introduced by *jak* 'how' (reminder phrase). The relevant aspectual

[12] Klimek-Jankowska (2022) does not provide information about the acceptance rates of single lexemes but rather of entire condition groups.

realizations of *kazać* 'tell/order sb to do sth' had to be listed one by one to filter out lexemes like *okazać* 'turn out' that aren't speech-act verbs. The exact query looked as follows (the search was conducted with the full NKJP corpus, 21/01/2024):

[pos=praet & base!="musieć|móc|chcieć"] []{,6} jak [pos!="interp|conj" & base!=by]{,6} [base="nakazać|przykazać|rozkazać|kazać|.*prosić|.*instruować" & pos=praet] []* [orth="[?]"] within s

Eighty-two (82) examples in total were identified by the search engine as matching the above-mentioned pattern. After a manual re-examination, 25 examples were proven to fit into the contractual frame "did x v.pst, as … y ask.pst / instruct.pst / tell.pst to?" Doublings, deviating syntax-semantic frames, and non-contractual uses were filtered out of the database. Of the 25 purely contractual uses, 19 (76 %) contained the perfective aspect, and 6 (24 %) the imperfective aspect within the contractual phrase (Figure 3). Within the reminder phrase, Figure 4, there were 12 instances of the imperfective aspect (48 %), 5 of the perfective aspect (20 %), and 8 (32 %) of the biaspectual verb *kazać* (annotated as 'perfective' in the corpus). Since *kazać* does not have a predefined aspectual value, I treat it as neither imperfective nor perfective. The consequence of biaspectuality is that, independently of whether the telling remains valid at the speech time or not, there is no way for the speaker to fall back on the imperfective verb.

The results confirm that the contractual phrase tends to be realized by the perfective and the reminder phrase by the imperfective aspect. In questions, the choice of the imperfective within the reminder phrase indicates that the contract remains valid at the utterance time. The perfective within the contractual phrase signals that the focus is on the result (the presence of the result matters for the fulfillment of the contract).

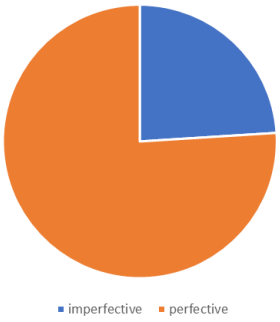

***Figure 3**: Aspectual distribution within the contractual phrase in past contexts in Polish.*

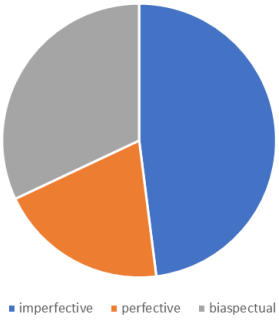

***Figure 4**: Aspectual distribution within the reminder phrase in past contexts in Polish.*

Next, I would like to comment on cases that deviate from the above-described pattern and at the same time validate the main assumptions. Four out of six uses of the imperfective aspect within the contractual phrase are iterative or distributive uses; there is also one manner reading and one instance of the past *być* 'to be' that does not have a perfective twin. This distribution confirms the correlation between imperfectivity and iterativity, which, in the case of general-factual readings, manifests itself in the repetitive character of contractual events:

(20) *myślisz, że ja dawałam tę D3 tak*
think that I give.IPFV.PST this D3 such
jak mi kazali?
how me order.(I)PFV.PST
'Do you think that I was giving this {vitamin} D3 {to my child} the way they told me to?'
The full NKJP corpus, internet forum (22/04/2004)

Four out of five perfectives within the reminder phrase appear in cases where the contractual agent is not available at the time of utterance (biblical characters; several derivatives of *kazać*). The remaining case occurs in the context of the non-validity of the contract at the utterance time, (21).

(21) *Czy graliście tak, jak nakazał wam w szatni trener?*
if play.IPFV.PST such how order.PFV.PST you in locker.room coach
'Did you play the way your coach ordered you to play in the locker room?'
The full NKJP corpus, Dziennik Bałtycki (14/10/2000), Polskapresse

All the above observations confirm that the imperfective within the reminder phrase indicates the validity and verifiability of the contract at the speech time. Crucially, there is no perfective variant of *prosić* 'ask for' within the reminder phrase; speakers seem to generally prefer the imperfective if the respective aspectual form is available for the given lexeme.

A very interesting change in the aspectual distribution can be observed within assertive contractual phrases, i.e., phrases that appear in the declarative form "x (neg) v.pst (neg), as … y ask.pst / instruct.pst / tell.pst to. […?]". Here, perfective verbs and the biaspectual *kazać* are almost the only choices within the reminder phrase. The only imperfective case among the ten assertive contractual examples is one in which the fulfillment of the contract is being questioned, but not completely denied, (22). The data suggest that the preference for the perfective within the reminder phrase correlates with the non-validity of the contract at the time of utterance, meaning that the asking/requiring, etc., does not remain valid, (23), or cannot be instantiated, (21), at or after the speech time.

(22) *No i nie przedstawił „[13]Pan wartości jednostki,*
so and NEG present.PFV.PST.3SG man values individual.GEN
jak prosiłam, jak jest Pańskim zdaniem?
how asked.IPFV how is your.INS opinion
'So, you didn't present the values of an individual, as I (have) asked you to; would you agree?'
The full NKJP corpus, internet forum (18/12/1999)

[13] The quotation marks appeared in the actual corpus example. They do not contribute to the meaning of the sentence.

(23) Zmieniłem sygnaturkę jak mnie o to poprosiłeś.
exchange.PFV.PST.1SG bell how me for it asked.PFV
'I exchanged the bell, as you (have) asked me to.'
The full NKJP corpus, internet forum (28/01/2006)

In the last section, I will briefly discuss Upper Sorbian, where the pragmatic contract is not in force.

5. (No) pragmatic contract in Upper Sorbian?

This section aims to show that the presence or absence of a pragmatic contract can be used as a diagnostic to differentiate between East and West Slavic types of aspect. According to Dickey (2000: 5), Sorbian is a 'typical' member of the West Slavic group, thus it should call for the perfective in the case of general-factuals. Dickey's chapter on general-factuals (Dickey 2000: 95) does not discuss Sorbian examples though. Targeted data elicitation with a native speaker of Upper Sorbian revealed that the perfective is the only choice within the phrase that refers to a contractual event, independently of the presence or absence of a contract. However, the imperfective is the preferred choice within the reminder phrase. This suggests that, in Upper Sorbian, there are no aspectual minimal pairs that would depend on the presence or absence of a contract (in contrast to in Russian and Polish), but that the aspectual distinction remains between the contractual (perfective) and the reminder phrase (imperfective), even though both refer to past events. (24) is a non-contractual question about the potential performing of an action 'walking the dog' at some undefined past time before the utterance time. In contrast to Polish, in Upper Sorbian, the perfective is not only the preferred option but is even the sole option in this case.

(24) *Sy ty psa wuwjedł?*
be.2SG you dog walk.PFV.PST.2SG
'Did you walk the dog?'

Example (25) additionally includes the parenthetic construction *kaž sym Će prosył* 'as I asked you to', a strong indicator of the presence of a pragmatic contract. The perfective is also the only option here, which, however, cannot be traced back to the presence of a contract; there is no aspectual difference between (24) and (25).

(25) *Sy Ty psa wuwjedł, kaž sym Će prosył?*
be.2SG you dog walk.PFV.PST.2SG how be.1SG you asked.IPFV
'Did you walk the dog, as I (have) asked you to?'

The lack of aspect-driven opposition also holds for the past event of opening the window, as examples (26) and (27) illustrate. In both the neutral (26) and the contractual use (27), a general-factual event can only be expressed via the perfective verb.

(26) *Sy wokno wočinił?*
be.2SG window open.PFV.PST.2SG
'Did you open the window?'

(27) *Sy* *wokno* *wočinił,* *kaž* *sym* *Će* *prosył?*
be.2SG window open.PFV.PST.2SG how be.1SG you asked.IPFV
'Did you open the window, as I (have) asked you to?'

In my future work, a more elaborate study on the aspectual distribution in general-factual sentences in Upper Sorbian is planned. I will investigate different semantic groups of verbs in combination with diverse indicators of contract. Furthermore, non-contractual uses will be tested in more detail to make sure that the imperfective is ruled out there independently of verb semantics, argument structure, or the properties of the object. The initial evidence provided in this paper suggests that the contract is not in force.

6. Conclusion

This paper aimed to demonstrate that aspectual choice in Polish resultative general-factual contexts is mainly determined by pragmatics. More precisely, I applied the notion of the pragmatic contract to Polish (Israeli 1996 for Russian) and showed that the perfective is the preferred choice if a contractual relationship holds between interlocutors. If there is no contract or if the contract explicitly requires the instantiation of multiple events, the imperfective takes over. In the case of reminders, i.e., phrases that indicate the presence of a contract, the imperfective is the preferred choice in questions. It emphasizes that the asking, requiring, ordering, etc., remain valid at the speech time, i.e., that there is no evidence that the contract has already been fulfilled. In assertions, the choice of the perfective within the reminder phrase signals the non-validity of the contract at the utterance time, which essentially translates to the confirmation that the contract has been fulfilled. The theoretical assumptions made above were verified through a corpus study with the *Narodowy Korpus Języka Polskiego* 'National Corpus of Polish', where natural language examples served as evidence for the aspectual distribution within the contractual and the reminder phrases. I further briefly compared Polish to Upper Sorbian and showed that the pragmatic contract does not determine aspectual choice in Sorbian the way it does in Polish, which confirms the placement of Polish in the transitional zone between East and West Slavic. In both Polish and Sorbian, an aspectual distinction is made between a contractual event (perfective) and a reminder (imperfective) if the contract can still be fulfilled at or after the speech time.

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