EASY – PLAIN – ACCESSIBLE

Silvia Hansen-Schirra / Christiane Maaß (eds.)

Easy Language Research: Text and User Perspectives

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Part 1:
Setting the Stage

Silvia Hansen-Schirra, Christiane Maaß

Introduction

In recent years, Easy Language research has gained traction in Germany. This research is fueled by new legislations based on international regulations and guidelines such as the UN Convention on the Rights of People with Disabilities (UN CRPD) or the Directive EU 2016/2102 that are currently being implemented. Easy Language strives to include people with communication impairments into the information society and to grant them full access to content in all fields of society and all aspects of life. While the topic was originally driven by the agenda of empowerment groups and social welfare institutions and activists, who also provided the first practical rulesets, it became increasingly evident that achieving comprehensibility was not as straightforward as originally assumed: Intuitively drafted guidelines present rules on word, sentence and text levels that contradict and neutralise each other while the texts created on this basis have unsatisfactory comprehensibility and/or acceptability scores. Research is needed to shed light on how comprehension, recall and action orientation of the primary target groups can be enhanced through texts modelled according to their needs. The pertinent set of research questions is basically threefold:

- Text perspective: Thanks to Maaß (2015) and Bredel/Maaß (2016a–c), we have a scientifically based rule set for Easy Language (for an overview, cf. Maaß 2020). What is required now is research on text type design including expert texts of the different domains as well as multimodal, multicodal and multimedia renderings of content.
- User perspective: Hansen-Schirra/Gutermuth (2018, 2019) and Gutermuth (2020) provide first assumptions on comprehension and recall of the primary target groups with respect to Easy Language texts. The next step is comprehensive research on perception, comprehension, recall, acceptance and action orientation of Easy Language texts from the perspective of the primary target groups.

- Translation perspective: Based on Rink (2020) and Maaß (2019), we have an outline of problems and scenarios of Easy Language translation. Easy Language constitutes a challenge for translators in various respects: They have to master the discrepancy between the complexity of content in expert communication and the inventory restrictions of Easy Language; the question of how the available tools for interlingual translation (terminology management, translation memory, machine translation) can be adapted or created for Easy Language translation must also be considered.

The present volume provides insights into current projects of two Easy Language research groups at the universities of Hildesheim and Mainz/Germersheim. The two groups have complementary profiles and unite approaches on texts, users and translation. The groundwork for linguistically modelling Easy Language as a variety was laid in Hildesheim (Bredel/Lang/Maaß 2016), where scientific guidelines for Easy Language were established (Maaß 2015 and Bredel/Maaß 2016 a–c). There, the Research Centre for Easy Language (http://www.uni-hildesheim.de/leichtesprache) conducts theoretical research and application-oriented research into Easy and Plain Language and is in close contact with the target groups. The research group "Simply complex – Easy Language" (https://www.blogs.uni-mainz.de/fb05leichtesprache-eng/) in Mainz/Germersheim has adopted methods from cognitive science for the assessment of EL modelling and rules with the respective target groups of EL (Hansen-Schirra/Gutermuth 2018, 2019, Gutermuth 2020). Using methods such as eyetracking, EEG and fMRT, they focus on quantitative-empirical reception research. This PhD research group is funded by the Gutenberg Council for Young Researchers (GYR). These two groups in Hildesheim and Mainz/Germersheim currently constitute the highest concentration of research resources dedicated to EL and accessible communication in the German-speaking world.

The current volume presents first research findings on Easy Language of the two groups, focusing on perspectives on text types, target groups and translation processes.

The volume starts with the section **Setting the Stage** that lays out the field of comprehensibility enhanced varieties at different levels. The introduction is

followed by a contribution by the editors, **Silvia Hansen-Schirra** and **Christiane Maaß**: Titled *Easy Language, Plain Language, Easy Language Plus: Perspectives on Comprehensibility and Stigmatisation,* it highlights unresolved research questions and proposes the concept of Easy Language + (EL+) as a possible solution to the dilemmatic relation between comprehensibility and perceptibility on the one hand, and acceptability and stigmatisation on the other.

The next section is dedicated to **Expert Texts and Translation into Easy Language**. **Christiane Maaß** and **Isabel Rink** outline *Scenarios for Easy Language Translation* and ask the question *How to Produce Accessible Content for Users with Diverse Needs*. Easy Language translation, especially of expert communication, requires major interventions on the text level with translations often oscillating between different scenarios: Scenario A in which the target texts contain more or less the same information as the source texts, but are excessively long because of the need to insert explanations of central concepts. Scenario B in which the target texts are reduced to amounts of information that are processable by the primary target groups but lack important parts of the source text content. The paper proposes translation strategies to approach an ideal Scenario C that comprises accessible texts with a balanced amount of information.

The next contribution combines text and user perspective; in her paper *People with Cognitive Disabilities and their Difficulties with Specialised Interactive Texts*, **Loraine Keller** reports on a research project she carried out with a group of people with cognitive disabilities: She asked them to read and discuss source texts from the field of administrative communication in an attempt to identify the types of encountered difficulties. This is a first necessary step to individuate possible problems that Easy Language target texts have to provide solutions for.

Sarah Ahrens focusses on a different primary Easy Language target group: Migrants that face interactive texts in legal and administrative communication. In her paper *Easy Language and Administrative Texts: Second Language Learners as a Target Group*, she shows what qualities make the source text so difficult for the participants to comprehend and act according to the requirements of the situation. She points to the discrepancy between text qualities and mastery of language expected from the target group at the precise moment they are usually confronted with this concrete sample of administrative communication

and draws conclusions for the possible use of Easy Language to enable unassisted participation and exercising of own rights.

The last paper of the first section joins the perspectives of the two research groups: **Silvia Hansen-Schirra, Jean Nitzke, Silke Gutermuth, Christiane Maaß** and **Isabel Rink** present insights on *Technologies for the Translation of Specialised Texts into Easy Language.* They discuss how tools and technologies that are standard in interlingual translation can be transferred to the Easy Language translation of expert texts.

The second section of the volume, **Multimodal and Multicodal Easy Language Texts**, is dedicated to different forms of media qualities that Easy Language texts have or should have. So far, the focus has been on printed materials, while texts of very different mediality are required if inclusion in all aspects of life is to be achieved. The nature of their communicative impairment implies that the target groups have special needs with regard to the different media realisations, but that these may also incur possible solutions.

Audiovisual translation has seen a unique increase in practice as well as in research; the combination of the different forms of audiovisual translations with Easy and Plain Language, however, has largely been neglected. The international EASIT (Easy Access to Social Inclusion Training) project is situated at the intersection of these domains. **Christiane Maaß** and **Sergio Hernández Garrido** provide an outline on *Easy and Plain Language in Audiovisual Translation*; they present the EASIT project, describe the conditions that enable and delimit EL and PL in AV translation and develop a schematic overview of the possible different combinations.

Easy Language has not only become established in written, pre-planned communication, which is the domain of translation, but is increasingly used in oral, spontaneous interaction, i.e. the domain of interpreting. In Germany, we can observe the development of an increased market demand for Easy Language interpreting, especially for events in the cultural domain, in inclusive conferences or in court. **Rebecca Schulz**, **Julia Degenhardt** and **Kirsten Czerner-Nicolas** outline this situation in their contribution on *Easy Language Interpreting.*

Janina Kröger emphasises that inclusion comprises not only access to legal and political communication, but to everyday activities. In her paper *Communication Barriers and Cultural Participation: A Visit to a Wildlife Park as a*

Multicodal Accessible Text, she shows that the written components such as the signs at the enclosures are text components of the multicodal text "visit to the wildlife park", which the visitors will have to decode by themselves by walking through the park and combining the different resources to a multimodal, multicodal text experience. The signs will have to be produced in a way that enables them to create this individual text.

The last section of the present volume is dedicated to **Cognitive Processing of Easy Language**. The target groups of Easy Language have special communication needs and Easy Language strives to address those needs, but there is, to this day, only very little research on whether or to what extent the proposed rules are actually helpful. This question requires cognitive linguistic research as is executed by the authors of the following papers.

The section opens with a joint paper by **Silvia Hansen-Schirra, Walter Bisang, Arne Nagels, Silke Gutermuth, Julia Fuchs, Liv Borghardt, Silvana Deilen, Anne-Kathrin Gros, Laura Schiffl** and **Johanna Sommer** on *Intralingual Translation into Easy Language – Or how to Reduce Cognitive Processing Costs*. The paper postulates that there is a relation between processing costs and structural complexity at all language levels and distinguishes between overt and hidden forms of complexity. The authors then propose a model to describe the different forms of complexity in their interrelation with the processing costs for the target groups. The aim is to enable research to measure those processing costs with the help of methods from cognitive science.

The following three contributions are implementations of the proposed model in empirical tests with different target groups; the authors concentrate on different language levels. As almost no empirical research has so far been conducted with the primary target groups, each of the projects contributes not only in terms of answering a concrete research question, but also in terms of giving insight into methodological features and pitfalls in the work with the primary target groups: Their communication impairments result in special requirements to research settings and create special profiles with respect to data collection and data quality. All three work with cognitive empirical methods such as eye-tracking or EEG.

Laura Schiffl looks at the lexical level. In her paper *Hierarchies in Lexical Complexity: Do Effects of Word Frequency, Word Length and Repetition Exist for the Visual Word Processing of People with Cognitive Impairments?*, she lays out

the conditions for a study on the lexical level. She investigates established effects of word frequency, length and repetition in EL texts on the processing effort of participants with special communication needs.

Silvana Deilen tests hypotheses concerning an EL rule that is specific to German: the guidelines suggest that long compounds be visually segmented in order to facilitate perception and comprehension. Her results, as presented in her paper *Visual Segmentation of Compounds in Easy Language: Eye Movement Studies on the Effects of Visual, Morphological and Semantic Factors on the Processing of German Noun-Noun Compounds* show that the advantages might not be as straightforward as initially expected.

Johanna Sommer focuses on the semantic problem of negation: In her paper *A Study of Negation in German Easy Language – Does Typographic Marking of Negation Words Cause Differences in Processing Negation?*, she strives to find out whether the negation rules proposed by the EL guidelines with respect to the choice of negation markers and typological realisation (bold face or not) have a significant impact on processing costs and comprehension.

The volume concludes with the contribution by **Silvana Deilen** and **Laura Schiffl** who describe the different requirements, challenges and limitations that need to be considered when planning and conducting neuroscientific eye-tracking experiments in the area of accessible communication. In their paper *Using Eye-Tracking to Evaluate Language Processing in the Easy Language Target Group*, they discuss important aspects that researchers should be aware of when collecting and analysing experimental data with the target group for Easy Language.

The papers authored by the Mainz/Germersheim group on cognitive processing of EL were presented at the 2nd International Conference on Translation, Interpreting and Cognition (ICTIC 2019, https://traco.uni-mainz.de/2nd-international-congress-on-translation-interpreting-and-cognition-2018/). All contributions of this volume have undergone a peer reviewing process. The editors would like to thank all reviewers for their constructive and helpful feedback.

Hildesheim and Germersheim, June 2020
Christiane Maaß & Silvia Hansen-Schirra

Works cited

Bredel, Ursula, and Christiane Maaß. *Leichte Sprache. Theoretische Grundlagen, Orientierung für die Praxis*. Berlin: Duden, 2016a. Print.

Bredel, Ursula, and Christiane Maaß. *Ratgeber Leichte Sprache*. Berlin: Duden, 2016b. Print.

Bredel, Ursula, and Christiane Maaß. *Arbeitsbuch Leichte Sprache*. Berlin: Duden, 2016c. Print.

Bredel, Ursula; Lang, Katrin, and Christiane Maaß. "Zur empirischen Überprüfbarkeit von Leichte-Sprache-Regeln am Beispiel der Negation". Ed. Nathalie Mälzer. *Barrierefreie Kommunikation. Perspektiven aus Theorie und Praxis*. Berlin: Frank & Timme, 2016. 95–115. Print.

Gutermuth, Silke. *Leichte Sprache für alle? Eine zielgruppenorientierte Rezeptionsstudie zu Leichter und Einfacher Sprache*. Berlin: Frank & Timme, 2020. Print.

Hansen-Schirra, Silvia, and Silke Gutemuth. "Modellierung und Messung Einfacher und Leichter Sprache". Eds. Susanne Jekat, Martin Kappus, and Klaus Schubert. *Barrieren abbauen, Sprache gestalten*. Winterthur: ZHAW, Züricher Hochschule für Angewandte Wissenschaften, 2018. 7–23. Print.

Hansen-Schirra, Silvia, and Silke Gutermuth. "Empirische Überprüfung von Verständlichkeit". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 163–182. Print.

Maaß, Christiane. *Leichte Sprache. Das Regelbuch*. Münster: Lit, 2015. Print.

Maaß, Christiane. "Übersetzen in Leichte Sprache". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 273–302. Print.

Maaß, Christiane. *Easy Language – Plain Language – Easy Language Plus. Balancing Comprehensibility and Acceptability*. Berlin: Frank & Timme, 2020. Print.

Rink, Isabel. *Rechtskommunikation und Barrierefreiheit. Zur Übersetzung juristischer Informations- und Interaktionstexte in Leichte Sprache*. Berlin: Frank & Timme, 2020. Print.

Silvia Hansen-Schirra, Christiane Maaß

Easy Language, Plain Language, Easy Language Plus: Perspectives on Comprehensibility and Stigmatisation

1 Current situation

The UN Convention on the Rights of People with Disabilities (UN CRPD) has paved the way for inclusion – also communicative inclusion – in the signatory countries. In autumn 2019, the number of signatories was at 162, including the countries of the European Union. In Germany, the UN CRPD has led to adjustments of laws and regulations at the federal and federal state level (cf. Lang 2019, Maaß 2020). The demands of the UN CRPD are implemented with the help of the action plans that have been adopted on all administrative levels (cf. for example the National Action Plan, "NAP" in its first (2011) and second (2016) versions). One of the chief tasks in this context is the implementation of communicative inclusion. Easy Language has become an important means of inclusion for people with communication disabilities.

Political and public institutions are increasingly confronted with the fact that they have to translate existing texts with domain-specific contents into Easy and Plain Language. Easy and Plain Languages can be considered language varieties of different national languages with reduced linguistic complexity, which aim to improve readability and comprehensibility of texts (Maaß 2020, 2015, Bredel/Maaß 2016a,b). Thus, Easy Language (EL) in Germany is a form of language with enhanced comprehensibility applied in the scope of accessible communication. It plays a significant role in creating communicative participation in an inclusive society. One of the functions of EL is to make content accessible, and to simultaneously ensure participation for people with communication impairments. However, the simplicity and uniformity of EL texts have a stigmatising effect on their users (Bredel/Maaß 2019, Maaß 2020). Here, Plain Language (PL), which is situated on a continuum between EL and standard language, offers less stigmatising linguistic structures and layout options. The stratification of the different varieties are presented in Figure 1:

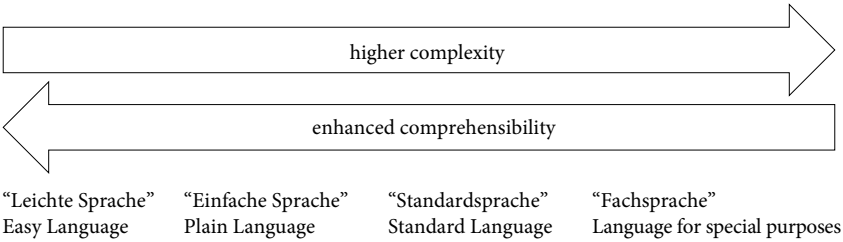

Figure 1: Easy and Plain language as pillars in the Easy Language/standard language continuum

In Germany, the directive to use EL has been included in numerous laws and regulations. For example, in 2018 paragraph 11 on "Comprehensibility and Easy Language" ("Verständlichkeit und Leichte Sprache", <https://www.gesetze-im-internet.de/bgg/__11.html>) was added to the Act on Equal Opportunities of Persons with Disabilities ("Behindertengleichstellungsgesetz"). It states that official notices, general rulings, public-law contracts and forms should be explained in EL. In comparison to their source texts, texts written in EL are greatly optimised in terms of perceptibility and comprehensibility. These text properties reduce cognitive processing costs during the reading process. Comprehension is a multilevel process consisting of perception, information processing and recall (Bredel/Maaß 2016a: 118). The human brain has a finite resource at its disposal. If the cognitive resource is spent exclusively on perception (for example, because the text is hard to perceive due to small type face, long words and lines etc.), there will be no resource left for comprehension or recall. Easy Language texts are designed in a way that reduces processing costs at all levels: texts are easy to perceive, easy to comprehend and linked to previous knowledge in order to facilitate recall. This in turn is extremely important for people with cognitive disabilities or learning difficulties since this positively influences their cognitive capacities, their motivation as well as their frustration threshold (Gutermuth 2020).

On the other hand, it has become obvious that Easy Language texts in their current realisation are not readily accepted and even exhibit the potential to stigmatise the target groups; see the considerations in Maaß (2020) who proposes Easy Language Plus (EL+) as a solution to this dilemma. EL+ can be conceptualised as a variety of comprehensibility enhanced German that eliminates some of the least acceptable features of EL. In this paper, we will show how we modelled this variety on an empirical basis with the help of an exten-

sive cognitive linguistic test battery. We will also highlight why traditional methodology reaches its limits when performing reliable tests with the primary target groups of Easy Language.

But there is more: in order to change the existing text practice, the remodelled EL+ will have to be implemented in text production and translation processes. Even if EL translation should be considered a regular form of translation (Hansen-Schirra/Maaß 2019, Bredel/Maaß 2016a, Rink 2019, 2020, Maaß 2019), not all the actors on the market are academically trained translators. To understand how translators with different professional backgrounds really work and how new findings could be implemented in textual practice, we propose transferring the methods of translation process research to intralingual translation.

2 Research perspectives

German research on EL and partly also on PL has been very active in recent years:

- EL has been modelled from a theoretical perspective as a language variety of German (Maaß 2015, Bredel/Maaß 2016a–c, Bredel/Maaß 2017, Bredel/Maaß 2018).
- Its properties have been described from a corpus-based perspective (Rink 2016, 2019, 2020, Maaß 2019, Maaß/Rink 2017 and 2018).
- There are first insights into the user perspective describing cognitive processing costs for EL and PL (Hansen-Schirra/Gutermuth 2018, 2019, Gutermuth 2020, Hansen-Schirra/Bisang/Nagels/Gutermuth/Fuchs/Borghardt/Deilen/Gros/Schiffl/Sommer in the present volume).
- In addition, EL has been described as a means of communicative inclusion from the perspective of special needs pedagogy in cooperation with German Studies (cf. the publications of the LeiSa project (2014–2018), for example Goldbach/Bergelt 2019, Schuppener/Goldbach/Bock 2019, Bock 2019, Lange 2018, Bock/Fix/Lange 2017).
- And EL has been described as a form of expert-lay-communication from the perspective of specialised communication (for technical and legal communication: Jekat/Kappus/Schubert 2018, for legal communication: Rink 2020, for medical communication Maaß/Rink 2017, 2018).

There is still a general lack of research and theoretical modelling for PL in Germany (for a general outline, cf. Baumert (2016); cf. also the practically-oriented exercise book by Neubauer 2019 and the evaluation of both approaches in Maaß 2020). Bredel/Maaß (2016a, b) propose an approach to modelling EL starting from PL and elaborating it according to the needs of the respective target audience.

Even though research on EL (and partly also on PL) has recently intensified, there are still many research desiderata. One interesting phenomenon is that what is helpful on the levels of perceptibility, comprehensibility and acceptability often does not coincide: measure implemented to optimise perceptibility may harm comprehensibility and/or acceptability of communication offers. Measures to optimise comprehensibility may also corrupt acceptability. The following example will illustrate this problem: the German language is well-known for its long, unsegmented compound nouns that may present a barrier to users with reading impairments: *Behindertengleichstellungsgesetz* (= Act on Equal Opportunities of Persons with Disabilities). The practical rulebooks of Easy German suggest a segmentation of long compounds with hyphens: *Behinderten-Gleichstellungs-Gesetz*. The authors propose that this presentation makes the word easier to perceive and hence easier to understand. The hyphenated version, however, contradicts German orthography. Bredel/Maaß (2016a) hypothesised that, instead of the hyphen, which triggers strong repulsion in readers, the mediopoint could be considered a functional and non-stigmatising alternative to segment compound nouns: *Behinderten·gleichstellungs·gesetz*. Gutermuth (2020), however, shows that even the mediopoint triggers a negative reaction among some of the test subjects (in particular senior citizens). In fact, this negative attitude can also be observed in the eyetracking data. This means that the mediopoint is not neutral but instead makes texts written in EL identifiable as such and can therefore potentially devalue them even if it is preferrable over the hyphen as it does not lead to compromised orthography.

As a consequence, the strategy of translating all texts intended for recipients with communication restrictions into EL is not the miracle cure to lowering all communication barriers. Maaß/Rink (2019) and Rink (2019, 2020) discuss that, in addition to improved perception and comprehensibility, acceptability also plays an important role for the reading process. In fact, acceptability appears to be much more central than previously supposed. As a consequence, EL as it is practiced in Germany might not be a suitable means for communicative inclu-

sion, as it is potentially stigmatising for the target groups (Maaß 2020). Bredel/Maaß (2016a) show that certain rules of EL (pronoun ban, genitive ban etc.) are not readily accepted as they affect the aesthetics of a text. This non-acceptance of EL has the potential to trigger stigmatisation as it highlights communication impairments and accentuates the disparity between text sender and recipients. The scope of the potential stigmatisation, however, depends to a large extent on the design of the EL text. Unfortunately, some characteristics of EL texts have permeated current textual practice that actually promote the stigmatisation of the primary recipients. Current textual practice is frequently not even geared towards the actual requirements of the recipients but instead contains unproven (and, partly, even implausible) assumptions about which textual characteristics could be useful. This leads to a practice in which EL texts differ very strongly from regular texts not only in terms of language used but also visually and conceptually. The texts are identifiable as being intended for people with communication impairments, which is why they are rejected by a large number of the potential recipients who are not identical with, but close to the primarily addressed groups and who also need accessible communication in order to participate. Stigmatisation through and the conditions of acceptability of EL vs. PL texts are major issues in the attempt to establish communicative inclusion. However, they have not yet been empirically tested or validated – neither for German nor, to our knowledge, for any other language.

This research gap has to be addressed: it is a research desideratum to investigate in which communicative situations and for which target groups the use of EL is appropriate or inappropriate respectively, and where PL is indeed more suitable instead. PL is less marked and therefore more prone to increased use. Accordingly, some countries (e.g. Norway, Switzerland) prefer PL or a three-tier system (with EL, PL and "something in between") to ensure communicative inclusion. In contrast to EL, which has a defined set of rules, there is an entire spectrum of situational implementation strategies for PL. In the Duden Leichte Sprache, Bredel/Maaß (2016 a, b) present a model with which to differentiate the two language varieties. Maaß (2020) takes steps to develop a holistic model presenting different scales which cover the trade-off between comprehensibility and perceptibility on the one hand and non-acceptability and stigmatisation on the other.

This model will, however, have to be tested and empirically validated with the relevant target groups. There is evidence that EL renderings that are con-

sidered non-acceptable by the target groups have elevated processing costs, which in turn means that reduced accessibility also has negative effects on comprehensibility. Gutermuth's (2020) findings give rise to the assumption that in addition to incomprehensibility and imperceptibility, non-acceptability and the risk of stigmatisation will also have a negative impact on the target group's cognitive processing costs. On the other hand, we need to know in which communicative situations PL excludes a larger number of persons with communication restrictions due to the fact that it is less comprehensible than EL. At the same time, it has proven difficult to conduct this type of research as the usual methodology is not applicable without modification considering the communicative condition of the target groups. The more they have to read in multiple choice comprehension tasks for instance, the more problematic and frustrating the experiment will be for them. Oral – or in the case of deaf participants, signed – presentation for example of a questionnaire might be a solution here. That means that the methods have to be modified according to the requirements of the participants.

Based on the state of research described above, we identify the following research questions:

- Specification and testing of the following dilemma: PL is less stigmatising but burdensome due to non-comprehensibility, EL is more comprehensible but burdensome due to potential stigmatisation of the target audience. Is there a compromise? Does this compromise only hold true for German EL and PL or are the findings transferable to other national languages and their comprehensibility enhanced varieties? Does the compromise variety differ for the heterogenous target groups? Or can principles for this compromise be formulated across languages as well as across disabilities and impairments?
- Which type of research methods can be applied when recruiting people with disabilities and learning difficulties, i.e. with very special communication needs, as participants for reception studies? Can existing methods from cognitive science and translation studies be adapted and further developed to meet the target groups' specific needs?
- There is no research on intralingual translation competences at all. The question therefore arises: How do intralingual translation competences differ from interlingual translation competences, which are

well researched, and what exactly does this mean for translator education and training?

- In interlingual translation, several computer-aided tools can be used to make digital translation workflows more efficient. These tools have so far not been geared to the needs of intralingual translation into PL and EL. Can these tools be adapted for intralingual translation and how can Artificial Intelligence be implemented in the workflows? (for a first attempt, cf. Hansen-Schirra/Nitzke/Gutermuth/Maaß/Rink in the present volume)

3 Modelling Easy Language +

From a theoretical perspective, EL has been well described (Bredel/Maaß 2016a–c). Recently, its reception has also been tested in empirical studies (e.g. Gutermuth 2020, Deilen this volume, Schiffl this volume, Sommer this volume). However, EL does not work in terms of acceptance, which leads to the stigmatisation of the primary target groups (Gutermuth 2020, Maaß 2020). A new approach is therefore to describe, empirically test and finally model the basic principles of a language variety that combines the advantages of EL (receptibility and comprehensibility) with the advantages of PL (acceptability; no stigmatisation potential). From the perspective of text production, these principles will help authors and translators of these texts to systematically understand for the first time how perceptibility and comprehensibility can be combined with acceptability. Similar to the European guidelines of Inclusion Europe (2009) for EL, the basic principles of this perceptible, comprehensible and acceptable form of communication can be described in a functional way.

Based on the EL model described by Bredel/Maaß (2016a), an additive approach can be used to specify rules for the individual linguistic layers (morphology, lexis, syntax, etc.). This goes hand in hand with the proposal of Bredel/Maaß (2016b), in which linguistic complexity can be adjusted to the communicative needs of the target groups. In fact, Bredel/Maaß (2016b) consider Easy Language a "drawer system" where basic realisations of a linguistic category are situated in the top drawers and ever more complex realisations in the respectively lower drawers. They propose dosing text complexity by choosing lower drawers for only a few linguistic categories and accessing the top drawers for the other cate-

gories. For example, if the text in a written exam has to contain expert vocabulary, syntactic structures will all have to remain simple.

These rules will divide PL into different complexity and acceptance levels and will differentiate PL from EL and standard language. On the one hand, the more the modelling moves towards EL, the more perceptible and comprehensible the texts will be. On the other hand, the more the modelling moves towards standard language, the more acceptable and less stigmatising the texts will be (see Figure 2). Reduced acceptability and stigmatisation caused by their simplicity and uniformity represent a high risk for EL texts. PL, by contrast, does not carry the same risk. We assume that the critical balance point will coincide with the EL+ variety proposed by Maaß (2020). This trade-off between perception and comprehension vs. acceptance will result in high gains for the target groups. On this basis, we will be able to understand the principles for a perceptible, comprehensible AND acceptable EL+ variety. The transferability of these principles for other languages needs to be discussed and validated.

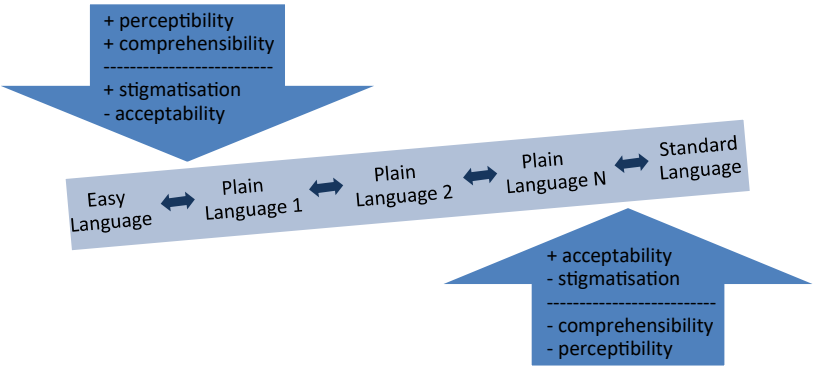

Figure 2: Trade-off between EL and PL

From the perspective of text reception, another research desideratum is to empirically validate the EL+ variety against all primary and secondary target groups mentioned in Bredel/Maaß (2016a). This validation will ensure that the model will also hold true across disabilities. However, this requires the adaptation and development of cognitive-empirical methods to cope with the target group's specific communication needs, which leads us to the next research desideratum.

4 Target group-specific methodological battery

As described in Gutermuth (2020), the established methods from the cognitive sciences have not yet been adapted for the use with the target groups of EL. Since these target groups have very special communicative needs, low reading motivation and a low frustration threshold, methodological optimisation potentials need to be identified for EL and PL reception research and new methodological standards need to be developed. Multimodal methods need to be developed and validated with the primary target groups. Process- and product-based methods will be combined in order to ensure ecological validity as well as empirical robustness. In order to develop such an innovative methodological battery, detailed knowledge about the target groups is required: their perception and comprehension skills, their attitudes and textual needs. A research goal would be to address all target groups mentioned in Bredel/Maaß (2016a). These are subdivided into primary target groups with a legal entitlement and primary as well as secondary target groups without a legal entitlement. For a comprehensive picture of the target groups, they have to be distinguished by group membership and age stratification:

		Children	Adolescents	Adults	Senior citizens
primary target groups with legal rights to EL texts	Cognitive disability	X	X	X	X
	Dementia	–	–	–	X
	Deafness	X	X	X	X
	Aphasia	X	X	X	X
	Learning difficulties	X	X	–	–
primary and secondary target groups without legal rights to EL texts	Functional illiteracy	–	–	X	X
	German as a second language (esp. with migration background)	X	X	X	X
	Unimpaired	X	X	X	X

Table 1: Primary and secondary target groups with and without legal rights for EL/PL research

Age stratification is motivated as follows:

- *Cognitive disabilities*: This group of people was first targeted in the creation of EL (Bredel/Maaß 2016a: 151ff). The current legal stipulations in Germany are tailored to this group; this is why the group of people with cognitive disabilities has a marked significance among the target groups. EL has to be useful to this group; any solution that is acceptable to the target group average but too complex for this group to comprehend will not do. Cognitive disability occurs in all age groups; therefore, people from this target groups with different ages have to be included as test subjects in research projects.
- *Dementia*: This condition occurs predominantly in advanced ages of 65 +, i.e. after the end of the professional life. Earlier cases are isolated. This is a steadily growing group. Coping with the growing numbers of dementia patients is a societal challenge of great importance and accessible communication for prolonged participation is an issue of significant weight.
- *Deafness*: This condition occurs in all age groups, though we witness paradigm shifts: 1) A shift from the oral method ("German method") to sign-integrating methods in education and 2) the break-through of the Cochlea technique leading to a generation of hearing-impaired individuals trained with aural methods (Hennies 2019). Therefore, major differences are to be expected between the different age groups. Even though this group is relatively small (estimates indicate that there are approximately 80,000 hearing impaired sign language users in Germany), it is of special scientific interest.
- *Aphasia*: This condition occurs in all age groups, but predominantly at an age where degenerative cardiovascular diseases become more prevalent, as the main causes of aphasia are strokes: 80% of the cases; according to Kolominsky-Rabas/Heuschmann (2002), the incidence of strokes averages 182 among every 100,000 inhabitants across age groups, but 2,117 among the 84 year-olds. Around 30% of the stroke patients develop an aphasia (Rupp 2010). With around 40,000 new cases per year, the group of aphasia patients is medium-sized among the EL/PL user groups, but with relatively homogenous symptoms and very widely researched.

- *Learning difficulties*: This group consists exclusively of children and adolescents as the term is associated with school and education (Heimlich 2009). Many people belonging to this group later become part of the group of the functional illiterates once they drop out of school. Functional illiteracy is defined as insufficient reading and writing skills despite regular school education. That is why there are no children or adolescents in that group. This group has been subject to major research efforts (cf. for example Grotlüschen/Riekmann 2011, Grotlüschen et al. 2019). With more than 20 million people not surpassing alpha-level 4 in Germany alone, this is the largest among the target groups; it has to be considered, however, that individuals may be part of more than one of the named groups: for example people with dementia or cognitive disability may also belong to the group of functional illiterates.
- *Migration*: There is a difference between recent and earlier arrivals in the host country, as this has an impact on the actual state of language acquisition. Long term residents' language skills have the tendency to fossilise in the case of uncontrolled acquisition (Maas/Mehlem 2003) leading to long-term problems with written language and especially specialised communication in a large part of this group even after years or even decades in the host country. People who migrated to their host country recently are usually faced with texts (even expert texts) without delay and might profit greatly from EL/PL offers. This group is very large. The success of its integration into the host society is dependent on the accessibility of contents. However, this group is without legal rights to accessible communication as it is not covered by the disability legislation. The question of how to communicate with this group in a way to make integration possible is nevertheless a key issue of modern society.
- *Unimpaired*: Most of the EL texts are publicly accessible. They can be used by anyone but tend to trigger strong reactions from the group of the unimpaired. Here, we encounter a paradox: EL rules result in texts with a noticeable design where the highest degree of comprehensibility corresponds to the lowest degree of acceptability. Accordingly, the group of the unimpaired that is not dependent on EL texts tends to build up prejudices toward the groups in need of those texts

(Bredel/Maaß 2016a, 2019). This even leads to a situation where people that are in need of EL texts do not use them because they find them repulsive (Gutermuth 2020). An age stratification is to be expected in the group of the unimpaired; this is why all age groups should be included in research. Addressing the needs of this group is paramount for the success of the inclusion measures geared at people with communicative disabilities (Maaß 2020).

Data collection with the primary and secondary target groups is currently the most important desideratum of research into accessible communication. Gutermuth (2020) shows that the target groups of EL have particular methodological needs. For example, recipients may have a reduced attention span or power of concentration. Furthermore, their ability to read and complete a retrospective multiple-choice comprehensibility test is in part severely restricted which leads to higher levels of frustration. Test developers are thus faced with unique challenges. Potential solutions (such as oral comprehensibility ranking tests conducted in dialogue) are tested by Gutermuth (2020) with varying levels of success, requiring further systematisation and development at the methodological level. Methodological innovation will include among others picture-based comprehensibility tests and ratings, oral recall tasks, dialogue-based retrospective interviews, etc. The further processing of the data involves methods such as transcription of the oral data, categorising untransparent and implicit utterances of target groups' participants, etc. An international perspective on Easy Language research would give further evidence as to what features are language-bound.

The different PL varieties (see Figure 2) are to be tested and validated against EL at the lower end of the complexity continuum and against the standard language at the upper end of the complexity continuum. Highly relevant metrics may be collected as dependent variables for each PL level that operationalise

- perception (e.g., eyetracking measurement values such as first fixation, first pass reading time, regression path duration, total reading time, etc.)
- comprehension (comprehensibility tests and ratings)
- memory capacity (recall tasks)

- acceptance of the text (acceptability tests)
- successful text-based action

It is important to triangulate these dependent variables with control variables such as:

- hand-eye coordination,
- visual processing speed,
- cognitive flexibility,
- executive functions,
- visual-spatial abilities (Rodewald et al. 2012),
- working memory (Petermann 2012),
- word fluency (Aschenbrenner et al. 2001),
- general level of intelligence (Lehrl 2005) and
- reading speed (Mayringer/Wimmer 2014).

The results of this test battery may contribute to an explanation of the statistical variation in the target groups' reception processes and behaviour. Regarding the dependent variables that operationalise perception, comprehension, memory capacity and acceptance, we assume that the effects are not only influenced by linguistic complexity but also by the acceptability/stigmatisation features. Comparing the different EL, PL and standard varieties, the following hypotheses can be formulated (see also Figure 2):

- EL is characterised by increased comprehensibility but has a stigmatising effect due to its simplicity and uniformity (e.g. with regard to layout, choice of pictures, and textual strategies).
- Standard language does not have a stigmatising effect but is characterised by decreased comprehensibility for the primary target groups.
- The various primary target groups require EL/PL varieties of different levels: the texts should be as comprehensible as necessary and as unstigmatising as possible.
- EL+ with, compared to EL, slightly enhanced complexity, but considerably reduced risk of stigmatisation works as a compromise.

Working on the research methods and adapting them promotes the development of a target group-specific methodological battery that enables testing across disabilities.

5 Modelling intralingual translation expertise and workflows

Competence profiles for interlingual translators have been sufficiently described (Göpferich 2008, PACTE 2003, EMT 2017). However, the specific sub-competencies for intralingual translation have so far been neglected. Comparing the behaviour of interlingual vs. intralingual translators sheds light on whether different skills are required and whether different strategies are applied for translation into PL and EL varieties. These insights would be the basis for a competence model for intralingual EL and PL translators. Such a competence model would then enable us to develop empirically driven training materials.

From an empirical perspective, there are two types of relevant comparison here:

1) The intralingual translators can be compared to the interlingual translators.

This would enable an identification of sub-competencies specific to intralingual translation.

2) The intralingual translators can be compared amongst themselves.

In the professional world of EL/PL translation, there are three different types of translators: academically trained translators with and without knowledge of accessible communication (the former account for the relatively new pertinent degree programmes while the latter are mainly from the traditional specialised translation field) vs. non-academically trained translators with a background in accessible communication (e.g., special needs teachers or social education workers).

It has so far not been investigated which translator competencies are required but also how important accessible communication and knowledge of

dealing with the target groups is, which as a consequence will contribute to the professionalisation debate.

In order to address these empirical goals, state-of-the-art methods from translation process research have to be adapted for intralingual translation. As methodological best practice, for example, the CRITT TPR-DB (Carl et al. 2016) can be used as a template. This database contains publicly accessible source and target texts in various languages including translation process data, i.e. eyetracking and keylogging data (which mainly represent unconscious cognitive processes) complemented by retrospective interviews on conscious translation processes. Using the same source texts for the intralingual translations in PL and EL would enable a direct comparison of the product and process data. Furthermore, it would be possible to identify and model the specific features of intralingual translation for the various types of translators. The texts in the database are press releases. This text type is highly relevant in the context of PL and EL as it constitutes a major participation topic that is traditionally in the focus of legislation and textual practice. To identify text type-specific translation strategies, another research desideratum would be to complement this text type by a further, ideally extremely diverse text type, e.g. health communication. This constitutes a highly relevant life topic for the translation process study and is often found as actual textual practice in Germany. This would also contrast specialised (health communication) and non-specialised communication (news), which ensures the maximum range of linguistic features and translation strategies. The gained data could then complement the CRITT TPR-DB in an innovative way as it goes far beyond the interlingual work in translation process research.

Moreover, the workflows of intralingual translation into EL/PL and the role of digitisation and computer-aided translation tools are entirely under-researched (for a first outline, cf. Hansen-Schirra/Nitzke/Gutermuth/Maaß/Rink in this volume). We assume that there is a need for digitisation concerning the intralingual translation workflows. Based on previous work on interlingual workflows (Carl et al. 2015, Čulo et al. 2014, Nitzke et al. 2019, Schaeffer et al. 2019a–d, Vardaro et al. 2019a,b), automation potentials need to be identified for intralingual translation. Best practices, which have already been established for interlingual translation settings, have to be adapted for computer-aided intralingual translation purposes. This includes the development of term databases for terminology which is highly relevant for EL and PL

text types and target groups. Moreover, the adaptation of translation memories on the basis of PL and EL corpora poses a challenge to existing tools since completely new alignment techniques need to be developed. Furthermore, these corpora can also be used to train Neural Machine Translation (NMT) in order to profit from the most innovative technologies in translation automation based on artificial intelligence (cf. Hansen-Schirra/Nitzke/Gutermuth/Maaß/Rink in the present volume). NMT has already proven to be successful with creative texts (Toral/Way 2015, Hansen-Schirra et al. in print); a further innovation is to apply it to PL and EL texts within the intralingual translation process. Integrating NMT as a plug-in in a translation memory system and post-editing of NMT output will make translation processes more efficient, which is in turn highly relevant for professional market conditions.

6 Conclusion

This paper discusses a theoretical foundation as well as a methodological framework for modelling and empirically testing principles for perceptible, comprehensible AND acceptable communication across languages and disabilities. As a result, it promotes the language variety EL+, which profits from the comprehension and perception principles of EL but also from the non-stigmatising and more acceptable features of PL. This kind of research requires the adaptation of established methods and development of a new methodological framework, which suits the needs of the heterogeneous target groups and addresses their special communication needs.

Such an innovative approach is challenging, but will, however, be offset by equally high gains. Previous implementations may transpire to be inexpedient at the level of modelling the varieties. A first indication thereof is that the criterion acceptability obviously plays a much more important role than previously expected. This will significantly influence the models. Further findings are to be expected as the target groups have never been systematically included in the assessment and validation of the perceptibility, comprehensibility and acceptability of texts written in comprehensibility-enhanced varieties of German. This approach, however, also entails a potential major gain as these types of findings will enable the development of a functioning model in the future. Consequently, there is also a risk that existing models will have to be recon-

sidered even if they are already established. But this is the condition for successful communication in EL and PL.

Considerable methodological uncertainties exist at the level of reception by the primary and secondary target groups as, so far, there have been no systematic studies on perception, comprehension and acceptance of the comprehensibility-enhanced varieties EL and PL among the communication-impaired test subject groups. This risk is, however, offset by the prospect of gaining important methodological insights into the feasibility of test subject studies on EL and PL. In any case, we will undoubtedly be faced with the risk of methodological barriers if we wish to scientifically explore this field.

At the level of text production and translation, again, methodological risks play a role as the methods applied in translation process research will be used with non-translators. In the area of modelling tools for translation into the comprehensibility-optimised varieties EL and PL, there is a risk that machine translation can only be marginally implemented as EL in particular does not allow for direct alignment between source and target texts (see strategies for addition and reduction, Bredel/Maaß 2016a). A further risk exists with regard to the heterogeneous situation of the translators and the question whether they will implement the foreseeable changes to the models.

Bridging the research gaps described above will be an innovation driver for international research on the one hand and practical applications and didactics of EL and PL on the other. Therefore, dissemination is needed in three directions:

1. International research and dissemination of research findings: An international publication policy including English as lingua franca of the EL/PL research area will lead to more exchange and greater visibility among the researchers in this community.
2. Disseminating guidebooks with rules and recommendations for target group-oriented text production in EL and PL varieties: Fostering the professionalisation debate will help translators throughout Europe to produce comprehensible and acceptable texts.
3. Communicating research results in accessible EL and PL formats: User-specific information materials will enable the primary target groups, their families as well as the interested lay public to directly and indirectly profit from this research.

The latter poses the risk that EL will be regarded with disdain or aggression by mainstream society (on provocation caused by EL, cf. Bredel/Maaß 2016a: 45ff, Maaß 2020). We see the chance that EL+ might be, even if only partially, a cure to that risk. Furthermore, there is also the problem that a part of the primary target groups will be sceptical towards the changes to the original models, even if the changes are underpinned with empirical data. Developing strategies to reduce these risks, however, will improve linguistic inclusion and minimise stigmatisation of the target groups across languages and countries. This may lead to a new discourse between science, society and empowerment, the foundation for successful communicative participation.

Works cited

Sources

Inclusion Europe. 2009. Informationen für alle: Europäische Regeln, wie man Informationen leicht lesbar und verständlich macht. Web. 10 October 2019. <https://easy-to-read.eu/wp-content/uploads/2014/12/DE_Information_for_all.pdf>.

NAP. Nationaler Aktionsplan; Unser Weg in eine inklusive Gesellschaft. Der Nationale Aktionsplan der Bundesregierung zur Umsetzung der UN-Behindertenrechtskonvention. Berlin: BMAS, 2011. Web. 15 October 2019. <https://www.gemeinsam-einfach-machen.de/SharedDocs/Downloads/DE/AS/UN_BRK/NAP.pdf?__blob=publicationFile&v=3>.

NAP. Nationaler Aktionsplan; Unser Weg in eine inklusive Gesellschaft. Nationaler Aktionsplan 2.0 der Bundesregierung zur UN-Behindertenrechtskonvention. Berlin: BMAS, 2016. Web. 15 October 2019. <https://www.gemeinsam-einfach-machen.de/SharedDocs/Downloads/DE/AS/NAP2/NAP2.pdf?__blob=publicationFile&v=3>.

United Nations. Convention on the Rights of Persons with Disabilities. Web. 15 October 2019. <https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities.html>.

UN CRPD. Convention on the Rights of Persons with Disabilities and Optional Protocol. United Nations. Web. 15 October 2019. <http://www.un.org/disabilities/documents/convention/convoptprot-e.pdf>.

Literature

Aschenbrenner, Steffen; Tucha, Oliver, and Klaus W. Lange. *RWT. Regensburger Wortflüssigkeits-Test*. Göttingen u.a.: Hogrefe. 2001. Print.

Baumert, Andreas. *Leichte Sprache – Einfache Sprache. Literaturrecherche – Interpretation – Entwicklung*. Hannover: Bibliothek der HSH. 2016. Print.

Bock, Bettina. *Leichte Sprache – kein Regelwerk.* Berlin: Frank & Timme. 2019. Print.

Bock, Bettina; Fix, Ulla, and Daisy Lange. Eds. *"Leichte Sprache" im Spiegel theoretischer und angewandter Forschung*. Berlin: Frank & Timme. 2017. Print.

Bredel, Ursula, and Christiane Maaß. *Leichte Sprache. Theoretische Grundlagen, Orientierung für die Praxis*. Berlin: Duden. 2016a. Print.

Bredel, Ursula, and Christiane Maaß. *Ratgeber Leichte Sprache*. Berlin: Duden. 2016b. Print.

Bredel, Ursula, and Christiane Maaß. *Arbeitsbuch Leichte Sprache*. Berlin: Duden. 2016c. Print.

Bredel, Ursula, and Christiane Maaß. "Wortverstehen durch Wortgliederung – Bindestrich und Mediopunkt in Leichter Sprache". Eds. Bettina Bock, Ulla Fix, and Daisy Lange. *"Leichte Sprache" im Spiegel theoretischer und angewandter Forschung*. Berlin: Frank & Timme, 2017. 211–228. Print.

Bredel, Ursula, and Christiane Maaß. "Leichte Sprache – Grundlagen, Prinzipien und Regeln". Eds. Andrea-Eva Ewels, and Peter Schlobinski. *Leichte und fairständliche Sprache. (= Der Deutschunterricht, Nr. 5)* (2018): 2–14. Print.

Bredel, Ursula, and Christiane Maaß. "Leichte Sprache". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation.* Berlin: Frank & Timme, 2019. 251–271. Print.

Carl, Michael; Bangalore, Srinivas, and Moritz Schaeffer. *New Directions in Empirical Translation Process Research*. Springer, 2016. Print.

Carl, Michael; Gutermuth, Silke, and Silvia Hansen-Schirra. "Post-editing machine translation: Efficiency, strategies, and revision processes in professional translation settings". Eds. Aline Ferreira, and John W. Schwieter. *Psycholinguistic and Cognitive Inquiries into Translation and Interpreting.* BTL 115. 2015. 145–174. Print.

Čulo, Oliver; Gutermuth, Silke; Hansen-Schirra, Silvia, and Jean Nitzke. "The Influence of Post-Editing on Translation Strategies". Eds. Sharon O'Brien, Laura Winther Balling, Michael Carl, Michel Simard, and Lucia Specia. *Post-editing of Machine Translation: Processes and Applications*. Cambridge Scholars Publishing, 2014. Print.

EMT. European Master's in Translation: Competence Framework 2017. European Commission, 2017. Print.

Goldbach, Anne, and Daniel Bergelt. *Leichte Sprache am Arbeitsplatz*. Berlin: Frank & Timme, 2019. Print.

Göpferich, Susanne. *Translationsprozessforschung: Stand – Methoden – Perspektiven (Vol. 4)*. Tübingen: Gunter Narr, 2008. Print.

Grotlüschen, Anke, and Wibke Riekmann. *leo. – Level-One Studie Literalität von Erwachsenen auf den unteren Kompetenzniveaus.* 2011. Print.

Grotlüschen, Anke; Buddeberg, Klaus; Dutz, Gregor; Heilmann, Lisanne, and Christopher Stammer. *Leo. Leben mit geringer Literalität.* Pressebroschüre. Hamburg 2019. Print. <http://blogs.epb.uni-hamburg.de/leo>.

Gutermuth, Silke. *Leichte Sprache für alle? Eine zielgruppenorientierte Rezeptionsstudie zu Leichter und Einfacher Sprache*. Berlin: Frank & Timme, 2020. Print.

Hansen-Schirra, Silvia, and Silke Gutemuth. "Modellierung und Messung Einfacher und Leichter Sprache". Eds. Susanne Jekat, Martin Kappus, and Klaus Schubert. *Barrieren abbauen, Sprache gestalten*. Winterthur: ZHAW, Züricher Hochschule für Angewandte Wissenschaften, 2018. 7–23. Print.

Hansen-Schirra, Silvia, and Silke Gutermuth. "Empirische Überprüfung von Verständlichkeit". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 163–182. Print.

Hansen-Schirra, Silvia, and Christiane Maaß. *Translation Proper: Kommunikationsbarrieren überwinden.* Hildesheim, 2019. Web. 15 October 2019. <https://doi.org/10.25528/015>.

Hansen-Schirra, Silvia; Tardel, Anke; Gutermuth, Silke; Schaeffer, Moritz; Denkel, Volker, and Miriam Hagmann-Schlatterbeck. "Computer-aided subtitling: split attention and cognitive effort". *Proceedings of the AIETI Conference*. In print. Print.

Heimlich, Ulrich. *Lernschwierigkeiten. Sonderpädagogische Förderung im Förderschwerpunkt Lernen*. Bad Heilbrunn: Klinkhardt, 2009. Print.

Hennies, Johannes. "Prälinguale Hörbehinderung und Schriftkompetenz". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 201–220. Print.

Jekat, Susanne; Kappus, Martin, and Klaus Schubert. Eds. *Barrieren abbauen, Sprache gestalten.* Winterthur: ZHAW, Zürcher Hochschule für Angewandte Wissenschaften, 2018. Print.

Kolominsky-Rabas, Peter L., and Peter Heuschmann. "Inzidenz, Ätiologie und Langzeitprognose des Schlaganfalls. Fortschritte der Neurologie". *Psychiatrie* 70 (2002): 657–662. Print.

Lang, Katrin. "Die rechtliche Lage zu Barrierefreier Kommunikation in Deutschland". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 67–93. Print.

Lange, Daisy. "Comparing 'Leichte Sprache', 'einfache Sprache' and 'Leicht Lesen': A Corpus-Based Descriptive Approach". Eds. Susanne J. Jekat, and Gary Massey. *Barrier-free communication: methods and products: proceedings of the 1st Swiss conference on barrier-free communication*. Winterthur: ZHAW Digital Collection, 2018. 75–91. Print.

Lehrl, Siegfried. *MWT-B. Mehrfachwahl-Wortschatz-Intelligenztest*. 5th unchanged edition. Balingen: Spitta, 2005. Print.

Maas, Utz, and Ulrich Mehlem. *Qualitätsanforderungen für die Sprachförderung im Rahmen der Integration von Zuwanderern*. Osnabrück: Grothe, 2003. Print.

Maaß, Christiane. *Leichte Sprache. Das Regelbuch*. Münster: Lit., 2015. Print.

Maaß, Christiane. "Übersetzen in Leichte Sprache". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 273–302. Print.

Maaß, Christiane. *Easy Language – Plain Language – Easy Language Plus. Balancing Comprehensibility and Acceptability*. Berlin: Frank & Timme, 2020. Print.

Maaß, Christiane, and Isabel Rink. "Leichte Sprache: Verständlichkeit ermöglicht Gesundheitskompetenz". *Public Health Forum* 25.1 (2017): 50–53. Print.

Maaß, Christiane, and Isabel Rink. "'Das nennt Ihr Arzt: Rigor.' Medizinische Fachtexte in Leichter Sprache im Lichte des Ansatzes der Situated Translation". Eds. Susanne Jekat, Martin Kappus, and Klaus Schubert. *Barrieren abbauen, Sprache gestalten*. Winterthur: ZHAW, Zürcher Hochschule für Angewandte Wissenschaften, 2018. 24–38. Print.

Maaß, Christiane, and Isabel Rink. "Über das Handbuch Barrierefreie Kommunikation". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 17–25. Print.

Mayringer, Heinz, and Heinz Wimmer. *Salzburger Lese-Screening für die Schulstufen 2–9*, Göttingen u.a.: Hogrefe, 2014. Print.

Neubauer, Mansour. *Einfache Sprache. Grundregeln, Beispiele, Übungen.* Amazon Fulfillment, 2019. Print.

Nitzke, Jean; Hansen-Schirra, Silvia, and Carmen Canfora. "Risk management and post-editing competence". *Journal of Specialised Translation* 31 (2019): 239–259. Print.

PACTE. "Building a Translation Competence Model". Ed. Fabio Alves. *Triangulating Translation: Perspectives in Process Oriented Research*. Amsterdam: John Benjamins, 2003. 43–66. Print.

Petermann, Franz. *WAIS-IV. Wechsler Adult Intelligence Scale. German-language adaptation of the WAIS-IV by D. Wechlser*. Frankfurt am Main: Pearson, 2012. Print.

Rink, Isabel. "Zur Übersetzung juristischer Fachtexte in Leichte Sprache am Beispiel des Pilotprojekts ‚Leichte Sprache in der Niedersächsischen Justiz". Ed. Nathalie Mälzer. *Barrierefreie Kommunikation – Perspektiven aus Theorie und Praxis. Berlin*. Frank & Timme, 2016. 257–273. Print.

Rink, Isabel. "Kommunikationsbarrieren". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 29–65. Print.

Rink, Isabel. *Rechtskommunikation und Barrierefreiheit. Zur Übersetzung juristischer Informations- und Interaktionstexte in Leichte Sprache*. Berlin: Frank & Timme, 2020. Print.

Rodewald, Katlehn; Bartolovic, Marina; Debelak, Rudolf; Aschenbrenner, Steffen; Weisbrodl, Matthias, and Daniela Roesch-Ely. "A standardisation

study of a modified Train Making Test in German-speaking countries". *Zeitschrift für Neuropsychologie* 23.1 (2012): 37–48. Print.

Rupp, Eckart. *Fortschritte in Behandlung und Diagnostik zentraler neurogener Sprachstörungen. Ergebnisse des Projektes "Teletherapie bei Aphasie"*. Manuskript der Dissertationsschrift, Universität München, 2010. Print.

Schaeffer, Moritz; Nitzke, Jean, and Silvia Hansen-Schirra. "Predictive Turn in Translation Studies: Review and Prospects". Eds. Stanley Brunn, and Roland Kehrein. *Handbook of the Changing World Language Map*. Springer, Cham, 2019a. <doi: 10.1007/978-3-319-73400-2_217-1>.

Schaeffer, Moritz; Halverson, Sandra, and Silvia Hansen Schirra. "'Monitoring' in translation. The role of visual feedback". *Translation, Cognition & Behavior*, 2.1 (2019b): 1–33. <doi: 10.1075/tcb.00017.sch>.

Schaeffer, Moritz; Nitzke, Jean; Tardel, Anke; Oster, Katharina; Gutermuth, Silke, and Silvia Hansen Schirra. "Eye-tracking revision processes of translation students and professional translators". *Perspectives* 27.4 (2019c): 589–603. Print.

Schaeffer, Moritz; Tardel, Anke; Hofmann, Sascha, and Silvia Hansen-Schirra. "Cognitive Effort and Efficiency in Translation Revision". Eds. Elsa Huertas-Barros, Sonia Vandepitte, and Emilia Iglesias-Fernández. *Quality Assurance and Assessment Practices in Translation and Interpreting*. Hershey: IGI Global, 2019d. 226–243.

Schuppener, Saskia; Goldbach, Anne, and Bettina M. Bock. "Leichte Sprache – ein Mittel zur Barrierefreiheit?" Eds. Ingo Bosse, Jan-René Schluchter, and Isabel Zorn. *Handbuch Inklusion und Medienbildung*. Weinheim: Beltz, 2019. 216–222. Print.

Toral, Antonio, and Andy Way. "Machine-assisted translation of literary text: A case study". *Translation Spaces* 4.2 (2015): 240–267. Print.

Vardaro, Jennifer; Schaeffer, Moritz, and Silvia Hansen-Schirra. "Comparing the Quality of Neural Machine Translation and Professional Post-Editing". *Eleventh International Conference on Quality of Multimedia Experience (QoMEX)*. Berlin, 2019a. 1–3. Print.

Vardaro, Jennifer; Schaeffer, Moritz, and Silvia Hansen-Schirra. "Translation Quality and Error Recognition in Professional Neural Machine Translation Post-Editing". *Informatics* 6.3 (2019b): 41. Print.

Part 2:
Expert Texts and Translation into Easy Language

Christiane Maaß, Isabel Rink

Scenarios for Easy Language Translation: How to Produce Accessible Content for Users with Diverse Needs

1 Introduction: Dilemmas in Easy Language Translation

Easy Language (EL) has seen a considerable development in recent years with regard to the legal situation and the translation market. In Germany, EL has become the tool of choice in legal contexts: People with cognitive and psychological impairments are entitled to clear information for some text types, "especially official notifications, general rulings, public-law contracts and printed forms in plain and comprehensible language" ("in einfacher und verständlicher Sprache"), and, if this does not suffice, "in Easy Language" ("in Leichter Sprache") (Federal Act on Equality for People with Disabilities/BGG 2018, §11).

This means that complex expert content in the legal field has to be expressed with a maximally reduced linguistic repertoire following the rules of EL. What is more, these texts are directed at users from the primary target groups (cf. Hansen-Schirra/Maaß in this volume) with below-average previous knowledge of the subject and poor reading skills. This is a dilemma that is not easily resolved.

In order to understand what is being said these users will need numerous subject-specific frames and scripts (according to Fillmore 1982, for an application to Easy Language cf. Bredel/Maaß 2016: 426ff) that they can activate and build on. If they do not have this previous knowledge, they will not be able to grasp the content of a text. Texts, especially on expert matters, presuppose extensive amounts of knowledge and are not functional without said knowledge.

Simply avoiding complicated words and keeping sentences short in the target texts does not constitute an EL translation. The far bigger challenge for EL translators is to anticipate the users' potential yet necessary amount of previous knowledge and to develop this knowledge in cases where it is presumably

absent. Only if the presupposed knowledge is accessible to the users can they process the content of a text. This is then the basis for the new information that the source text wants to confer.

If, for example, the target audience wants to claim a reimbursement for a delayed train according to their passenger rights (this example is outlined in Keller in this volume), they need to fill in a standardised form. This form provides instructions on the required information (personal details, bank account, details about the journey and delay, train number, confirmation of train staff etc.) in order to reclaim the money. These are the prerequisites to make the communicative interaction with the train company a success.

EL users might not even know that they are entitled to claim reimbursements for the delay. If they do know, they need further knowledge on the kind of necessary interaction. This requires knowledge on text types (for example, in this specific case, how to read and fill in a standardised form), on terminology, and on procedures. Keller (this volume) shows that EL translation reaches its limits in the case of interaction texts with high levels of presuppositions. If an individual text requires too much previous knowledge, it might even be impossible to make it accessible through EL translation alone (see below). There may be too much new information to process within a single text, especially for people with communicative disabilities. Particularly interaction texts in the context of legal and administrative communication usually present a major challenge. The present article evaluates different scenarios for EL translation of legal and administrative texts. The article is based on data from the project "Easy Language in the Judiciary", carried out in 2013 and 2014 by the Research Centre for Easy German and the Ministry of Justice in Lower Saxony. For a scientific evaluation of this project, cf. Rink (2020). This paper reflects on different strategies to adequately translate texts of different text types into EL in order to achieve functional target texts for successful interaction with the primary EL target groups. The following considerations are based on a monolingual German corpus of legal and administrative expert texts addressed to lay people, and their Easy Language counterparts. The texts constitute different text types and are partly information-centred and partly action-oriented (cf. the distinction between information and interaction texts below). The corpus therefore contains information brochures and online information (inheritance legislation, information on the German judicial system) as well as blank forms and letters (an application for legal aid, a subpoena etc.). The

translations were carried out as part of the project. Rink (2020) analyses and evaluates the emerging translation strategies in the corpus. The measures described in the following section are thus based on a text-oriented approach in the sense of Maaß (2019b).

2 Enabling participation through EL texts

Easy Language (EL) and Plain Language (PL) are intended to enable participation for users that do not have access to the source texts (for a distinction between the two varieties cf. Hansen-Schirra/Maaß in this volume, Bredel/Maaß 2016: 526ff and Maaß 2020). Source texts might be too difficult to understand if the authors address laypeople (this is the context of PL). Plain Language might not be comprehensible enough if users with communication impairments are addressed (this is the context of EL). Both EL and PL follow rules on the word, sentence, and text levels that are intended to downgrade the difficulty of a text and make it accessible to people with non-expert or elevated communication needs.

The existing text practice (cf. Rink 2020) shows that translators follow very different strategies that can be ascribed to different scenarios that we will discuss in more detail in the following section. Scenarios A and B, which both have their shortcomings, are frequently encountered in translation practice. We postulate that translators should strive to achieve Scenario C, which we describe as the gold standard of EL translation.

2.1 Scenario A: The target text contains the same amount of information, but is excessively long

The typical constellation in Scenario A consists of a source text that is dense and technical, but adequate for the originally intended audience of experts. It presupposes a great deal of previous knowledge and therefore does not work without the required knowledge level. The target text attempts to retain all the information of the source text as the translator is ethically bound not to exclude the target audience from the provided information. As the target audience only partially has the presupposed knowledge (there is only a small

common ground between the source text author and the primary Easy Language target groups, cf. Clark 1996 and Bredel/Maaß 2016: 187ff as well as Rink 2020: 175ff for an application to EL), the target text will have to provide this knowledge. It will try to help the target audience develop frames and scripts that are necessary to understand the actual subject of the text. The translator will take into account that the target audience usually has lower reading skills than the average reader and, therefore, does not have much experience with parallel texts or even the entire text type to which the source text belongs (not least because, as of now, there are not many accessible legal or administrative texts in EL and it is not easy to get accessible information). The target text will therefore systematically build up knowledge as the basis required to access the information in the source text. This requires many explanations of terms that are added to the target text. Moreover, the presupposed knowledge and the explicit source text information have to be connected, and moreover in a linguistic and medial form (only one proposition per line, enhanced font type and spacing etc.) that enables the EL users to follow.

As a consequence, the target texts might contain the same amount of information, but will simultaneously become excessively long. These texts might locally enable comprehension; but as a whole, they tend to overburden users with communication impairments (cognitive overload, Sweller 2005, Sweller/Merriënboer van/Paas 1998, for an application to EL cf. Bredel/Maaß 2016: 272f). If, for example, a regular subpoena is translated into EL including all the necessary information, the target text will contain 30 or more pages (Rink 2020: 393f). It will not deprive users of any potentially required information and will be accessible as far as the word and sentence levels are concerned. But it will present a barrier to EL users on the text level as the nature of their impairment does not allow for overly long texts and excessive amounts of information to be processed. Very long texts used in a legal context also carry the additional risk that they will not be particularly acceptable to the target audience (Rink 2020: 79ff).

Even if every piece of given information is potentially comprehensible and the text does not presuppose any previous knowledge, it still does not work as a whole. The amount of new information leads to cognitive overload. It is simply not possible to introduce many new concepts, directly build on them and use them within the same text, especially in the context of communication

impairments or disabilities. In this case, comprehension remains limited to parts of the text – if users even attempt to tackle an overly long text at all.

While users might understand the EL explanation of a term, this could result in the full consumption of the available resources required for the comprehension process. In this case, users will not be able to relate different pieces of information or instruction given in the text or extract the main content. And they will not be able to retain the information and act on this basis. If the source text comprises only a few pages and the target text is very extensive, this might diminish motivation and lead to a reduced acceptability level of the target text or even frustrate the target audience as well as overload their working memory.

Translations that correspond to Scenario A are frequent in EL legal and administrative translation in Germany. They are, however, neither adequate nor satisfying and might even prove to be dysfunctional (see the results of Rink's 2020 analysis of typical EL Scenario A texts in legal and administrative communication).

2.2 Scenario B: The target text contains processable amounts of information but lacks content

The typical constellation in Scenario B again consists of a source text that is dense and technical, but adequate for the originally intended audience of experts. The target text, on the other hand, contains only very little and trivial information. These types of texts are very typical in the current situation in Germany (Rink 2020). Translators refer to the communication impairment or limited cognitive capacity of the target audience and do not even attempt to confer the information of the source text in a way that enables users to participate. Therefore, it is not possible for users to act appropriately in the target situation based on the information derived from the text. This leads to trivial and information-poor target texts that cannot be used to develop knowledge on the subject of the source text.

These target texts are mere alibis for presumed accessibility: As the legal situation requires authorities to provide certain groups of users with EL texts, in the absence of better alternatives they often publish EL target texts even if they obviously belong to Scenario B. These texts are symbols for the difficulty of EL on the text level, but are, at the same time, an emblem of failure of EL

translation. Target texts in Scenario B approach the subject only superficially and do not intend nor achieve to develop knowledge among the users. It is questionable whether they are really helpful for the users on a conceptual level and are able to grant participation in discourse and action. The contracting authority might be under the impression that the duty to grant communicative accessibility has been fulfilled when, in reality, the texts do not meet this demand. However, the target texts are short enough to be processed and will mostly not frustrate users due to information overload.

Translations corresponding to Scenario B are most frequent in EL legal translation even though they are neither functional nor ethically acceptable. They have the tendency to stigmatise the target audience as they visibly do not meet the requirements of the subject. Very often, the texts come in a visual shape that considerably differs from the source text (Maaß 2019b, 2020). They often contain images that are inadequate for an adult audience, irrespective of communication disability or cognitive impairment. As texts corresponding to Scenario B that follow the described special visual design are very frequent in Germany, the target audience might even be primed to look for such texts. This further increases stigmatisation and leads to a poor reputation of EL texts in the German public discourse on accessible communication (Bredel/Maaß 2019, Maaß 2019b, 2020).

2.3 Scenario C: The target text is retrievable, perceptible, comprehensible, linkable, acceptable and action-oriented

As we have shown, target texts in Scenario A remain barriers for users with communication impairments: While source texts are linguistic barriers on word and sentence levels as well as barriers with regard to expert language, expert knowledge etc., the target texts remain cognitive barriers at least on the text level. They are not adequate for the target audience and will not empower them in the target situation as intended by legislation. As they are rich in information they might be used in situated communication: An interaction partner, for example administration staff, could use them to communicate with the target audience on the subject in a clear and comprehensible manner. This way, the target audience would not need to retrieve information from a written text alone and transfer it to the target situation. On the other hand, the

administration staff would not have to conduct ad hoc transfers of complex content to expert-laypeople situations.

Texts in Scenario B are, in contrast, adapted to the communicative level of the target audience. But they are not sufficient to form frames and scripts on the subject that are functional for the target situation. They do not build up knowledge resources and do not fulfil the central functions of Easy Language: participation, learning, bridge building (cf. Bredel/Maaß 2016: 56f). As they only purport to enable participation, they are ethically compromised. They can nevertheless be helpful in situated communication to open up discourse and pave the way to face-to-face-interaction and more information input beyond Scenario B texts.

As presented, neither Scenario A nor Scenario B are suitable for creating EL texts that will empower the target audience. This leads to the conclusion that another scenario is needed: Scenario C. In Maaß (2019a: 294, 2019b), Rink (2020) and Maaß/Rink (2019) we postulate that adequate EL texts must have the following characteristics; they have to be:

- retrievable;
- perceptible;
- comprehensible;
- linkable;
- acceptable;
- action-enabling.

Scenario C comprises texts that exhibit these characteristics on word, sentence and text levels as well as in their medial realisation. They build up knowledge resources and represent the subject adequately without consuming too much of the target audience's cognitive capacity. They are neither overly long nor too short and trivial. They enable the users to act appropriately in the target situation.

It is obvious that Scenario C is an idealised model that will only partly be implementable in a concrete translation project. Scenario C is rather intended as a benchmark for translation strategies, a gold standard for EL translation. The following sections of the present article investigate how Scenario C can be achieved or approached in EL translation.

3 Linguistic, conceptual and medial strategies

EL translation encompasses three types of strategies: linguistic, conceptual and medial (Rink 2020: 60f).

Linguistic strategies comprise all measures of linguistic realisation that contribute to comprehensibility on word, sentence and text levels. Among those are, for example,

- the use of everyday vocabulary and a preference for short words,
- a simple sentence structure and restrictions on morphology,
- explicitation of implicatures and presuppositions,
- explanation and exemplification of technical terms or less common lexical items,
- a simple argument structure of the text,
- addressing the audience directly and providing clear indications on follow-up action.

Following these rules may represent a major challenge for translators, especially when translating expert texts. Complex issues have to be expressed with a restricted set of instruments while ensuring the correctness and functionality of the target texts.

Conceptual strategies are intimately linked to the linguistic strategies but focus on function and content rather than on external form. These are measures that enable users to build up knowledge on the text subject and thereby to enlarge the common ground between authors and users of the text. Among the conceptual strategies are, for example, the following:

- knowledge development on the subject of the text or its sections (Bredel/Maaß 2016: 520ff)
- management of the cognitive complexity of the arguments and internal text or section structure
- strategic orientation toward the prerequisites and demands of the target groups, for example with respect to choice and mode of presentation of the information (Rink 2020: 389f et passim). This refers to the

macrostructure of the text and its sections. Advance organisers (Christmann/Groeben 2019) are an important means in this context and help condition the expectations of the target audience. Advance organisers provide information on a communication offer or represent the main propositions in a concise and processable way and may take the medial form of audio introductions, EL summaries, abstracts or prefaces.

The presence of conceptual strategies is the main difference to texts in Scenario A where they are mostly absent while translators mainly focus on linguistic strategies.

Medial strategies predominantly aim at a better perceptibility of the target texts, that is the perceptibility of the text surface. They also address acceptability issues. Among the strategies are the following:

- typographic structure (indentations, mediopoint, highlighting) (Bredel/Maaß 2016: 520ff)
- use of sign resources from different semiotic systems (visualisations, images, colour coding) (ibid.)
- connectivity between the sign resources from those different semiotic systems (ibid.)

These strategies facilitate perception as the first step of information retrieval. When addressing people with communication disabilities, not all sensory channels may be receptive. Thus, the use of diverse sign resources within a single text enables people with different communication needs to retrieve the information. Medial strategies may include techniques such as

- subtitling (Mälzer/Wünsche 2019),
- audio description (Benecke 2019),
- alternative texts for visual resources (Schütt 2019),
- text-to-speech systems (Kurch 2019),
- speech-to-text interpreting (Witzel 2019),
- QR codes (Rink 2020: 389f),
- audio tracks to accompany written texts (Rink 2020: passim),

- retrieval via gaze control (Folta-Schoofs 2019),
- use of the lorm alphabet or Talkers (Musenberg 2019) etc.

These techniques of accessible communication have seen a considerable increase in recent years, yet they are rarely applied in EL translation that is still predominantly text-based in the narrow sense. They require cooperation between professionals from different areas: translators, interpreters, graphic designers, layout specialists, communication designers and other types of experts. These cooperations still do not occur very often but are a prerequisite for a functional EL text practice. The added costs of these measures will have to be taken into account if accessible communication for users with diverse needs in a pluricentral, media-determined society is the aim.

In practice, EL texts in both Scenario A and B are often as linguistically easy as possible. Texts in Scenario A have an accessibility issue on the text level while texts in Scenario B exhibit a conceptual and medial realisation that is inadequate and potentially stigmatising. Both Scenarios usually do not exploit medial strategies exhaustively and remain bound to a realisation as a written text. It has to be acknowledged that the different medial realisations are necessary to create accessibility for people with diverse needs and conditions. The different medial realisations are rarely taken into account right from the beginning of the conceptualisation process. Taking into account medial strategies has a huge potential for accessible communication projects. This is one important step towards the imaginary Scenario C that we postulate as the gold standard of EL translation.

4 Text types in EL translation

With reference to Becker-Mrotzek (1999), Rink (2020) differentiates between four different types of texts:

1) **Information texts:**
   Information texts grant access to content and create knowledge resources (Rink 2020: 125). Typical representatives are information brochures, news or encyclopaedic information in all kinds of media formats.

2) **Interaction texts:**
   Interaction texts presuppose knowledge resources and initiate further text-related action. Typical representatives are standardised forms, subpoenas or payment requests.

3) **Instruction texts:**
   Like information texts, instruction texts grant access to content and create knowledge resources, but are normative and action-defining, often within an institutional setting. Typical representatives are textbooks, tutorials of different mediality, recipes, instruction leaflets or manuals.

4) **Entertainment texts:**
   Entertainment texts offer a welcoming change, are lighthearted, interesting and easy to consume (Klein 1997). They contain creative elements and are aesthetically pleasing. Typical representatives are formats that are fictional or partly fictional. They come in different medialities (novels, movies, comics, tabloids, AV-infotainment etc.)

The four text types are prototypes; many texts are hybrids (as the last two examples show). Depending on which text type the source text belongs to, it is more or less possible to achieve Scenario C in EL translation. The four text types require different kinds of translation strategies.

As Rink (2020) and Keller (in the present volume) show, **information** and **instruction texts** might, in their realisation, lean toward Scenario A or B. They might nevertheless build up knowledge on the text subject to a certain extent. The aim of EL translation is to develop them toward Scenario C. This requires translators to accept their responsibility and resolutely carry out interventions to render the content in a way that adheres to the users' capacities and needs. This may be achieved by

- information cutting and choice,
- new conceptualisation of macrostructure and main content,
- strategic addition of content,
- integration or cancelling of knowledge resources,
- rearranging or outsourcing parts of the content,
- different semiotic resources like visualisations, charts and maps,

- shift of mediality (video, audio, added pdf, QR code),
- etc. (Rink 2020, Maaß 2019a,b, Maaß/Rink/Zehrer 2014)

Linguistically, the target texts are situated within the rule set of EL. At the same time, they must not lose sight of the acceptability issue (cf. Rink 2020, Gutermuth 2020, Maaß 2020, Hansen-Schirra/Maaß in the present volume).

Depending on whether **entertainment texts** are fictional or partly fictional, it is more or less feasible to achieve Scenario C (Maaß/Hernández Garrido in the present volume). The reduction in the linguistic set of instruments as proposed in the EL rule sets conflicts with the aesthetic language function, setting a limit to fictional formats in EL translation (Bredel/Maaß 2016: 171ff; Maaß 2019a). There are also restrictions with regard to formats where EL is only a part of the textual whole: EL audio description, for example, does not make sense if the other components of the audio track are non-EL conform (Maaß/Hernández Garrido in the present volume). In contrast, if the verbal elements of the audio track consist exclusively of the audio description (that means, if there are no dialogues), EL audio description might be an option.

As shown, Scenario C can in principle be achieved for information, instruction and entertainment texts. This is not the case for **interaction texts**. Interaction texts are closely connected to the subject matter and require defined types of action that are appropriate in the target situation. In some cases, like for example, standardised forms, the source text will not vanish in the translation: EL texts usually assist in form completion; there are normally no EL standardised forms to replace the source text. The reason is that EL texts are not legally enforceable (Maaß 2015, Rink 2020: 45 et passim). Therefore, they are basically irreducible.

Thus, in case of interaction texts, information from the source text cannot be, ad libitum, …

- … cut or outsourced;
- … rearranged or shifted;
- … conceptualised in a different way.

This results in EL interaction texts mainly adhering to Scenario A. Thus, they usually do not enable users to overcome the cognitive barrier but are restricted to help them overcome language or expert language barriers.

However, there is the possibility to use medial strategies in order to help users participate:

- interactive pdf,
- audio tracks,
- progress bars to show how far the user has gone in filling-in a form,
- etc.

Rink (2016, 2020) shows that for legal or administrative texts, accessible communication reaches its boundaries: not all barrier types can be overcome by EL in written texts alone. There will be situations, especially for interaction texts, where direct human-to-human interaction in adequate accessible formats is needed and cannot be replaced by EL texts. The aspiration, as formulated in the UN CRPD and German legislation, to enable all people with disabilities to participate directly without any help in all kinds of discourse proves non-realisable with the currently available means.

5 Conclusion

We have discussed that Scenario A and B are frequent in EL translation but are not sufficient to empower the target audience. This leads us to the conclusion that another scenario is needed. We called it Scenario C and postulated it as the gold standard for EL translation. Achieving Scenario C calls for trained translation professionals and cooperation between a multiprofessional team of text experts (Hansen-Schirra/Maaß 2019, Maaß 2015, 2019b, also cf. Risku 2016 for interlingual translation). This requires more monetary commitment on the part of the clients and contracting authorities. This commitment will result in accessibility of communication in a diverse and ageing society.

Yet, we have also argued that, irrespective of the human and monetary resources implied, Scenario C may be unattainable depending on text types. EL translation is not the only means to grant accessibility of content and partici-

pation through communication. Kröger (in the present volume) shows that "text" has to be conceived in a broader sense: Accessibility might be achievable if communication is not reduced to specific forms of text. The difficulty of translating interaction texts into EL written formats is a good example: EL has its limits. In order to achieve participation, we have to abandon the idea that written text alone can fix the problem. If we are open to other forms of interaction, Scenario C will be within reach.

Works cited

Becker-Mrotzek, Michael. "Die Sprache der Verwaltung als Institutionensprache". Eds. Lothar Hoffmann, Hartwig Kalverkämper, and Herbert E. Wiegand. *Fachsprache. Ein internationales Handbuch zur Fachsprachenforschung und Terminologiewissenschaft*. 2. Volume. Berlin, New York: De Gruyter, 1999. 1391–1402. Print.

Benecke, Bernd. "Audiodeskription – Methoden und Techniken der Filmbeschreibung". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 455–470. Print.

Bredel, Ursula, and Christiane Maaß. *Leichte Sprache. Theoretische Grundlagen, Orientierung für die Praxis*. Berlin: Duden, 2016. Print.

Bredel, Ursula, and Christiane Maaß. "Leichte Sprache". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 251–271. Print.

Christmann, Ursula, and Norbert Groeben. "Verständlichkeit: die psychologische Perspektive". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 123–145. Print.

Clark, Herbert. *Using Language*. New York: Cambridge University Press. Print.

Federal Act on Equality for People with Disabilities / Behindertengleichstellungsgesetz des Bundes / BGG 2018.

Fillmore, Charles J. "Frame semantics". *Linguistics in the Morning Calm*. Seoul: Hanshin Publishing Co., 1982. 111–137. Print.

Folta-Schoofs, Kristian. "Apparategestützte Kommunikations- und Feedbacksysteme". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 345–359. Print.

Gutermuth, Silke. *Leichte Sprache für alle? Eine zielgruppenorientierte Rezeptionsstudie zu Leichter und Einfacher Sprache*. Berlin: Frank & Timme, 2020. Print.

Hansen-Schirra, Silvia, and Christiane Maaß. *Translation proper. Kommunikationsbarrieren überwinden. Hildesheim,* 2019. Web. 15 October 2019. <https://nbn-resolving.org/urn:nbn:de:gbv:hil2-opus4-9687>.

Klein, Josef. "Kategorien der Unterhaltsamkeit. Grundlagen einer Theorie der Unterhaltung mit kritischem Rückgriff auf Grice". Ed. Eckhard Rolf. *Pragmatik. Implikatur und Sprechakte*. Opladen: Westdeutscher Verlag, 1997. 176–188. Print.

Kurch, Alexander. "Produktionsprozesse der Hörgeschädigten-Untertitelungen und Audiodeskription: Potenziale teilautomatisierter Prozessbeschleunigung mittels (Sprach-) Technologien". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 437–453. Print.

Maaß, Christiane. *Leichte Sprache. Das Regelbuch*. Münster: Lit, 2015. Print.

Maaß, Christiane. "Übersetzen in Leichte Sprache". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019a. 273–302. Print.

Maaß, Christiane. *Easy Language and beyond: How to maximize the accessibility of communication*. Hildesheim, 2019b. Web. 15 October 2019. <https://nbn-resolving.org/urn:nbn:de:gbv:hil2-opus4-9963>.

Maaß, Christiane. *Easy Language – Plain Language – Easy Language Plus. Balancing Comprehensibility and Acceptability*. Berlin: Frank & Timme, 2020. Print.

Maaß, Christiane, and Isabel Rink. "Über das Handbuch Barrierefreie Kommunikation". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 17–25. Print.

Maaß, Christiane; Rink, Isabel, and Christiane Zehrer. "Leichte Sprache in der Sprach- und Übersetzungswissenschaft". Eds. Susanne J. Jekat, Heike Elisabeth Jüngst, Klaus Schubert, and Claudia Villiger. *Sprache barrierefrei gestalten. Perspektiven aus der Angewandten Linguistik*. Berlin: Frank & Timme, 2014. 53–85. Print.

Mälzer, Nathalie, and Maria Wünsche. "Untertitelung für Hörgeschädigte (SDH)". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 327–344. Print.

Musenberg, Oliver. "Unterstützte Kommunikation". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 361–380. Print.

Rink, Isabel. "Zur Übersetzung juristischer Fachtexte in Leichte Sprache am Beispiel des Pilotprojekts 'Leichte Sprache in der Niedersächsischen Justiz.'" Ed. Nathalie Mälzer. *Barrierefreie Kommunikation – Perspektiven aus Theorie und Praxis*. Berlin: Frank & Timme, 2016. 257–273. Print.

Rink, Isabel. *Rechtskommunikation und Barrierefreiheit. Zur Übersetzung juristischer Informations- und Interaktionstexte in Leichte Sprache*. Berlin: Frank & Timme, 2020. Print.

Risku, Hanna. *Translationsmanagement. Interkulturelle Fachkommunikation im Informationszeitalter*. Tübingen: Narr, 2009, 2016. Print.

Schütt, Marie-Luise. "Alternativtexte als wesentliches Gestaltungselement zugänglicher (barrierefreier) Bildungsprozesse". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 545–564. Print.

Sweller, John. "Implications of cognitive load theory for multimedia learning". Ed. Richard E. Mayer. *The Cambridge Handbook of Multimedia Learning*. New York: Cambridge University Press, 2005. 19–30. Print.

Sweller, John; van Merriënboer, Jeroen J. G., and Fred G.W.C. Paas. "Cognitive architecture and instructional design". *Educational Psychology Review* 10 (1998): 251–296. Print.

Witzel, Jutta. "Ausprägungen und Dolmetschstrategien beim Schriftdolmetschen". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 303–325. Print.

Loraine Keller

People with Cognitive Disabilities and their Difficulties with Specialised Interactive Texts

1 Introduction

As we are aware of the importance of adapting comprehensibility enhanced formats to the needs of the target audience in accessible communication research, we must now strive to gain a deeper understanding of these needs (cf. Bredel/Maaß 2016, Bock/Lange 2017, Schuppener/Bock 2019, Rink 2020). Therefore, research that takes into account the text as well as the recipient is required (Maaß 2019b). Especially when it comes to expert texts in highly technical fields – linguistically as well as conceptually –, comprehensibility enhanced formats can help to overcome expert-lay-barriers (cf. Bromme/Jucks/Rambow 2004). One of the most essential technical fields of everyday life is the legal and administrative domain. This article presents a qualitative study in the field of accessible communication that focussed on the following question:

What kind of barriers do expert texts in the legal and administrative domain present for people with communication impairments?

2 Corpus background

A group of people with cognitive impairments and in some cases further disabilities was video-recorded while reading an expert text by a German transportation company. If their train is delayed by at least one hour, customers can receive a reimbursement of the transportation costs with the help of this document. As travelling and mobility are important matters for an independent everyday life, the text was found to be highly relevant, especially for the target group. The text consisted of a classic corporate text passage aimed at customers followed by an administrative form for completion.

The text in the study was not a comprehensibility enhanced version but the original, legally binding administrative form of the transportation company. Legal texts as such often pose many comprehensibility problems because of their expert language on the text side and the inferior linguistic or conceptual knowledge of laypeople who are confronted with them on the recipients' side (cf. Rink 2020). The chosen text of the study was even more challenging as it presents a specialised administrative text that implies a lot of prior knowledge and active interaction of the recipients: A form presupposes a lot of cultural knowledge and is only a complete text when completed (Becker-Mrotzek/Scherner 2000). Therefore, difficulties in understanding and acting on the basis of this form – especially for the examined group of laypeople with communication impairments – were assumed to exist (Rink 2020, Maaß/Rink 2019). What exactly would pose problems for the target group was at the centre of this study's analysis.

3 Methods

The target group of the study was video-recorded while reading passage after passage of the text and talking about it with an assistant. This person tried to guide the target persons through the text and also assisted in the most difficult part of this session: the completion of the form. The video of the session was transcribed using the GAT method (cf. Selting et al. 1998) and qualitatively analysed in relation to the research question: What kind of barriers does the text present for the target group of people with communication impairments?

To be able to put the analysis into a concise theoretical framework which could be reproduced by other researchers, Rink's (2020) table of the Barrier Index was used. Text passages which were relevant to the research question were selected in the transcription text and classified based on the Barrier Index.

4 Theoretical framework

Rink (2020) suggests looking both at the recipients and the text to determine the level of difficulty in text reception: She proposes a classification of text barriers and forms of communication impairment and places them into interdependency. These correlations result in an addition of points for every pair (a

certain text barrier with a certain form of impairment) and is called the Barrier Index (ibid.). Depending on the number and form of text barriers in correlation to the disabilities of the reader, a text can be classified as either rather comprehensible or very difficult.

	Type of barrier	sensory barrier	cognitive barrier	motoric barrier	language barrier	cultural barrier	expert knowledge barrier	expert language barrier	media barrier			Barrier Index (BI)
									phonic	graphic	medium	
Addressees of scenario 5	(laypeople)	0	0	0	0	0	1	1	0	0	0	2
Addressees in scenario 5' (laypeople with communication impairment)	functional illiteracy	0	0	0	0	0	1	1	0	1	0	3
	German as a second/ foreign language	0	0	0	1	1	1	1	0	0	0	4
	learning difficulties	0	0	0	0	0	1	1	0	1	0	3
	Aphasia	0	0	0	1	0	1	1	0	0	0	3
	Dementia	0	1	0	0.5	0	1	1	0	0	1	4.5
	cognitive disability	0	1	0	0.5	0	1	1	0	1	0	4.5
	prelingual hearing impairment	1	0	0	1	1	1	1	1	1	1	8
	visual impairment	1	0	0	0	0	1	1	0	1	1	5

Table 1: Barrier Index by Rink (2020: 143)

This classification is intended to help translators or other comprehensibility enhanced text creators to anticipate what kind of barriers in a non-optimised text make the text difficult to understand and which forms of disability could hinder successful text reception on the recipients' side (cf. Rink 2019, 2020).

With regard to the target group of the study, addressees with cognitive impairments, the presumed barrier index consists of barriers in the area of cognition (1), and therefore also partly in the area of language (0.5), as well as in expert language (1), in expert knowledge (1) and the graphic realisation of content in relation to the media barrier (1) (cf. Rink 2020: 143). All in all, an index of 4.5 points was to be expected for the target group of people with cognitive disabilities (cf. ibid.).

5 Results

The target persons were not able to understand most of the content of the document nor could they act on its basis. Not only the complexity of the legal content of the form was highly problematic for the target group, but they also struggled with the expert language and the knowledge implied in the text. Speaking in categories of Rink's (2020) Barrier Index, barriers in the area of cognition (1), and therefore also partly in the area of language (0.5), as well as expert language (1) and in expert knowledge (1) and the graphic realisation of content in relation to the media barrier (1) were identified in the text for the target group. Overcoming these barriers would have been necessary to achieve successful reception of this text.

Example from corpus (00:00:00:42–00:00:02:33):

German form text	English translation
A: sehr geehr? fahr fahr angestellter ne fahr fahr fahrgast	A: dear de? cus cus employee no cus cus customer
B: da […]	B: there […]
A: fahrstrecke formular[1] ((holt luft)) sehr geehrte kunden (,) sehr geehrte kundinnen wir be[2] bedauern sehr dass i ihnen durch eine ver spätung oder ein ausfall eines zuges zunehmlichkeiten[3]	A: driving route form[1] ((takes a breath)) dear customer* (,) we re[2] regret the convenience caused to y you by the de lay or cancellation of a train
E: UNan(.)nehmlich	E: INcon(.)venience[3]
A: entst (.) entstANden sind (-) um entschuldigung (.) entschuldigen uns daFÜR (.) […]	A a (.) and (-) for apology (.) apologise for thIS (.) […]
Z: […] und wie heißt das formular (?)	Z: […] and what is the name of the form (?)
A: das weiß ich nicht das (-) das hab ich nicht lesen können	A: I don't know I (-) I could not read it
E: FAHRgast	E: PASSenger
D: fahrgast (.) formular	D: passenger (.) form
C: fahrgaststrecke	C: passenger route
Z: nochmal bitte (?)	Z: again please (?)
F: fahrgast	F: passenger
C: strecke formular	C: route form
F: fahrgast	F: passenger
D: fahrgastRECHteformular ((lacht))	D: passengerRIGHTSclaimform ((laughing))
C: aber rechte formular is ja n wort was keiner mit was anfangen kann […] ((lacht B an)) NEIn ich hätte nochmal ne frage (.) formuLAR is aber n schweres wort	C: but rights claim form is a word that no one can relate to […] ((laughs at B)) NO I would like to ask a question (.) FORM is a really difficult word

* In the German form, the male and female forms for 'customer' are used: "Sehr geehrte Kundin, sehr geehrter Kunde", therefore, the German text is longer.

To keep the table structured, the numbers concerning the different types of barriers only appear once in the table, even if there is more than one passage showing the concerned barrier type.

1 Directly at the beginning, the readers have a problem at the word level: The linguistic complexity as well as the meaning of the word "Fahrgastrechteformular" (passenger rights claim form) overstrain the working capacity of the recipients (cf. Rink 2019, 2020). Therefore, a cognition barrier can be confirmed. Coming from the domain of legal and administrative communication, the German name of the form also presents an expert language barrier and expert knowledge barrier which are hard to overcome for the readers.

2 Stopping mid-sentence, pausing, repeating and beginning words again show the difficulty with reading. People with cognitive impairments often struggle with graphic realisations of content and are not used to reading (cf. Rink 2016, 2020). The media barrier (concerning the graphic realisation of information) is found here.

3 The language complexity of the form text can not only be seen in words of the legal and administrative domain like "Fahrgastrechteformular". Words of a higher language register like "inconvenience" also hinder the reading process. In this case, the opposite meaning of the word ("convenience") is read which is highly problematic. As the readers are native speakers of German, a language barrier of 0.5 points is identified here (cf. Rink 2019: 31). Especially negation poses a problem in comprehension for people with communication impairments (cf. Sommer in this volume).

However, not only the expected barrier index for the target group of 4.5 points could be confirmed (cf. Rink 2019, 2020). Furthermore, cultural knowledge connected to the text type of the form such as what to do in the role of a customer, where to hand in the form and how to proceed in a reimbursement process was not available in the reception process of the target group. Fix (2008: 103) describes the knowledge of text types as a major part of the routines of a cultural community. As the members of the target group had a considerable lack of prior knowledge in the routines of the cultural community with regard to reading, processing and acting on the basis of the form, they were – only in this context and in this particular study constellation – proved to be incapable of performing a follow-up action. This result leads to the assumption that the individuals of the target group are very different from readers without impairments in terms of everyday knowledge and action ability. As most of the target persons have a legal guardian who takes care of these everyday life matters for them – first and foremost financial and legal issues – they did not know about certain concepts and processes. Some of them pointed out themselves that they were not allowed to deal with these kinds of things and that their guardians dealt well with them. Furthermore, some of the target persons added that they did not necessarily want to have too much to do with these issues and were fine with not being involved in administrative or finan-

cial processes as such. In terms of the Barrier Index, these observations led to adding 0.5 points in the category of cultural barriers in the analysis.

As, in any case, the target persons of the study belong to the culture they live in (Germany), this cultural barrier was suggested to be specified as a *diacultural* barrier in the study: Within a paraculture, which means the culture of a whole society, a culture of a smaller group can be found. This smaller group is determined by certain characteristics and is called diaculture (cf. Vermeer 1990: 59; Bredel/Maaß 2016: 183ff). I want to point out that the group of persons with cognitive impairments does not form a real diaculture as "a group which can be characterised by certain cultural features". They do not form their own culture that stands out from the larger culture community (cf. Vermeer 1990; vgl. Bredel/Maaß 2016: 209). The diacultural barrier simply addresses the fact that this group of recipients stands out with regard to a lack of text type knowledge and knowledge in decoding a text, as they "decode single words in linear order before being able to integrate them syntactically and interpret them semantically in the context of the text" (Bredel/Maaß 2016: 120). The expectation that people with cognitive disabilities struggle with reading comprehension thus could be confirmed (cf. ibid.). The target persons read aloud very slowly and had no intonation, they hesitated, made a lot of pauses and then began to read again. The expected lack of reading practice among the target persons and their limited experience with the processing of written information became apparent through these observations (cf. Rink 2019: 50; Bredel/Maaß 2016: 187; cf. Bader 2015: 164; cf. Maaß 2015: 17 on the decoding of meaning in the process of reading).

For these reasons, an action orientation of the target persons was not possible through the examined text, not even with the help of the assisting person in the session. This was reinforced even more in case of further disabilities: Some of the test persons had to face additional barriers such as a motoric barrier which can be problematic when turning the pages of a printed document (cf. Rink 2020: 155). Another person struggling with dyslexia was in even greater need of assistance when trying to fill out the form, e.g. with regard to the spelling of certain words.

6 Conclusion

The study presented here was explorative and only the beginning of further research projects in the field of comprehensibility and action orientation of texts for people with communication impairments. One can only assume that even a comprehensibility-enhanced text or an aid to fill out the form would not have had a strong impact on the results either: As we have seen, this very heterogeneous group of people with different levels of cognitive impairments and in some cases further disabilities was not able to comprehend the expert text and act on its basis due to a lack of prior cultural (text type) knowledge. They were not capable to remember and process any of the concepts that posed a problem in understanding because they did not know them. Furthermore, "common" expert-lay-text problems such as the expert language and the expert knowledge-based content (cf. Rink 2019) interfered with the success of text reception. It is therefore indispensable to think further ahead when creating comprehensibility-enhanced formats for people with communication impairments, particularly if the original text is an interactive expert text.

Comprehensibility does not only mean removing or overcoming a language barrier, but includes further factors like prior cultural knowledge of text types, social procedures and complex subjects. To make text types like the form functional in the reception situation, it is not enough to restrict sentence length or to select shorter and simpler words. Adjustments to the intended target audience have to be made (Maaß 2019a: 295ff, cf. Risku 2016), an audience which can be very diverse with regard to its cultural prior knowledge and to its type of disability (cf. Schuppener 2007: 111; cf. Fornefeld 2002). Therefore, it is not enough, as is demanded by law in Germany, to create an optimised text version like a text in Easy or Plain Language or a form completion aid which would only focus on certain linguistic simplifications (cf. BMJV 2016 § 11, 4 BGB). By law, the recipients of these optimised communication offers are limited to exactly the group of addressees that the presented study focussed on. This group of addressees can be confronted with a diacultural barrier that cannot be removed by only using some linguistic strategies of simplification. The access to information and interaction is provided by overcoming all barriers which can complicate the text reception for people with communication impairment.

Most studies so far focus on a single disability. It can be assumed that the barrier index will increase even further when multiple disabilities are taken into account. Especially for people with a sensual impairment, other formats than the usual monomedial text offers have to be found (cf. Rink 2019, 2020). The present study did not determine to what extent the many years of work in a test group for Easy Language and the associated expansion of reading skills and prior text knowledge had an effect on the text reception of individual target persons (cf. Bredel/Maaß 2016: 179). This aspect would need further research.

Easy Language surely can be a solution in this context, but it has to overcome only linguistic optimisation: As Rink (2020: 167) and Maaß/Rink (in this volume) suggest, all-encompassing text optimisation in terms of language, conception and mediality has to be elaborated. The target situation of text reception has to be at the centre of the text creation process to obtain texts that are perceptible and comprehensible at all levels mentioned above (cf. Maaß 2019a: 294f, 298ff).

Works cited

Bader, Markus. "Leseverstehen und Sprachverarbeitung". Eds. Ursula Rautenberg, and Ute Schneider. *Lesen: Ein interdisziplinäres Handbuch*. Berlin/Boston: De Gruyter, 2015. 141–168. Print.

Becker-Mrotzek, Michael, and Maximilian Scherner. "Textsorten der Verwaltung". Eds. Klaus Brinker, Gerd Antos, Wolfgang Heinemann, and Svend F. Sager. *Text- und Gesprächslinguistik. Ein internationales Handbuch der zeitgenössischen Forschung*. 1. Hb. Berlin/New York: De Gruyter, 2000. 628–641. Print.

Bock, Bettina M., and Daisy Lange. "Empirische Untersuchungen zu Satz- und Textverstehen bei Menschen mit geistiger Behinderung und funktionalen Analphabeten". Eds. Bettina M. Bock, Ulla Fix, and Daisy Lange. *Leichte Sprache im Spiegel theoretischer und angewandter Forschung*. Berlin: Frank & Timme, 2017. 253–274. Print.

Bredel, Ursula, and Christiane Maaß. *Leichte Sprache. Theoretische Grundlagen, Orientierung für die Praxis*. Berlin: Dudenverlag, 2016. Print.

Bromme, Rainer; Jucks, Regina, and Riklef Rambow. "Experten-Laien-Kommunikation im Wissensmanagement". Eds. Gabi Reinmann, and Heinz Mandl. *Der Mensch im Wissensmanagement: Psychologische Konzepte zum besseren Verständnis und Umgang mit Wissen*. Göttingen: Hogrefe, 2004. 176–188. Print.

Bundesministerium der Justiz und für Verbraucherschutz (BMJV). 2016. *Gesetz zur Gleichstellung von Menschen mit Behinderungen (Behindertengleichstellungsgesetz – BGG)*. Web. 24 January 2019. <https://www.gesetze-im-internet.de/bgg/BJNR146800002.html>.

Fix, Ulla. *Texte und Textsorten – sprachliche, kommunikative und kulturelle Phänomene*. Berlin: Frank & Timme, 2008. Print.

Fornefeld, Barbara. *Einführung in die Geistigbehindertenpädagogik*. 2nd ed. München u.a.: Reinhardt, 2002. Print.

Maaß, Christiane. *Leichte Sprache. Das Regelbuch*. Münster: Lit-Verlag, 2015. Print.

Maaß, Christiane. "Übersetzen in Leichte Sprache". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019a. 273–302. Print.

Maaß, Christiane. 2019b. *Easy Language and beyond: How to maximize the accessibility of communication*. Plenary Speech on the 2019 Klaara Network conference. Web. 10 January 2020. <https://nbn-resolving.org/urn:nbn:de:gbv:hil2-opus4-9963>.

Maaß, Christiane, and Isabel Rink. "Über das Handbuch Barrierefreie Kommunikation". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 17–25. Print.

Rink, Isabel. "Zur Übersetzung juristischer Fachtexte in Leichte Sprache am Beispiel des Pilotprojekts 'Leichte Sprache in der Niedersächsischen Justiz'". Ed. Nathalie Mälzer. *Barrierefreie Kommunikation – Perspektiven aus Theorie und Praxis*. Berlin: Frank & Timme, 2016. 257–273. Print.

Rink, Isabel. "Kommunikationsbarrieren". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 29–65. Print.

Rink, Isabel. *Rechtskommunikation und Barrierefreiheit. Zur Übersetzung juristischer Informations- und Interaktionstexte in Leichte Sprache*. Berlin: Frank & Timme, 2020. Print.

Risku, Hanna. *Interkulturelles Translationsmanagement. Interkulturelle Fachkommunikation im Informationszeitalter*. 3rd ed. Tübingen: Narr Francke Attempto, 2016. Print.

Schuppener, Saskia. "Geistig- und Schwermehrfachbehinderungen". Ed. Johann Borchert. *Einführung in die Sonderpädagogik*. München: De Gruyter, 2007. 111–148. Print.

Schuppener, Saskia, and Bettina M. Bock. "Geistige Behinderung und barrierefreie Kommunikation". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 221–247. Print.

Selting et al. "Gesprächsanalytisches Transkriptionssystem (GAT)". *Linguistische Berichte* 173 (1998): 91–122. Print.

Vermeer, Hans J. *Skopos und Translationsauftrag*. 2nd ed. Heidelberg: Selbstverlag, 1990. Print.

Sarah Ahrens

Easy Language and Administrative Texts: Second Language Learners as a Target Group

1 Introduction

Easy Language was established as a variety for people with learning disabilities (Bredel/Maaß 2016a: 140) but has been opened to further target groups such as second language learners (Bredel/Maaß 2016a: 169ff; BMAS 2014: 5). As some authors have already noted and criticised, the rules for Easy Language are tailored to the needs of people with learning disabilities and may not be suitable for other target groups (Kilian 2017; Heine 2017). For a closer look at Easy and Plain language such as definition and regulation in Germany see Hansen-Schirra and Maaß (this volume).

It has been shown that Easy Language texts – using the existing rules – are not universally suitable for German as a second language (GSL) learners (Heine 2017: 410). In this paper, GSL learners are defined as people who speak GSL at levels A1–B1. Using empirical data on refugees in Germany (Bundesamt für Migration und Flüchtlinge 2017/2018/2019), findings from the domain of second language acquisition (Scheible/Rother 2017) and the Common European Framework of Reference for Languages (CEFR) (Section 4), the premise was to design a set of criteria and translation methods for Easy Language texts, specifically in the administrative field, that are adequate for GSL speakers, specifically refugees (Section 6). To develop these criteria and translation methods (Section 6), an administrative text from the area of expert-laypeople communication, specifically a hearing concerning overpayments (*Anhörung zu Überzahlungen*) (Section 5), was chosen for translation. The criteria and translation methods have yet to be empirically corroborated.

This paper will first outline some features of German administrative language that are relevant to the source text (ST) (Section 2) before briefly outlining comprehensibility (Kercher 2013, Section 3). The target group, GSL learners and more specifically refugees in Germany, will be characterised in Section

4. Section 5 will present the source text, the hearing concerning overpayment and Section 6 will discuss the chosen Easy Language criteria and translation methods that were used to translate the TT on the basis of all considerations in Sections 2–5.

2 Administrative language

This section will highlight some of the more prominent features of German administrative language that were found in the hearing concerning overpayments (Section 5). First, the complexity levels of administrative language will be discussed before showing some linguistic devices within German administrative language. These devices will be illustrated by giving examples.

German administrative language offers little reduction of complexity in expert-laypeople communication compared with expert-expert communication (Wagner 1984: 97). According to Hoffmann (1985), expert language manifests five levels of complexity – from highest complexity (communication between scientists within a field) to lowest complexity (communication between experts and laypeople) (Figure 1).

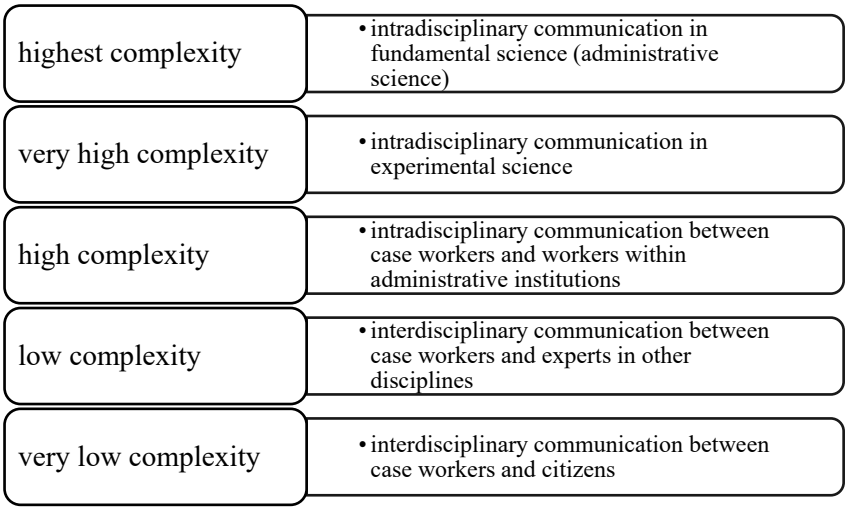

Figure 1: Complexity Levels within expert language (Hoffmann 1985, adapted for administrative language)

Figure 1 shows Hoffmann's (1985) complexity levels as adapted to administrative language. At the level of very low complexity, administrative texts must be adjusted to the knowledge levels of laypeople. Within German administrative practice, this complexity reduction does not take place sufficiently. Any reduction to a standard complexity targeted towards standard readers is not comprehensible enough for Easy Language target groups. It is necessary to establish a sixth complexity level which would concern the interdisciplinary communication between case workers and citizens who belong to an Easy Language target group. Rink (2020: 107ff) establishes such an addition for Kalverkämper's communication constellations (Kalverkämper 1998: 34f, translation S. A.):

1. Experts of a field speak about topics of their field of expertise
2. Experts of a field speak about topics of a different field of expertise
3. Experts of different fields speak about topics of one of their fields of expertise
4. Experts of different fields speak about topics of a different field of expertise
5. An expert of a field speaks with a layperson about topics of their field of expertise
6. An expert of a field speaks with a layperson about topics of a different field of expertise
7. Laypeople speak about a field of expertise

Rink (2020: 107ff) adds category 5' to categorise the constellation "an expert of a field speaks about topics of their field of expertise with a layperson who has certain requirements for accessible communication due to an impairment in a way that is appropriate for the layperson" (translation S. A.).

Having established the layers of expert-laypeople communication within the administrative domain, the following sections will discuss selected features of administrative language that are relevant to the hearing. German administrative language is usually characterised as abstract, complex and impolite (Händel et al. 2001; Wagner 1984). The analysis of the ST *Anhörung zu Überzahlungen* proves abstractness and complexion but refutes the impoliteness claim to a certain extent. Abstractness, complexity and impoliteness often influence each other, so the separation is for analytical purposes only.

German administrative language, like German legal language (Rink 2020), uses nominalisations (derivation and compounds), light-verb constructions and the passive voice, among other devices, to abstract from the individual case so as not to address the recipient directly (Wagner 1984, Händel et al. 2001: 142). Derivations have similar effects; their additional benefit is that they shorten sentences (Händel et al. 2001: 142). Compounds are used to express a circumstance very concisely (Wagner 1984: 34, Bredel/Maaß 2016a: 498); they take the function of expert terminology. The following example shows how compounds abstract from the individual case in comparison with a complex nominal phrase:

Example compounds:
Compound: *Anhörungsverfahren* (hearing process)
Complex nominal phrase (relation to the individual case): *das Verfahren Ihrer Anhörung* (the process of your hearing)

Expert terminology summarises knowledge from an expert field so experts can communicate concisely and precisely. Administrative language not only uses their own expert terminology (*fachspezifisch*), but also borrows from other expert languages as well as everyday language (*fachgeprägt*) (Bredel/Maaß 2016a: 350). Expert terminology is, however, not accessible to laypeople who lack the expert knowledge that is summarised within a term.

Like compounds, light-verb constructions are part of expert administrative terminology. Light-verb constructions are phrases consisting of a noun and a verb. The noun carries meaning while the verb fulfils a solely syntactic function. Light-verb constructions can be replaced by a single verb, except for those that have gained the status of terminology. The following example shows a light-verb construction and a single verb that may replace it, if not used in the realms of expert language:

Example light-verb constructions:
Light-verb constructions: *Widerspruch einlegen* (to lodge an opposition)
Verb: *widersprechen* (to oppose)

In administrative language, *Widerspruch einlegen* carries the additional meaning of the process and rules of opposing an administrative decision. The verb

widersprechen does not carry the same meaning in administrative language and processes.

Between experts, expert terms condensed in nominalisations and light-verb constructions are important devices to express meaning precisely and concisely. In expert-laypeople communication however, these expert terms can only be comprehended by one party (Wagner 1984: 24f). Laypeople tend to see no difference between *Widerspruch einlegen* and *widersprechen*. It solely makes a difference in legal certainty: Administrative texts may not be contestable in court (Wagner 1984: 25). This fact is most often cited as the reason for using expert language in communication with laypeople (Wagner 1984: 25).

The passive voice allows the user to put focus on the process instead of the actant – the single case worker is not in the foreground, but the institution is (Händel et al. 2001: 143). In addition to the passive voice, there are several passive alternatives, most notably the infinitive with 'zu', which is shown in this example:

Example infinitive with 'zu':
*die Leistungen sind **zu erstatten*** (the benefits are to be repaid)

The infinitive may be used to give an instruction as a general directive instead of an individual request, abstracting from the individual case (Wagner 1984: 18).

The passive voice, infinitive and modal verbs are used to replace the imperative mode. In the case of an infinitive, a general directive replaces an imperative to save the recipient's face. In the case of modal verbs, they are perceived as politer than a simple imperative (Wagner 1984: 22). Modal verbs such as *können* (may, can) may present a request as an opportunity rather than an instruction. Modal verbs are an important feature of administrative and legal language as they express the gradient between 'being allowed to do something' and 'being required to do something'.

Complexity is, among others, brought about by premodifiers (Wagner 1984), passive voice and passive-like constructions, intertextual references and the subjunctive mood (*Konjunktiv II*).

Premodifiers cause a complex phrase structure and multiply the propositions within a sentence (Wagner 1984: 54f). In German administrative language, premodifiers can be adjectives, participles and nouns (Wagner 1984:

37ff; Händel et al. 2001: 140). The following examples show some premodifiers from the ST:

> Examples for premodifiers:
> Adjective: *zu einem **späteren** Zeitpunkt* (at a **later** date)
> Participle: *die **überzahlten** Leistungen* (the **overpaid** benefits)
> Nouns (nominal premodifier): *der **Anspruch** auf Leistungen* (the **entitlement** to benefits)

Subordinate clauses can be avoided using premodifiers. Just like compounds and light-verb constructions, nominal premodifiers can constitute expert terminology (Wagner 1984: 42). One such specificied phrase with a nominal premodifier is *Sicherung des Lebensunterhalts* (assurance of livelihood), which is a hypernym for many kinds of social benefits in Germany. Using the hypernym, the author avoids specifying which kind of benefit the recipient receives and the text may be used for various recipients regardless of their benefits (see Section 6).

As premodifiers cause a complex phrase structure, readers take longer to separate phrases (Kercher 2013: 75) and take longer to comprehend the intended meaning (King/Greeno 1974: 233). Their shared meaning may only be comprehended at the end of the phrase. As words are interpreted as soon as they are read (Just/Carpenter 1980), weak readers may have to read the premodifiers and their noun multiple times to identify their intended joint meaning.

Intertextual references are often inserted into the sentence and mainly reference legislative texts (Wagner 1984). In the hearing, they are placed at the end of a sentence. The hearing references legislative texts and past and future decisions, but also contains intratextual references. Intratextual references are mainly drawn between the text and the included tables but also between text parts. Legislative texts in the hearing are referenced explicitly, citing their title, as shown in the following example:

> Example reference to legislative texts:
> *§ 24 Zehntes Buch Sozialgesetzbuch – SGB X* (Section 24 Book Ten of the Social Code)

References to legislative texts hold true for all cases. Past and future decisions however vary from case to case and as administrative texts use text modules (Sections 3, 5), they cannot be cited individually. Instead, recipients have to find out for themselves which decisions (*Entscheidung* or *Bescheid*) are referenced in the hearing (Section 6).

All the linguistic features described are found in the hearing. Wagner (1984) lists more features that make German administrative language complex, abstract and impolite. Her analysis is, however, more than 35 years old. The hearing is an example for the changes that have since been made to make administrative language more accessible. It respects many rules that have been proposed to make administrative language more accessible (e.g. Berger 2004). A broad analysis of current administrative texts would shed light onto the remaining issues with comprehensibility in administrative language (cf. Rink 2020; Wolfer 2017).

3 Comprehensibility

This section will outline the most relevant influences on comprehensibility, using Kercher's (2013) analysis of the comprehensibility of political speeches. Kercher (2013: 39) states that political speeches display a low comprehensibility level because they address a wide range of target groups. They can therefore not be tailored to the needs of a specific group. The same holds true for administrative texts. Rink (2020: 122) on the basis of Becker-Mrotzek (1999: 1395) establishes that interactive administrative texts – such as the hearing concerning overpayment (Section 5) – are targeted at multiple target groups at once: the citizen as a layperson on the one hand and the case worker as an expert on the other hand. Administrative texts are not tailored to the individual recipient, or to a specific target group, but consist of invariable text modules that can be used universally and some variable text parts that fit into the individual case (Section 5). As the text is produced for a large variety of target groups, the sender is not able to adjust the text to a specific level of comprehensibility (Kercher 2013: 39). The same holds true for Easy Language texts: Once produced, they are intended to be sent out to a large variety of people with – in the case of GSL learners – differing second language levels. It is evident from current administrative practice, in which text

modules are used instead of formulating a new text for each individual, that Easy Language texts in the administrative domain would have to be pre-written and thus invariable.

To comprehend a text, it must first be read. Reading is the "coordinated execution of a number of processing stages such as word encoding, lexical access, assigning semantic roles, and relating the information in a given sentence to previous sentences and previous knowledge" (Just/Carpenter 1980: 331). Reading as well as comprehending takes place on the lexical (word encoding, lexical access), the syntactical (assigning semantic roles) and the textual level (relating the information). Comprehension as a cognitive process is facilitated by the text quality 'comprehensibility' (Bredel/Maaß 2016a: 117ff; Rink 2020: 71ff). Comprehension is the creation of a consistent and coherent mental representation of what is written within the text (Schnotz 1994: 49). If this mental representation is congruent to the mental representation that the author had in mind, the text was comprehended correctly. If this is not the case, the text was misunderstood (Schnotz 1994: 33). If no consistent nor coherent representation was created, the text was not comprehended at all (non-comprehension). One of the main challenges in reading administrative texts is to correctly comprehend the text without any misunderstandings. Due to the shared terminology in administrative and everyday language, the reader can easily misunderstand concepts within the text (cf. Bredel/Maaß 2016a: 350) (Section 2).

On a lexical level, the following features influence comprehensibility positively:

- word frequency: locally within the text, but especially globally within the everyday language (Kercher 2013: 72f)
- word length: according to the Hohenheim Comprehensibility Index (cf. Kercher 2013: 380), a German word should have no more than 16 letters (Bredel/Maaß 2016a: 127f)

Words that are globally frequent, mostly function words, appear often in everyday language and can therefore be processed more quickly than less frequent words (Kercher 2013: 72f; for an overview of studies on letter and word frequency cf. also Balota et al. 2006). Function words are often skipped during the reading process as they are so well known (Just/Carpenter 1980: 338f;

Kercher 2013: 73). Local frequency heightens the meaning activation and interpretation for the text itself (Just/Carpenter 1980: 338f; Kercher 2013: 73). Longer words need more time to be read as the reader must decipher more visual information (Just/Carpenter 1980: 330).

On a syntactic level, comprehensibility can be facilitated with a clear phrase structure wherein all constituents are easily identifiable (Kercher 2013: 75), a reduced number of propositions within a sentence (Bredel/Maaß 2016a: 129) and a reduced length (Bredel/Maaß 2016a: 129). In a German standard sentence, 15 words are considered legible. A German sentence should contain no more than 20 words (Bredel/Maaß 2016a: 129).

Comprehension on a textual level means to cognitively connect the central propositions that are contained in separate sentences. Comprehensibility on a textual level is therefore dependent on a good understanding at the lexical and syntactical levels. If the working memory is overloaded by reading and/or by identifying the central propositions, there is no capacity left to connect these propositions to a coherent and consistent whole (Just/Carpenter 1980: 332; Bredel/Maaß 2016a: 120; Bredel/Maaß 2016b: 44f). Strong readers interpret words as soon as they read them. They connect them to phrases and finally sentences. Weak readers decipher one single word after the other and connect them only at the end of a sentence (Bredel/Maaß 2016a: 120). Their working memory is occupied with deciphering words which leaves little capacity for connecting them to phrases and to extracting sentence propositions. There are no resources left to comprehend information on a textual level (Just/Carpenter 1980: 332; Bredel/Maaß 2016a: 120; Bredel/Maaß 2016b: 44f).

Comprehensibility should be considered in any expert-laypeople communication. As shown in Section 2, comprehensibility has been incorporated in administrative language, but not to a sufficient extent. Producing a single text for many target groups is not ideal either, but necessary in the administrative procedure. The general findings on comprehensibility in this section may not hold true for the target groups of Easy Language (Bredel/Maaß 2016a: 148–172). Global word frequency may not mean that a word is well known within the target groups (Bredel/Maaß 2016a: 120). The knowledge that may be assumed for a standard reader may not be applicable for the target groups, so that the common ground (shared knowledge) between author and recipient is smaller (Bredel/Maaß 2016a: 187; Rink 2020: 176f). Additionally, a complex topic will remain complex regardless of how simple the linguistic presentation

is (Bredel/Maaß 2016a: 135). For further information on Easy and Plain Language in connection with processing costs see Hansen-Schirra/Bisang/Nagels/Gutermuth/Fuchs/Borghardt/Deilen/Gros/Schiffl/Sommer in this volume.

4 Target group: German as a second language learners

People who do not speak German are entitled to translations and, for oral interaction, to interpreters only in the asylum procedure and in court cases and administrative court cases (Bundestag 2017). For all other administrative proceedings, they depend on the help of volunteers.

This section will outline influences on GSL acquisition, particularly for refugees. First, the stages of entirely undirected GSL acquisition will be summarised. Then a curriculum for GSL will be summarised (NIBIS 2016) before outlining the influences on second language acquisition in general and – again – for refugees in particular. To conclude the section, the target group refugees in Germany will be characterised.

GSL learners learn German undirected in their everyday lives and not directed in their home country in their mother tongue (German as a foreign language, GFL). Undirected second language acquisition passes through three stages (Klein/Dimroth 2003: 151):

- no knowledge of the target language (TL)
- basic knowledge of the TL
- TL

Within the gradient between no knowledge and basic knowledge, the learners speak the TL using invariant phrases and easy, uninflected verbs, nouns, adjectives and particles (esp. *nein* (no)). During this stage, syntactical structures are transferred from a speaker's mother tongue into the TL. This variety is strongly dependent on context and contains few anaphoric and deictic elements (Klein/Dimroth 2003: 151f).

The stage of basic knowledge is, to put it simply, characterised by a strict syntactical structure of subject-predicate-object even in subordinate clauses that require a different structure (*dann **sie will** nach Hause gehen* instead of *dann **will sie** nach Hause gehen* (then she wants to go home)) (Klein/Dim-

roth 2003: 153). Copula verbs are often omitted (Klein/Dimroth 2003: 154). During this stage, speakers use only a limited number of uninflected nouns, verbs, adverbs and adjectives and hardly any functional morphemes (prepositions, pronouns, articles) (Klein/Dimroth 2003: 153). This basic knowledge suffices for most communication purposes. Therefore, one third of all GSL learners do not develop their TL abilities any further (Klein/Dimroth 2003: 151f).

Language acquisition is usually partially directed: The Federal Office for Migration and Refugees (BAMF) requires foreign nationals to take an integration course if their level of German is insufficient for everyday life and if they receive benefits according to Book Two of the Social Code (*Zweites Sozialgesetzbuch – SGB II*) (BAMF 2018; Sections 44 and 44a Residence Act). Asylum seekers with a good prospect of staying, tolerated foreign nationals whose deportation has been temporarily suspended (Section 60 subsection 2 clause 3 Residence Act) (this does not include all tolerated foreign nationals) and residents on humanitarian grounds (Section 25 Residence Act) are entitled to an integration course. Integration courses will teach CEFR levels A1 to B1 over 600 hours (BAMF o. J.). All mentioned subgroups will fall under the term 'refugee' in this paper.

In order to estimate the language knowledge of integration course participants, it is useful to analyse a curriculum. The official curriculum for integration courses only defines goals (Goethe-Institut 2007), as does the CEFR, so the curriculum for GSL courses in schools published by NIBIS (*Niedersächsischer Bildungsserver*) will be used. It will be briefly summarised with respect to the features that are relevant to administrative language (Table 1).

Device	A1	A2	B1
Nouns	Plural forms	Plural forms Compounds Common derivations (*-ung*, *-heit*, *-keit*)	Genitive case
Adjectives	Predicative use Adverbial use	Declination Use as a premodifier	Declination
Verbs and tenses	Present tense of… … regular verbs … modal verbs … some irregular v. Preterit tense of… … *haben* and *sein*. Imperative mood participles for perfect tense (limited)	Reflexive verbs (briefly) Verbs with prepositions Perfect tense for… … regular verbs Preterit tense for… … regular verbs. Subjunctive mood (Konjunktiv II – briefly)	Participle I Preterit tense for… … irregular verbs. Past perfect tense Future I tense Subjunctive mood (Konj. II – partially)
Prepositions	Temporal P. (invariant phrases) Local P. (Dative case) (invariant phrases) Others (invariant phrases)	Temporal P. (invariant phrases) Others	Temporal P. Local P. Others
Pronouns	Demonstrative P. (*der, das, die*) Interrogative P. Personal P. (nominative, acc. cases) Possessive P.	Demonstrative P. (*dieser*) Personal P. (accusative, dative cases) Interrogative P. Possessive P. (acc., dat. cases) Indefinite P.	Demonstrative P. (*derselbe*) Indefinite P.
Syntax	Simple declarative sentences Coordinating conjunctions (*und*) Verbal bracket (modal verbs, separable verbs, perfect tense) Closed questions	Inverted sentence structure Subjunctive conjunctions (with main and subordinate clauses) Relative clauses (nom., acc. cases) Dative and accusative cases (with/without prepositions) Comparatives	Infinitive with 'zu' Subjunctive coordinations (with main and subordinate clauses) Relative clauses (dative, prepositions, interrogative pronouns) Comparatives
Negation	*Nicht, kein*	*Nie, nichts, niemand*	

Table 1: Summarised curriculum for GSL classes in schools (NIBIS 2016: 30ff)

The CEFR requires basic vocabulary when awarding level A1. This vocabulary should suffice to master everyday situations and to talk about one's immediate surroundings such as oneself, one's family, friends, food and drink, school or jobs. Concerning the reading level – the most important feature when interacting with administrative institutions – A1 speakers must be able to read short texts such as emails, text messages, signs and menus (NIBIS 2016: 14). A2 speakers must be able to understand and follow orders and explanations in class, in school, at the doctor's office and at administrative institutions. At level A2, the learner should be able to read longer texts such as easy magazine articles, manuals, recipes and advertisements (NIBIS 2016: 14f). B1 speakers must be able to handle conflicts and complaints. They must be able to read longer texts such as informative texts on a familiar subject, manuals, articles, especially those optimised for GSL-learners (NIBIS 2016: 15). As the hearing concerning overpayments is an expert text, it is not in the realms of any of the these reading levels. Therefore, an Easy Language translation is warranted.

A curriculum can only be used as an orientation when writing for GSL learners. Especially refugees as a target group may not speak German at the level that they are expected to. To anticipate actual abilities, we need to consider the various influences on second language acquisition. Scheible and Rother (2017) name three broader categories of influences on second language acquisition: motivation, opportunity and efficiency.

Influences on a learner's **motivation** are the cost of learning, their education, their attitude towards learning, the fear of losing their identity and the circumstances of migration or refuge. A learner may lose income learning a language or the cost for courses may be high. If the expected gain through second language acquisition is lower than the cost of it, then the motivation is low (Scheible/Rother 2017: 11). The literature usually discerns two attitudes towards language learning: Learners may see second language acquisition as a necessary instrument or they may see it as cultural enrichment (Scheible/Rother 2017: 12f). Refugees tend to learn GSL as an instrument (Plutzar 2016: 119), but it is not clear which attitude gets better results (Scheible/Rother 2017: 12f). Educated learners may have a more positive attitude towards a second language and may regard it as an enrichment (Scheible/Rother 2017: 12). The fear of losing their identity may hinder their wish to learn a language and to learn about the target culture (Scheible/Rother 2017: 12). Refugees often feel a strong connection to their country of origin, but an unlikely return perspective

increases the wish to stay long term which in turn increases the willingness to learn the TL (Scheible/Rother 2017: 12). Many refugees in Germany want to stay and plan their future in Germany (Scheible/Rother 2017: 12). Refugees, in many cases, do not learn the language of their receiving country before they flee (Scheible/Rother 2017: 12), so they have no prior language knowledge.

Opportunity is influenced by duration of stay, everyday language contact, children in the family and directed language assistance such as the integration course (Scheible/Rother 2017: 13). The longer the stay, the more opportunity to come in contact with the target language, however only communicative abilities will improve. Directed assistance is needed to enhance grammatical correctness and correctness in writing (Scheible/Rother 2017: 13). Language contact is more likely if German speaking friends, partners, colleagues and neighbours are present. The consumption of German media and a neighbourhood with few people from the same country of origin further language contact as well (Scheible/Rother 2017: 13). Children learn more quickly than adults and have much language contact in school. They can either help their parents learn German or they may act as interpreters and translators and thus hinder their parents' second language acquisition (Scheible/Rother 2017: 13).

Efficiency comprises all intellectual, cognitive and biological features that influence an individual's learning speed (Scheible/Rother 2017: 14). Efficiency is particularly dependent on the individual and most influences on efficiency cannot be used to draw any conclusions for the reading abilities of a target group. Some of the influences that allow for generalisation are age, sex, education, cultural and linguistic distance as well as linguistic competences in first and second languages. Most refugees display a large linguistic and cultural distance to German and German culture (Bundesamt für Migration und Flüchtlinge 2017/2018/2019), but as they are diverse in their cultures and first languages (Brücker/Rother/Schupp 2018: 33; Goethe-Institut 2007: 5), this feature only helps when writing for a specific group of refugees. To characterise the target group, age, sex, education and first language competence will be used. Age correlates negatively with (second) language acquisition – cognitive, neurobiological, social and psychological changes hinder language acquisition (Harr/Liedke/Riehl 2018: 12f). Second language acquisition that begins after puberty does not usually result in a native-like language competence unless the second language becomes the dominant language (Harr/Liedke/Riehl 2018: 12f). Sex as a social factor influences second language acquisition for example

through traditional gender roles (Scheible/Rother 2017: 15). On the other hand, girls tend to learn languages quicker than boys (Scheible/Rother 2017: 15). A high education is more likely to go along with a higher language competence in foreign languages (Scheible/Rother 2017: 12) and especially an education in the receiving country is beneficial for acquiring the target language (Scheible/Rother 2017: 12).

It has been shown that second language acquisition is dependent on a variety of influences, some of them highly individual. To produce a text for GSL learners, one should respect that not all GSL learners have the motivation, opportunity or efficiency to learn German quickly and/or well. A text that is sent out to a broad audience, such as administrative texts and – maybe in the future their Easy Language supplements – may best be targeted at the lower language levels A1–A2 instead of higher language levels. Especially the subgroup of GSL learners 'refugees' may be hindered by a fear of losing their identity, their connection to the home country, their lack of prior knowledge and other influences.

Refugees have a different migration experience than other GSL learners. The specific influences on second language acquisition with their migration journey and status must be considered. Trauma and stress are some of the more damaging influences on second language acquisition. Trauma, to put it simply, begins with a feeling of danger, peaks with a traumatic experience and may become chronic if people expect further danger and traumatic experiences (Becker 2006: 178). Only after a person is out of danger does the trauma solidify. Traumatic experiences can still happen during refuge. Another important influence is the consistent transitioning and waiting for the next step. Having reached the receiving country, refugees still expect to return to the country of origin (Becker 2006: 182), but also wait for their families to arrive, their course to start, their work permission etc. (Plutzar 2016: 118). After reaching the receiving country, refugees are immediately faced with overwhelming existential troubles such as their legal, economical or living situation (Becker 2006: 181). Crowded refugee hostels and the lack of privacy, lack of hygiene or even lack of nourishment and lack of safety are prevalent stressors (Plutzar 2016: 116). Having arrived in the receiving country, many refugees cannot speak the language and therefore rely on outsiders for help (Plutzar 2016: 118). Their independence is being sacrificed and refugees feel powerless (Plutzar 2016: 118).

Age / Year	2017	2018	Until June 2019	Average 2017–June 2019
18– under 25	18.9%	15.2%	14.4%	16.2%
25– under 30	11.4%	10.5%	10.5%	10.8%
30– under 35	8.6%	8.7%	9.0%	8.8%
35– under 40	6.0%	6.3%	6.4%	6.3%
40– under 45	3.8%	4.1%	4.2%	4.1%

Table 2: Percentage of 18-45-year-olds among all first-time asylum applicants in the years 2017, 2018 and the first half of 2019 in Germany (Bundesamt für Migration und Flüchtlinge 2017: 7, 2018: 7, 2019: 8)

As of June 2019, 16% of first-time asylum applicants were between the ages of 18–25. A further 20% were 25–35 years old and only 10% were 35–45 years old. In total, 2/3 of all 18–35-year-olds were male (Bundesamt für Migration und Flüchtlinge 2017/2018/2019). Brücker/Rother/Schupp (2018: 20) looked at all refugees in Germany (according to the Central Register of Foreign Nationals (AZR)) and determined that ¾ were male. According to Brücker/Rother/Schupp (2018: 20), 58% of all refugees in Germany were under the age of 30. As they constitute the largest group among the heterogenous group of refugees, the focus for this endeavour was put on 18–35-year-old men. As established earlier, the 'best age' for learning a language well is puberty – it is to be expected that 18–35-year-olds will gradually learn languages less easily (Harr/Liedke/Riehl 2018: 12f), hence the need for easier texts in every-day life.

A survey commissioned by the BAMF (Brücker/Rother/Schupp 2018 and Scheible 2018) determined that 15% of all surveyed refugees were illiterate in any written code, 51% were literate in a non-Latin written code and 34% were literate in the Latin written code (Scheible 2018: 1). A total of 61% of all refugees (62% of male refugees) had at least a low secondary degree of which 49% (51% male) had some form of secondary education and 12% (11% male) had at least one university degree (Brücker/Rother/Schupp 2018: 31). Of the surveyed refugees, 17% (16% of men) did not have any degree and 21% (22% male) had finished primary education (4–6 years of school). Of those surveyed, 80% assessed their oral and reading competence in their first language as very good (Brücker/Rother/Schupp 2018: 34). If the first language is not the

official language of a country, the competence tends to be lower (Brücker/Rother/Schupp 2018: 34). First language competence, particularly in reading and writing, is also lower in people with a lower education (Brücker/Rother/Schupp 2018: 34). As already mentioned, education has an influence on secondary language acquisition: Three years after their arrival in Germany, those with a higher secondary education assessed their second language competence in German higher than those with a lower secondary education (21% and 12% respectively assessed their competence as 'good' or 'very good'). The percentage of those who assessed their competence as 'good' or 'very good' rose with the level of education (27% for people with some form of university education and 38% of those with a doctoral degree). Only 6% of those with no or very little formal education assessed their second language competence as 'good' or 'very good'. The survey relies on the ISCED-11 categorisation as well as self-assessment by those surveyed.

Although Heine (2017) points out that GSL learners often progress very quickly and many are required to take an integration course, it is evident that a third of all learners remain at the basic level of second language acquisition (Klein/Dimroth 2003). Not only this third is dependent on either volunteers to help them with administrative issues or simplified language varieties such as Easy Language. Second language acquisition is dependent on a variety of different influences (Scheible/Rother 2017; Harr/Liedtke/Riehl 2018). For refugees, trauma and stress causes a particularly large burden on every aspect of their lives (Becker 2006; Plutzar 2016). As most of them are males between the ages of 18 and 35, and a relatively high percentage has only little education, it is advisable to focus on this target group. GSL learners have early contact with administrative texts, either before they come to Germany or shortly after. An example is the asylum application in the cases of many refugees. Translations are not always provided – especially not for texts that do not specifically target migrants, such as the hearing concerning overpayments. Easy Language texts may aid in the comprehension of these texts. How these Easy Language text should be translated still needs consideration (cf. Heine 2017; Kilian 2017). An inexhaustive attempt will be made in the following section.

5 Source text: Hearing Concerning Overpayments

The source text (ST) was selected for translation into Easy Language in cooperation with a local refugee relief institution. According to the project partner, the hearing concerning overpayments *(Anhörung zu Überzahlungen)* is one of the most common administrative texts that refugees who frequent the institution must face. The hearing is sent out to recipients of welfare payments who were receiving funds besides their benefits and were thus overpaid. Within the hearing, recipients are asked to provide a statement concerning their income and the overpayment. The hearing is supplemented by a reply form, a calculation of overpayment and a sheet containing all legal texts cited within the hearing. The hearing thus informs recipients and also solicits interaction (Rink 2020: 132).

Like many other administrative texts, the hearing is partly pre-written – it contains variable text segments as well as invariable passages. Variable segments concern a specific case and cannot be pre-written. Invariable segments remain true across all cases. To determine which parts of the hearing are invariable text modules, five hearings were collected and compared. A document with all invariable parts was created which served as the ST for the Easy Language translation. The hearing consists of three parts: suspension *(Aufhebung)*, repayment *(Erstattung)*, withdrawal *(Einziehung)*. As administrative letters are mostly pre-written, it must be assumed that Easy Language translations of these letters must also be pre-written (invariable) and be sent along with the hearing (Section 3). So far, Easy Language texts are used on websites but not as attachments to administrative letters. Hence, the Easy Language TT did not exist prior to this project.

6 Easy Language for GSL learners in administration

The Easy Language TT was translated from the ST (Section 5) and the criteria and translation methods in this section were formulated based on the translation process. The premise for the Easy Language TT was to be used within the refugee relief institution, although it would be desirable that Easy Language attachments be sent out with each administrative text. The institution offers help with administrative issues and the Easy Language TT is expected to min-

imise workload for volunteers as well as give recipients some independence. The Easy Language TT has not been tested on the target group. All suggestions within this section need testing.

In this endeavour, the Easy Language TT cannot be equivalent to the hearing as the texts have different communicative functions (cf. Bredel/Maaß 2016a: 188f; Maaß 2019: 285ff). While the hearing informs recipients of their possible overpayment and the possible re-calculation of their benefits while being legally certain, the Easy Language text informs the recipient of the contents of the ST to help them act on its basis. In this sense, the Easy Language TT must be adequate for the target group (Maaß 2019: 268f).

Translating an administrative text into Easy Language not only means changes at the lexical and syntactical level, but also changes at the textual level. This means mainly changes to the information structure. The target group's working memory is mostly occupied with identifying words and extracting sentence propositions (Section 3). A well-formed information structure may help to connect these propositions for textual comprehension.

To show the changes in information structure, this section begins with an outline of the structure of the hearing, before outlining the Easy Language TT structure: The hearing consists of three parts, separated by headlines, *Aufhebung* (suspension), *Erstattung* (repayment) and *Einziehung* (withdrawal) (Section 5). These parts consist of paragraphs with each paragraph covering a specific topic. At the top, the letter sets the context for the hearing: *Sie erzielten Einkommen* (you had an income) as well as stating that the recipient can make a statement about the potential overpayment but is not required to do so.

Aufhebung (suspension) contains the numbers connected with the potential overpayment (important dates, benefit payments and possible future payments) (Figure 2). *Aufhebung* contains an explanation (variable text part) to these numbers that includes the recipient's source, kind and amount of income. The explanation references the attachment calculation of overpayment and some legal texts that co-occur with phrases that secure legal certainty. At the end of the explanation it is repeated that the recipient has had an income, this time in connection with a legal text. The explanation part under *Aufhebung* is therefore partially redundant.

					Beträge in Euro	
Zeitraum	Bewilligung (B)/ Änderung (Ä) vom	Leistungsart	Betrag (bisher)	Betrag (neu)	Aufhebungssumme	Aufhebung ganz/ teilweise
01.09.2016 - 30.09.2016	08.06.2016 (B)	Bedarfe für Unterkunft und Heizung	535,25	337,80	197,45	teilweise
Gesamtsumme					**197,45**	

Figure 2: Example of a table under *Aufhebung* (suspension) (taken from a hearing)

Erstattung (repayment) usually contains references to the table under *Aufhebung* (suspension) (Figure 2). It is emphasised that the recipient should wait for a decision before repaying any money. The section *Einziehung* (withdrawal) explains how the overpayment may be repaid: actual repayment or charging the overpayment against the monthly benefits. Only at the end is the recipient informed that repayment is the usual method. This shows that not all related information is in the same place which raises the cognitive burden for the recipient (cf. Kercher 2013: 119). *Erstattung* (repayment) and *Einziehung* (withdrawal) cover two aspects of the topic repayment.

In the case of the hearing, repetitions, although furthering local frequency of some words (Section 3), serve legal certainty rather than comprehension. As repetitions do not occur close to each other, they lead to similar information being spread throughout the text. This – together with the similar parts *Einziehung* and *Erstattung* – leads to a complex text structure that needs to be restructured for the TT.

The hearing aims at informing recipients of their possible overpayment and the possible re-calculation of their benefits. It does not aim at helping the recipients act on the information within the hearing. The Easy Language TT however aims at enabling the recipient 1) to understand and 2) to act on the information within the hearing. The information structure was drastically changed between the hearing and the Easy Language TT. Some information was added and the linguistic complexity reduced (Bredel/Maaß 2016a: 489). Easy Language suggests the use of many headlines or marginalia to help the reader find relevant information and to guide them through the text (Bredel/Maaß 2016a: 503). The TT therefore has eight headlines instead of three. Headlines should reflect what the text part will convey and should be focussed on helping people act on the ST (Bredel/Maaß 2016a: 503).

The Easy Language TT is prefaced by a disclaimer (headline 1) that highlights the hearing as the legally binding text (Maaß 2015: 141f; Maaß 2019:

286f). The TT is supplemented by an explanation of the table under *Aufhebung* (suspension) (Figure 2). The following list shows the titles and the information for each of the remaining seven TT paragraphs:

2. ***Deswegen schreibt Ihnen das Jobcenter*** (This is why the *Jobcenter* is writing to you)
   Information on why the recipients are receiving the hearing. It can be presumed that many previous decisions have not been fully comprehended by the recipient. Therefore, an explanation is added: The recipients must inform the *Jobcenter* about any income other than their benefits.
3. ***Deswegen will das Jobcenter das Geld zurück haben*** (This is why the *Jobcenter* wants the money back)
   Information on why the *Jobcenter* asks for the overpaid benefits back.
4. ***Das passiert jetzt*** (This will happen now)
   Information on what the recipients must now do. It is explained that the recipient may answer the hearing but is not required to do so. The consequences of not answering are explained as well.
5. ***So schreiben Sie dem Jobcenter*** (This is how you write to the *Jobcenter*)
   Information on how to answer the hearing.
6. ***Schreiben Sie dem Jobcenter bald*** (Write to the *Jobcenter* soon)
   Information on the grace period.
7. ***Das passiert nach der Anhörungsfrist*** (This will happen after the grace period)
   Information on what happens after the grace period has ended.
8. ***So können Sie das Geld zurückbezahlen*** (This is how you can repay the money)
   Information on how to pay the money back. Both possibilities (repayment and charging against benefits) are explained.

This new information structure follows the steps that the recipient must take in order to act on the hearing. It establishes prior knowledge that the recipient might lack due to not understanding previous decisions (headlines 2 and 3), then gives information on all necessary immediate action (headlines 4, 5 and

6). Towards the end, the Easy Language TT gives all necessary information on future actions (headlines 7 and 8).

A second method to enhance the clarity of information structure as well as facilitate comprehensibility is to highlight intertextual references, as suggested in some Easy Language handbooks (cf. Maaß 2015: 50f). Maaß (2015: 51) evaluates intertextual references as necessary for Easy Language texts – an evaluation that is necessarily true for administrative texts in which references to legislative texts are required (see Section 2). Intertextual references to legal texts in the Easy Language TT were set apart from the rest of the Easy Language text. They are shown in a black frame after the respective section (Figure 3).

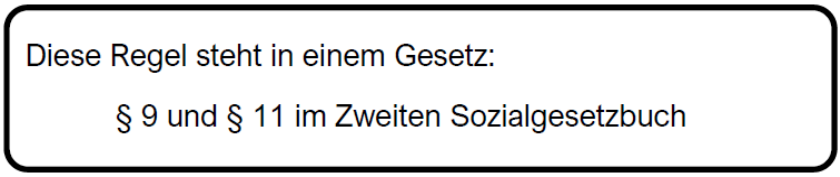

Figure 3: Intertextual references to legal texts in the TT

Translation for Figure 3:
This rule is a law:
Sections 9 and 11 of the Second Book Social Code

The changes to the information structure change the text so drastically that it makes the following criteria and translation methods for Easy Language text that target GSL obsolete in many, but not all cases. The following criteria and translation methods are oriented towards the features of administrative language (Section 2).

One of the more important changes from a standard administrative text into an Easy Language text is to re-structure any construction that is used to compress a sentence (premodifiers, nominalisations, light-verb constructions and adjectives). Compressing a sentence means making multiple propositions within a sentence. By re-organising the information structure, most compressing devices were re-structured naturally, therefore re-structuring complex phrases will not be discussed within this section.

The Easy Language TT becomes longer due to all simplifications on the lexical and syntactical level (Bredel/Maaß 2016a: 489). Any redundancy and other sentences whose sole purpose it is to guarantee legal certainty were left out of the Easy Language TT. These sentences do not aid comprehension and are therefore not within the function of the TT.

> Example sentence that guarantees legal certainty:
> *Es muss geprüft werden, ob die Entscheidung über die Bewilligung der Leistungen zur Sicherung des Lebensunterhalts nach dem Zweiten Buch Sozialgesetzbuch (SGB II) für Sie wie folgt aufzuheben ist* […]
> (It must be examined whether the decision on the approval of benefits for assurance of livelihood according to Book Two of the Social Code (SGB II) is to be lifted for you as follows […])

This example shows another issue within the ST: using the same word with different meanings. In the above example, *Entscheidung* (decision) has been used to refer to a past decision to award the recipient benefits. In other parts of the text, *Entscheidung* (decision) is used to refer to future decisions on whether there was an overpayment. In administrative language, this helps to make the text suitable for many different cases and recipients. In Easy Language, a word should always be used in the same context and with the same meaning (Maaß 2015: 131f). This corresponds to the still limited TL-vocabulary of GSL learners (Table 1). Instead of the ambiguous *Entscheidung* (decision), the word *Bescheid* (decision) was used in the Easy Language TT to refer to the future decision on the overpayment. Any past decisions were not referenced in the TT because they vary from case to case and cannot be part of an invariable Easy Language text.

Light-verb constructions often carry a specified meaning and legal certainty which the layperson will generally not know. Therefore, light-verb constructions should be replaced by their corresponding verbs, helping comprehension. A single, frequent verb is expected to be more easily understood than complex, nominalised phrase such as a light-verb construction.

Example for light-verb constructions:
ST:
*Bitte **nehmen** Sie aufgrund dieser Anhörung noch keine **Überweisung vor**.*
(Please do not make a transfer on grounds of this hearing yet.)
Light-verb construction: *Überweisung vornehmen* (make a transfer)
TT:
Bezahlen Sie das Geld noch **nicht**.
(Do not pay the money yet.)
Verb: *bezahlen* (pay)

Some expert terminology, especially in Easy Language texts within the legal and administrative domain, should be picked up in the Easy Language TT (Maaß 2015: 98). Concerning Easy Language texts that supplement forms, expert terminology is crucial for filling out the form. In such cases, the goal of Easy Language texts is to help the recipient understand the form (Maaß 2015: 98). Similarly, the most important expert terms should be kept in the Easy Language TT at hand. In keeping them, the recipient may learn some important terms from the administrative field and understand the key expert terms that are used in the hearing. Especially terminology that has been borrowed from other fields or everyday language should be mentioned and explained in the TT to avoid any misunderstandings (Bredel/Maaß 2016a: 350). It is yet to be determined which terms may be categorised as 'important' and which as 'unimportant'. To produce the TT, the following attempt in answering this question has been undertaken:

Specified phrases with a nominal premodifier were not used within the Easy Language TT. They were considered too long to be remembered when read multiple times – particularly if the target group does not profit from local frequency as well as strong readers do. They must be deciphered often, which takes up working memory resources. Specified phrases can, for example, be replaced by a meronymy.

Example for a meronymy to replace a specified phrase:
Specified phrase: *Sicherung des Lebensunterhalts* (assurance of livelihood)
Meronymy: *Arbeitslosengeld II*, *Sozialhilfe* (two different kinds of benefits in Germany)

Arbeitslosengeld II and *Sozialhilfe* are two kinds of benefits in Germany. These words are expert terms in themselves but are shorter and expectedly more common, especially in the lives of benefit recipients, than their hyperonym *Sicherung des Lebensunterhalts* (Bredel/Maaß 2016a: 345ff). If this holds true must still be determined.

Concerning the syntactical level, Easy Language rules propose the subject-predicate-object order (cf. Bredel/Maaß 2016a: 415). The sentence structure must be inverted to allow for questions, imperative structures, ellipsis, sentences that start with certain conjunctions (*dann* (then)) and topic-comment structure (Bredel/Maaß 2016a: 415; Heine 2017: 9). Due to the text type (hearing) that makes many assumptions and conveys little certain information, the adverb *vielleicht* (maybe) and the conjunction *dann* (then) are often used to introduce a sentence within the TT. These inverted sentence structures are learnt for level A2 (Table 1) and can expectedly be understood by GSL learners.

The ST uses politeness markers such as the subjunctive mood (*Konjunktiv II*) and modal verbs. As Table 1 shows, the subjunctive mood is introduced in A2 and B1, but not completely learnt at these levels. As the rules of Easy Language advise, the subjunctive mood should therefore be avoided. Modal verbs are introduced during A1 and are expected to be understood by GSL learners. They carry nuances that must be correctly understood to be able to act on an administrative text. It may be advisable to mark these verbs in bold letters to signal their significance. Modal verbs also bring about verbal brackets, which should be avoided if possible, according to Easy Language rules (Bredel/Maaß 2016a: 418). Verbal brackets are introduced during A1 and can presumably be understood by GSL learners. To be easily comprehensible, however, there should be as little text within the verbal bracket as possible to help the reader not forget the first part of the bracket when they reach the last part.

Special characters should generally be avoided in Easy Language (Maaß 2015: 86). In the Easy Language texts in the administrative domain, it is useful to make an exception for '§'. As recipients of social benefits and as refugees with a legal status that may change any time, it is expected that they will encounter this character more often than the standard reader. It should however be explained.

In this section, it has been shown that many rules that exist for Easy Language may be useful for people with learning disabilities and GSL learners

alike. Heine (2017: 406) has established that many GSL learners develop their language abilities quickly and their main barrier is at the language level. Rink (2020: 52; 139) points out that cultural and discursive knowledge may also lack. It may be advisable to orient Easy Language texts for GSL learners towards the CEFR, as attempted in this section, but providing contextual information is equally important. Previous administrative decisions and information on the subject may not be accessible to GSL learners and cultural as well as discursive information must be provided as GSL learners were socialised in different cultures (Section 4).

Easy Language texts are generally focussed on helping to comprehend the information in their ST and helping recipients act on them (Maaß 2019: 275). To achieve this, the information structure of the Easy Language TT was structured linearly. Information that served solely for legal certainty was omitted. Expert terms must still be found within the Easy Language text if they are fairly easy to decipher. These expert terms are then expected to be recognisable in the ST, building a parallel between the Easy Language TT and the ST. Modal verbs are an important feature of administrative language and must therefore be part of Easy Language texts within this domain. As they carry important nuances, it may be advisable to highlight them, for example by bold type face.

7 Conclusion

The target group 'refugees' was characterised as predominantly male and between the ages of 18–35 (Section 4). Generally, this group will gradually learn languages less successfully. Trauma, stress and perhaps the orientation towards the home country hinder second language acquisition. About 40% of the target group do not have any educational degree, but either primary or less than primary education. Of the target group – according to Scheible 2018 – 15% are illiterate and around 50% are illiterate in the Latin alphabet. It will be necessary to incorporate more literature and research on alphabetisation in the second language acquisition process to characterise these portions of the target group. The target group 'refugees', and GSL learners in general, is in the process of learning the TL and most can be expected to only need Easy Language texts transitionally.

Easy Language has been criticised as not suitable in an educational setting, particularly not for GSL learners (Heine 2017; Kilian 2017). With the premise of making ST information comprehensible, however, the possibility of using Easy Language should not be dismissed. Easy Language texts for GSL learners can be built around the CEFR language levels A1–B1, but it should always be respected that not all GSL learners will acquire the TL fully and/or quickly (Section 4). Translations and interpretations are not always provided in the administrative field, so an Easy Language text may help people from various cultural and linguistic backgrounds, although some will profit from it more than others (Section 3).

Using the hearing concerning overpayments and its Easy Language translation, it was possible to filter some criteria and translation methods that may make Easy Language texts more adequate for GSL learners. Firstly, we may consider the CEFR as a framework for Easy Language texts for GSL learners. In Germany, this approach has been undertaken by the Plain Language publisher *Spaß am Lesen* whose target groups are not only GSL learners but all other target groups defined by Bredel and Maaß (2016a) (Spaß am Lesen Verlag). If authors and translators know the language level of their GSL target group, they can adjust an Easy Language text to that level. It may be advisable to use a curriculum such as the one from NIBIS (Section 4). Whether this approach is successful must still be corroborated.

As in every Easy Language text, texts for GSL learners need to be adjusted towards their everyday lives and display an information structure that is easy to follow. Therefore, an Easy Language text must establish relevant knowledge as well as present explanations to unfamiliar cultural and discursive facts. Identifying these unfamiliar facts might be the greatest issue in writing Easy Language texts for GSL learners. More research needs to be done in order to find out which aspects of administrative texts are unfamiliar to people who were not socialised in the German culture. Connected with this question is the expectation that GSL learners will understand certain expert terms better than other terms. For example: Whether *Arbeitslosengeld II* or *Sozialhilfe* are better known than *Sicherung des Lebensunterhalts* has been questioned by the refugee relief institution.

To facilitate the information structure, intertextual references have been set apart from the Easy Language TT using a black frame. It is expected that this marks the references as an addition to the text, but helps the recipient identify

parallels between the Easy Language text and the hearing and helps them understand that the information in the Easy Language text summarises laws. It is not known whether marking the intertextual references like this is helpful or if it even is detrimental to 1) the comprehensibility and 2) the acceptability of the Easy Language TT.

Easy Language texts for GSL learners will generally follow the existing rules of Easy Language that have been largely tested on people with learning disabilities. Among these rules is using frequent and 'easy' words (Section 3), replacing light-verb constructions with single verbs and avoiding nominal structures. Just as Easy Language texts are tested by people with learning disabilities, Easy Language texts for GSL learners must be tested by the target group as well. In doing so, we will find out if Easy Language texts are acceptable for GSL learners and be able to optimise Easy Language texts for them.

On the basis of empirical data on refugees in Germany (Bundesamt für Migration und Flüchtlinge 2017/2018/2019), findings from the domain of second language acquisition (Scheible/Rother 2017) and the Common European Framework of Reference for Languages (CEFR) (Section 4), some suggestions concerning the criteria for Easy Language texts for GSL learners in the administrative field – more specifically refugees – and some translation methods can be suggested. To build a larger framework, a bigger project and much testing on the target group will be needed.

Works cited

Balota, David A., Yap, Melvin J., and Michael J. Cortese. "Chapter 9 – Visual Word Recognition: The Journey from Features to Meaning (A Travel Update)". Eds. Matthew J. Traxler, and Morton A. Gernsbacher. *Handbook of Psycholinguistics* 2nd ed. Academic Press, 2006. 285–375. Print.

BAMF. 2018, *Ausländer mit Aufenthaltstitel ab 2005*. Web. 15 August 2019. <http://www.bamf.de/DE/Willkommen/DeutschLernen/Integrationskurse/TeilnahmeKosten/Aufenthaltstitel_nach/aufenthaltstitel_nach-node.html>.

BAMF. 2020. *The content and stages of the procedure*. Web. 9 January 2020. <https://www.bamf.de/EN/Themen/Integration/ZugewanderteTeilnehmende/Integrationskurse/InhaltAblauf/inhaltablauf-node.html>.

Becker, David. *Die Erfindung des Traumas. Verflochtene Geschichten*. Berlin: Edition Freitag, 2006. Print.

Becker-Mrotzek, Michael. "Die Sprache der Verwaltung als Institutionensprache." Eds. Lothar Hoffmann, Hartwig Kalverkämper, and Herbert E. Wiegand. *Fachsprachen. Ein internationales Handbuch zur Fachsprachenforschung und Terminologiewissenschaft*. Berlin: Mouton de Gruyter, 1999. 1391–1402. Print.

Berger, Peter. *Flotte Schreiben vom Amt: Eine Stilfibel*. Köln: Heymanns, 2004. Print.

BMAS (Bundesministerium für Arbeit und Soziales). 2014. *Leichte Sprache. Ein Ratgeber*. Web. 9 January 2020. <https://www.bmas.de/SharedDocs/Downloads/DE/PDF-Publikationen/a752-ratgeber-leichte-sprache.pdf;jsessionid=A4C170C80FFAD34676F494BFCE2E799A?__blob=publicationFile&v=5>.

Bredel, Ursula, and Christiane Maaß. *Leichte Sprache: Theoretische Grundlagen, Orientierung für die Praxis*. Berlin: Dudenverlag, 2016a. Print.

Bredel, Ursula, and Christiane Maaß. *Ratgeber Leichte Sprache: Die wichtigsten Regeln und Empfehlungen für die Praxis*. Berlin: Dudenverlag, 2016b. Print.

Brücker, Herbert, Rother, Nina, and Jürgen Schupp. *IAB-BAMF-SOEP-Befragung von Geflüchteten 2016: Studiendesign, Feldergebnisse sowie Analysen zu schulischer wie beruflicher Qualifikation, Sprachkenntnissen sowie kognitiven Potenzialen*. Forschungsbericht 30. Nürnberg: BAMF, 2016. Web. 2 July 2020. <https://www.bamf.de/SharedDocs/Anlagen/DE/Forschung/Forschungsberichte/fb30-iab-bamf-soep-befragung-gefluechtete-2016.pdf?__blob=publicationFile&v=14>.

Bundesamt für Migration und Flüchtlinge. 2017. *Aktuelle Zahlen zu Asyl: Tabellen, Diagramme, Erläuterungen*. Ausgabe Dezember 2017. Web. 4 September 2019. <http://www.bamf.de/SharedDocs/Anlagen/DE/Downloads/Infothek/Statistik/Asyl/aktuelle-zahlen-zu-asyl-dezember-2017.pdf?__blob=publicationFile>.

Bundesamt für Migration und Flüchtlinge. 2018. *Aktuelle Zahlen zu Asyl: Tabellen, Diagramme, Erläuterungen*. Ausgabe Dezember 2018. Web. 4 September 2019. <http://www.bamf.de/SharedDocs/Anlagen/DE/Downloads/Infothek/Statistik/Asyl/aktuelle-zahlen-zu-asyl-dezember-2018.pdf?__blob=publicationFile>.

Bundesamt für Migration und Flüchtlinge. 2019. *Aktuelle Zahlen zu Asyl: Tabellen, Diagramme, Erläuterungen*. Ausgabe Juni 2019. Web. 4 September 2019. <http://www.bamf.de/SharedDocs/Anlagen/DE/Downloads/Infothek/Statistik/Asyl/aktuelle-zahlen-zu-asyl-juni-2019.pdf?__blob=publicationFile>.

Bundestag 2017. *Sachstand: Anspruch auf einen Dolmetscher gegenüber Behörden*. Wissenschaftliche Dienste. Deutscher Bundestag. Web. 9 October 2019. <https://www.bundestag.de/resource/blob/514850/118da3d73d075c5a90f683d27ce0144e/WD-3-106-17-pdf-data.pdf>.

Goethe-Institut. 2007. *Rahmencurriculum für Integrationskurse Deutsch als Zweitsprache*. München: Goethe Institut e. V. Web. 4 September 2019. <https://www.bamf.de/SharedDocs/Anlagen/DE/Downloads/Infothek/Integrationskurse/Kurstraeger/Konzepte Leitfaeden/rahmencurriculum-integrationskurs.pdf?__blob=publicationFile>.

Händel, Daniel, Fluck, Hans-R., Förster, Michael, and Michaela Blaha. "Bürgernahe Verwaltung: Ein Kooperationsprojekt der Stadt Bochum und der Ruhr-Universität zur Textoptimierung." *Fachsprache. Internationale Zeitschrift für Fachsprachenforschung, -didaktik und Terminologie* 23.3–4 (2001): 139–152. Print.

Harr, Anne-K., Liedke, Martina, and Claudia M. Riehl. *Deutsch als Zweitsprache: Migration – Spracherwerb – Unterricht*. Stuttgart: J.B. Metzler, 2018. Print.

Heine, Antje. "Deutsch als Fremd- und Zweitsprache – eine besondere Form Leichter Sprache? Überlegungen aus der Perspektive des Faches DaF/DaZ". Eds. Bettina M. Bock, Ulla Fix, and Daisy Lange. *"Leichte Sprache" im Spiegel theoretischer und angewandter Forschung*, 2017. 401–414. Print.

Hoffmann, Lothar. *Kommunikationsmittel Fachsprache: Eine Einführung*. 2., neu bearb. Aufl. Tübingen: Narr, 1985. Print.

Just, Marcel A., and Patricia A. Carpenter. "A Theory of Reading: From Eye Fixations to Comprehension." *Psychological Review*, 87.4 (1980): 329–354. Print.

Kalverkämper. Hartwig. "Rahmenbedingungen für die Fachkommunikation." Eds. Lothar Hoffmann, Hartwig Kalverkämper, and Herbert E. Wiegand. *Fachsprachen. Ein internationales Handbuch zur Fachsprachenforschung und Terminologiewissenschaft*. 1. Halbband. Berlin, New York: De Gruyter, 1998. 24–43. Print.

Kercher, Jan. *Verstehen und Verständlichkeit von Politikersprache: Verbale Bedeutungsvermittlung zwischen Politikern und Bürgern*. Wiesbaden: Springer VS, 2013. Print.

Kilian, Jörg. "'Leichte Sprache', Bildungssprache und Wortschatz – Zur sprach- und fachdidaktischen Wertigkeit der Regelkonzepte für 'leichte Wörter'". Eds. Bettina Bock, Ulla Fix, and Daisy Lange. *"Leichte Sprache" im Spiegel theoretischer und angewandter Forschung*, 2017. 189–209. Print.

King, David R., and James Greeno. "Invariance of Inference Times When Information Was Presented in Different Linguistic Formats." *Memory and Cognition 2* (1974): 233–235. Print.

Klein, Wolfgang, and Christine Dimroth. "Der ungesteuerte Zweitspracherwerb Erwachsener: Ein Überblick über den Forschungsstand." Eds. Utz Maas, and Ulrich Mehlem. *Qualitätsanforderungen für die Sprachförderung im Rahmen der Integration von Zuwanderern*. Bad Iburg, 2003. 127–161. Print.

Maaß, Christiane. "Übersetzen in Leichte Sprache" Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 273–302. Print.

Maaß, Christiane. *Leichte Sprache: Das Regelbuch*. Berlin: LIT, 2015. Print.

NIBIS. 2016. *Curriculare Vorgaben für den Unterricht Deutsch als Zweitsprache*. Hannover: Niedersächsisches Kultusministerium. Web. 1 September 2019. <http://db2.nibis.de/1db/cuvo/datei/cv-daz_2016.pdf>.

Plutzar, Verena. "Sprachenlernen nach der Flucht: Überlegungen zu Implikationen der Folgen von Flucht und Trauma für den Deutschunterricht Erwachsener." *OBST - Osnabrücker Beiträge zur Sprachtheorie, Flucht_Punkt_Sprache 89* (2016): 109–133. Print.

Rink, Isabel. *Rechtskommunikation und Barrierefreiheit. Zur Übersetzung juristischer Informations- und Interaktionstexte in Leichte Sprache*. Berlin: Frank & Timme, 2020. Print.

Scheible, Jana A. 2018. *Alphabetisierung und Deutscherwerb von Geflüchteten: Deutschkenntnisse und Förderbedarfe von Erst- und Zweitschriftlernenden in Integra-*

tionskursen. Kurzanalyse 10. Web. 4 September 2019. <https://www.bamf.de/SharedDocs/Anlagen/DE/Publikationen/Kurzanalysen/kurzanalyse10_iab-bamf-soep-befragung-gefluechtete-alphabetisierung.pdf?__blob=publicationFile>.

SCHEIBLE, JANA A., and NINA ROTHER. 2017. *Schnell und erfolgreich Deutsch lernen – wie geht das? Erkenntnisse zu den Determinanten des Zweitspracherwerbs unter besonderer Berücksichtigung von Geflüchteten*. Nürnberg: BAMF. Web. 4 September 2019. <https://www.bamf.de/SharedDocs/Anlagen/DE/Publikationen/WorkingPapers/wp72-erfolgreich-deutsch-lernen-wie.pdf?__blob=publicationFile>.

SCHNOTZ, WOLFGANG. *Aufbau von Wissensstrukturen: Untersuchungen zur Kohärenzbildung beim Wissenserwerb mit Texten*. Weinheim: Beltz Psychologie-Verlagsunion, 1994. Print.

Spaß am Lesen Verlag. Lesen für alle. *Zielgruppen*. Web. 28 March 2020. <https://einfachebuecher.de/Lesen-fuer-alle/Zielgruppen>.

WAGNER, HILDEGARD. *Die deutsche Verwaltungssprache der Gegenwart: Eine Untersuchung der sprachlichen Sonderform und ihre Leistung*, 3. Aufl. Düsseldorf: Schwann, 1984. Print.

WOLFER, SASCHA. *Verstehen und Verständlichkeit juristisch-fachsprachlicher Texte*. Tübingen: Narr, 2017. Print.

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Technologies for the Translation of Specialised Texts into Easy Language

1 Introduction

The workflows involved in intralingual translation tasks and the role of digitisation and computer-aided translation (CAT) for Easy Language (EL) translation are entirely under-researched. From a computational perspective, EL has so far been treated as a controlled language. Therefore, it seems plausible to implement EL rules in existing controlled language checkers in order to enhance EL text production. For German, Lieske/Siegel (2014) and Siegel/Lieske (2015) tested Acrolinx and the open source software LanguageTool with EL rules; Reuther (2019) used Congree as an EL checker; Zehrer (2019) tested TextLab. They agree that there are many overlapping points between controlled languages used for technical documentation and EL – especially in regard to structural rules. When it comes to semantic simplification, explanation of background information and information selection in general, controlled language checkers are of no help. In addition, this kind of computational support directly takes into account the translation workflow in general and more specifically the sub-processes of EL translation, i.e. source text processing, terminology management, systematic inclusion of pre-translated text segments, etc. In contrast, in interlingual translation, it is an established practice to use CAT tools and digital resources for specialised translation. This involves different degrees of human-machine interaction:

- Machine-assisted human translation involves scenarios in which translation memory (TM) systems store aligned source and target text sentences in a database and suggest previously translated segments when a source text segment occurs that is the same or similar to a previously translated sentence (Heyn 1998; Dragsted 2004). Termi-

nology management systems help to create a powerful glossary with many functions that by far exceed a mere term list.
- In human-assisted machine translation scenarios, pre-translations suggested by machine translation (MT) systems are used as a basis. However, given that machine translation is often not comparable in quality to purely human translation, humans correct the mistakes made by the machine, that is, translators post-edit the MT output.

More recently, providers of translation tools have been implementing MT systems into TMs and other translation databases, and sell MT solutions as a plug-in within established translation tools. Furthermore, these tools are not only used for repetitive texts (such as manuals) – as they were at their very beginnings – but also for more creative texts (Toral/Way 2015, 2018, Moorkens et al. 2018) and multimedia contents (Tardel et al. in print). All these technological advances result in significant productivity gains which may vary according to the kind of text being translated, the quality of the translation technologies and the purpose for which the translation is being produced.

Based on previous work concerning interlingual workflows (Nitzke et al. 2019, Schaeffer et al. 2019a–d, Vardaro et al. 2019a, b), automatisation potentials also need to be identified for intralingual translation. These include lexical validation with term databases, the pre-processing via translation memories and post-editing (PE) of MT. In this paper, we will discuss how to use CAT tools for translations of specialised texts into Easy Language. In order to understand the shifts and permutations that take place while translating into Easy Language, we will introduce general translation strategies in Section 2. Based on these strategies the specific problems will become clear when parallelising and preparing source and target texts for use with CAT tools and MT. We will then elaborate on the characteristics of terminology for Easy Language and terminology management in Section 3. The use of translation memory systems as well as alignment problems due to the specific EL translation strategies are discussed in Section 4. These problems are correlated with special requirements for training MT and PE for intralingual translations into Easy Language (Section 5). Finally, we will summarise the potentials of computer-aided EL translation and conclude with some prospects for professionalisation and market developments in Section 6.

2 Strategies in Easy Language translation

Easy Language translation differs from interlingual translation, especially with regard to terms and concepts contained in the source text. While syntactic complexity can be systematically reduced by means of the corresponding syntactic rules (cf. e.g. Bredel/Maaß 2016a: 383ff, b: 101ff, and, for an evaluation of the text practice, Fuchs 2019), semantic complexity, conceptual ambiguity as well as the presence of expert language in the source text will have no uniform default solution in the target text. Hence, different translation strategies can be applied for translations into Easy Language. On a conceptual level, there are basically two different cases:

- Implicit complexity in the form of presuppositions which have to be explained in the target text. There will be a 0:1 relationship between the source text and the target text. In such cases, the target text contains components which are not present in the source text.
- Explicit complexity in the form of expert language. Translators need to respond to expert language in Easy Language with different kinds of translation strategies that are presented below.

Expert language does not belong to the Easy Language system. Easy Language vocabulary is limited to the basic vocabulary of a given natural language (in our case: German) and is defined by criteria like simple morphological structures, high frequency words in all text types and different target groups. The target groups might need Easy Language throughout their whole life or only in a later stage caused by degenerative processes like dementia. Other target groups may only require EL temporarily as these texts help them develop reading skills and knowledge with respect to the subject matter. These characteristics are generally not the features of expert language. There is therefore usually no default Easy Language equivalent when it comes to rendering terms from the source text in the Easy Language target text. Terminology will have to be dealt with by recourse to translation strategies if the terms are not part of the recipient's assumed knowledge of the concept, its referent or both. Expert language items in Easy Language can thus be compared to what Pedersen (2005, 2008) calls Extralinguistic Culture-bound References (ECRs), defined as follows:

> Extralinguistic Culture-bound Reference (ECR) is defined as reference that is attempted by means of any culture-bound linguistic expression, which refers to an extralinguistic entity or process, and which is assumed to have a discourse referent that is identifiable to a relevant audience as this referent is within the encyclopedic knowledge of this audience. (Pedersen 2005: 2)

ECRs are, thus, not part of the target language system (just as expert language is not part of the Easy Language vocabulary). In his corpus-based studies, Pedersen (2005, 2008) examines which translation strategies apply if concepts or designations have to be expressed in the target text that occur in the source text but have no counterpart in the target language system. He identifies the strategies presented in Figure 1 (Pedersen 2008: 103).

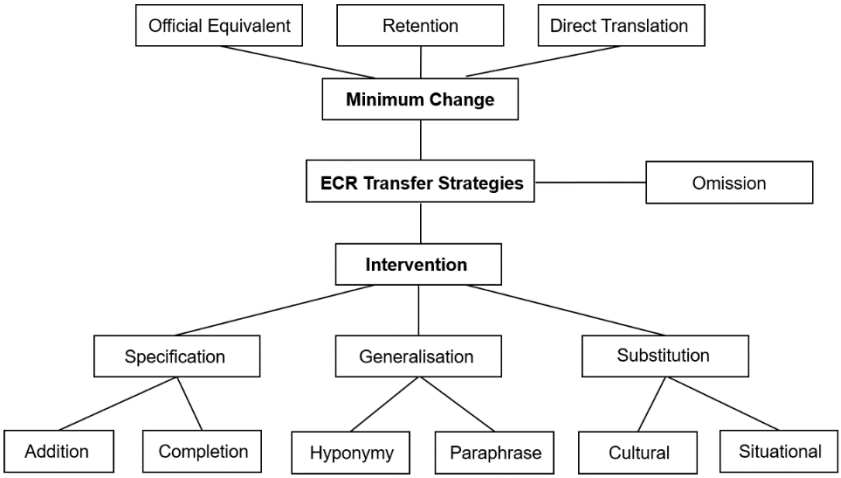

Figure 1: Taxonomy of translation strategies

Pedersen (2008: 103f) distinguishes minimum change from intervention strategies. Minimum change implies that the source text item appears in the target text – in the original or translated form. If linguistic items do not primarily belong to the Easy Language vocabulary as defined above, they can nonetheless appear in Easy Language texts if concepts and designations can be presupposed in the target audience. This is the case for a number of concepts from

the context of disability and inclusion that are usually known by the target audience and do not need to be avoided or explained (cf. Keller in the present volume).

Omissions or intervention strategies are more frequent than minimum change strategies (omissions are the most frequent for many text types, especially information texts; for a distinction between information texts and interaction texts and the consequences for Easy Languae translation cf. Rink 2020): In the case of specification, the source text item appears in the text, but is enriched with, e.g., explanations or examples. This strategy is frequently used in Easy Language translation. As it systematically burdens Easy Language texts with extra volume, it is usually coupled with the omission strategy which is applied to items of all complexity levels: word level, phrase level and even up to text level (omission of text sections). As suggested by Pedersen (2008) for interlingual translation, generalisation is also a frequent strategy for Easy Language translation. Hypernyms and paraphrases are a potent instrument of Easy Language translation. Less frequent on the word level is the substitution strategy; it mostly applies on a macro-level when choosing adequate examples or applications.

Translation research has widely shown that source text-target text relations are not necessarily characterised by close equivalence on the linguistic surface. This is even more the case for Easy Language translation. Furthermore, the target audience usually has

- a reduced common ground (cf. Clark 1996) with the author as well as with the source text audience,
- reduced language and reading skills,
- a reduced attention span and in part reduced cognitive capacities for information retrieval and content processing.

Therefore, the main overall strategies of Easy Language are reduction and addition (Bredel/Maaß 2016a: 489ff, b: 154ff):

Reductions occur in

- the linguistic inventory on all language levels,
- the amount of information and complexity.

Additions can be realised by

- paraphrases,
- explanations,
- exemplifications,
- explications of presuppositions.

Information in the text can be omitted, enhanced, reallocated to different places in the same text or outsourced to another text. Furthermore, translation into Easy Language is not restricted to verbal strategies and may imply conceptual strategies regarding the information structure as such, as well as media strategies (visualisations, layout etc.). Finally, the applied translation strategies depend on the text function and the target situation: In addition to information and interaction texts, Rink (2020) distinguishes instructional texts and entertainment texts. All of these text types have different kinds of media realisations, all the more because significant parts of the target audience cannot read proficiently and, therefore, will need different forms of content presentation. All respective strategies are challenging for terminology management and corpus alignment, which will be further discussed in the following sections.

3 Intralingual terminology management

As explained in the previous sections, Easy Language texts have to deal with unknown words and terminology. Typical strategies are paraphrase, explanation, exemplification, and explicitation. These strategies are also staples of classical terminology management since they are used to characterise and describe terms in terminology management tools (Arntz et al. 2014). In terminology management systems, they are typically realised as definitions, context (i.e. a term and its co-occurring patterns) and graphical elements (such as images). However, this knowledge is rather implicit in standard translation since it is only relevant to the translator. It is used to define terms and identify their concepts within and across languages, i.e., it is hidden in the terminology tool as a special type of meta data and typically not transferred to the target text. Listing synonyms for different registers or depending on the degree of difficulty (e.g. as it may be the case for scientific and popular-scientific terms)

can be regarded as an explicit strategy in interlingual but also in intralingual terminological work. For German, the norm DIN 2342 (2011-08) defines how to enter terms, concepts, symbols and non-verbal elements into a term database.

For Easy Language translation, definitions, which are typically hidden in the translation memory, have to be made explicit – they have to be spelled out as explanations of terms in the target texts. This results in a modification of the terminological triangle, which Schmitz (2012) illustrates as follows for interlingual translation:

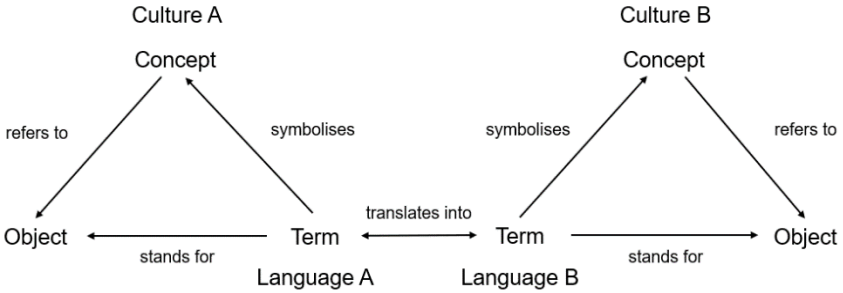

Figure 2: Terminological triangle in interlingual translation

In case of full equivalence between concept A and concept B, they can be explained using the same definition (cf. Schmitz 2012). According to best practices for terminology management (DTT/DIT 2010), a definition for a concept is entered into a terminology tool as meta data. Full equivalents may share the same definition, i.e. the definition belongs to the conceptual level. However, according to the best practices mentioned above, it also represents the linguistic access to the term. This results in an individual representation for each language and is therefore handled on the language level. In cases of partial equivalence, different definitions can thus be entered for the differing concepts in order to identify them in culture A and B, respectively. This can be visualised as follows:

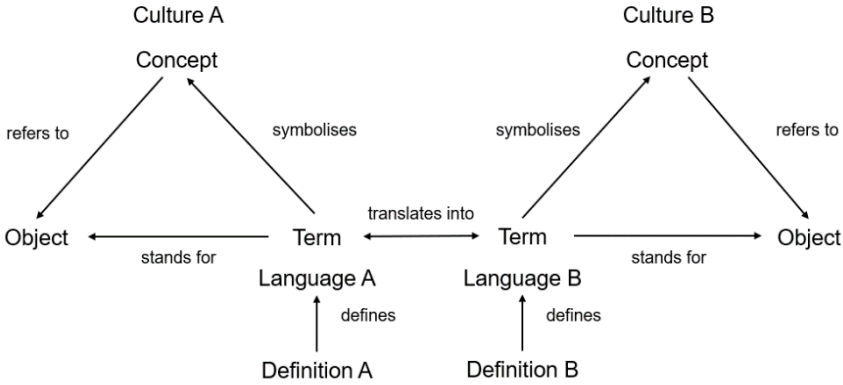

Figure 3: Terminological triangle including definitions

For Easy Language translation, several strategies can be applied:

A) The source and target text may refer to the same concept and object resulting in full equivalence. However, this is not the case for the terminological level since the wording differs from source to target text. In fact, the description, explanation or definition of the concept, which is implicit terminological knowledge in interlingual translation settings, is overt in intralingual translation. As a result, the terminological triangle has to be modified as follows:

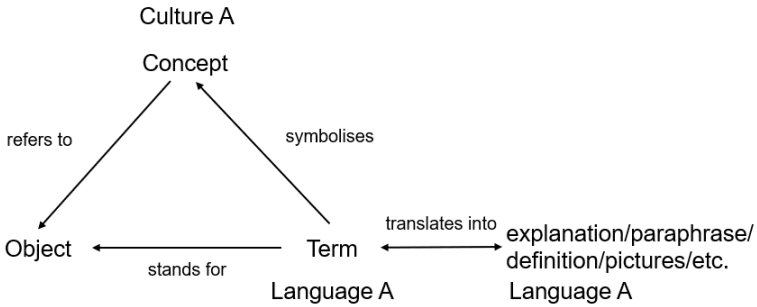

Figure 4: Terminological triangle in intralingual translation – full equivalence

B) The source and target text may refer to different concepts, for instance when a more general term is used to explain the term or when an exemplification is used to make the term more concrete. Both strategies result in partial equivalence with a larger scope of terms for hyperonyms and a smaller scope for hyponyms. Here, the translation takes place on the conceptual level:

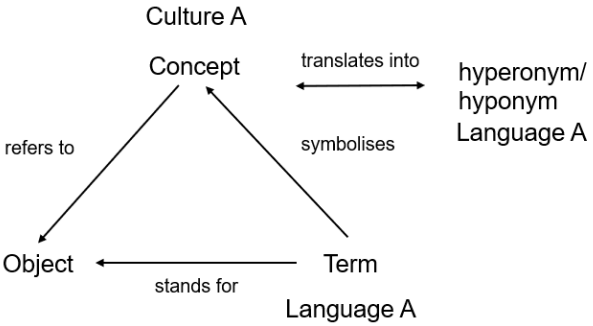

Figure 5: Terminological triangle in intralingual translation – partial equivalence

Terminology management in Easy Language translation therefore requires the defining part to be explicitly spelled out. The automatic integration of term definitions in the target text is currently neither possible with term databases nor with translation memory systems. Here, EL translation requires computational development. There are two strategies to overcome this problem:

- Since it is possible to enter more than one word in the entry field for terms, the definition or explanation can be entered there in addition to the term. Since this would violate the principle of elementarity, an adaptation of the best practices is required allowing more than one entry for one term.
- The problem can also be solved with a technical solution: More entry fields have to be created in the term base for "paraphrase", "explanation" etc. However, using the word "definition" for a new entry field would again violate the existing best practices since they use it in a different way with clearly structured content and scope definitions (DIN 2330 2013-07, KÜDES 2002). Again, terminological work for EL translation requires an adaptation of the existing best practices.

A first approach towards adapting existing terminology software to EL purposes can be found in Welch/Sauberer (2019).

For the description of terms in EL texts, visualisations are quite important. Figures 6 and 7 illustrate the difference between a respiratory mask and a nose-mouth mask. Their contexts of application clarify the different degrees of security and professionalisation. This suggests that terms can also be translated using visualisations, which also occur as implicit knowledge in term databases but have to be made explicit in EL texts. For this strategy, the existing best practices for terminological work have to be adapted: so far, images have been a component of the concept, whereas for intralingual translation it should rather be a component of the term (as it is suggested in Figure 4).

Figure 6: Respiratory mask
(© Inga Kramer, www.ingakramer.de)

Figure 7: Nose-mouth mask
(© Inga Kramer, www.ingakramer.de)

This example shows that the visualisation has to be situation-bound and cannot be generalised across domains and communicative functions. Standardised visualisations bear the risk that they are neither precise nor equivalent to the terms. As a consequence, they have to be carefully selected in order to preserve semiotic identity. Another way of handling terminology in EL texts is to highlight them, as shown in Figure 8.

Figure 8: EL website with highlighted terms (https://www.einfach-heidelberg.de/coronavirus-schutz/)

Translation of Figure 8:
Protection against the corona virus
Read out loud
The corona virus makes many people sick.
The virus must not spread so much.
You can **protect** yourself and other people.
All people can participate.
Follow the **rules** in this **film**.
This is **important** for all of us!
More **information** about the **corona** virus
in **Easy Language**: Click here!
These **rules** can be **printed** at no charge.

The terms used in Figure 8 are highlighted with grey backgrounds. The figure also shows that other important elements are highlighted in bold face. In addition, complex contents are explained in a video, i.e. video materials can also be used to describe terminology.

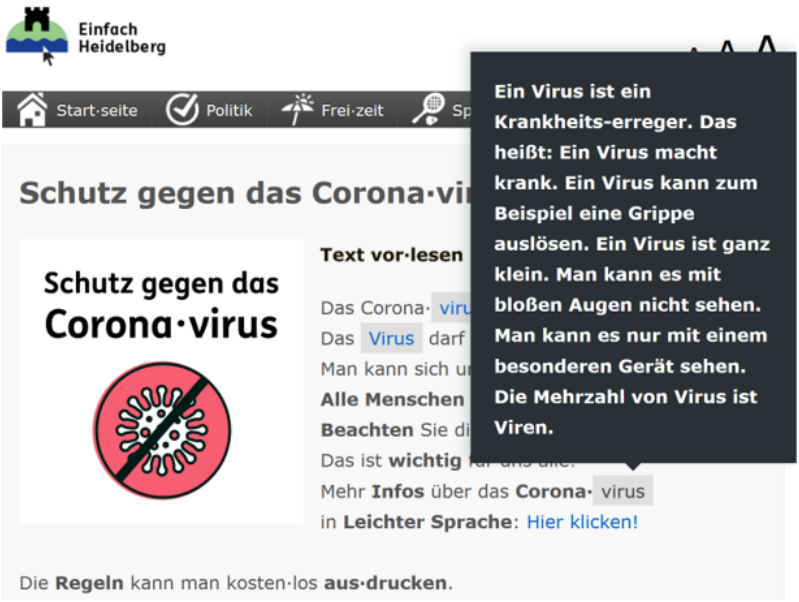

Figure 9: Mouse-over function for terms in EL texts (https://www.einfach-heidelberg.de/coronavirus-schutz/)

Translation of the black box in Figure 9:
A virus is a pathogen. This means: a virus makes you sick. A virus can cause the flu, for example. A virus is very small. You cannot see it with the naked eye. You can only see it with a special device. The plural of virus is viruses.

Figure 9 shows that the authors of the website go even a step further by providing a mouse-over function for terms in the EL texts. This function allows the definitions and descriptions for the terms to be displayed. This option is ideal for hypertexts since the clumsy definitions do not have to be included in the text itself but can be visualised if needed.

The examples discussed in this section show that intersemiotic terminology is a systematic resource for EL translation. This is a common feature shared with other expert texts or expert-lay communication, e.g. encyclopaedic articles or instructions. This in turn shows that EL translation is also part of expert-lay communication and can be positioned at the extreme end of the expert-lay continuum.

4 Translation memory and intralingual alignment

In this subsection, we want to discuss how translation memory systems can be used for Easy Language and what alignment strategies could look like for existing source and target texts. As stated above, we need model solutions for the use of CAT tools in Easy Language translation in order to figure out common features and differences to interlingual translation and its requirements. These include model paraphrases as well as charts and diagrams, imagery, pictograms, embedded audiofiles and sign language items, because Easy Language texts are inherently multimodal and multicodal (Maaß/Rink 2019, Rink 2020). This will help to strategically combine resources from different codes, a basic prerequisite of Accessible Communication.

Interlingual translation widely relies on translation memory systems that save translations and other information for each segment and make it available for further translation projects (Reinke 2004). A TM system consists of the following components:

- a database of parallel source and target language segments
- a text editor
- project management
- import and export filters
- a segmentation and alignment program
- terminology extraction
- terminology management
- a machine translation plugin

From interlingual translation, we know that CAT can support translation processes and enhance consistency of the target texts (Seewald-Heeg 2005: 4ff). Zehrer (2019: 586) points out that the software helps reduce the translator's cognitive load so that he or she can focus on the creative aspects of text production while translating. We postulate that the components listed above are in principle transferable to intralingual translation (e.g. the project management function), i.e., also to Easy Language translation, even if they will need some modification. Necessary adaptations will be discussed in the following.

4.1 Fuzzy matches

A translation memory is a database that stores, searches, pre-translates and displays identical or similar solutions during the translation process, for example from previous projects or from earlier parts of the same text. The conformity degree is called match value, the possible relations vary between Full Match, Fuzzy Match and Exact Match. For interlingual translation, matches below 70% are usually not taken into account, as adaptation often proves more strenuous than retranslation. Instead, suggestions automatically translated by MT systems are usually post-edited. In an empirical study, O'Brien (2007) asked participants to translate a short text with the translation software SDL Trados (a TM system with integrated MT) while pupil size was measured with eyetracking technology. The text consisted of exact TM matches, fuzzy matches (partially correct translation), MT suggestions as well as sentences without any assistance ('no match'). The results revealed that the participants' pupil size was the smallest for exact matches (least effort). The pupil size was similar for fuzzy matches and for sentences that were machine-translated. The pupil size was the largest for sentences that had to be translated traditionally with no assistance. These results suggest that machine-translated texts require a similar amount of cognitive effort to fuzzy matches from a TM. Furthermore, these results are corroborated by measuring the processing speed for translating fuzzy matches vs. post-editing MT segments. O'Brien (2007) found that 90%-fuzzy matches are as productive as MT in terms of processing speed, whereas 80%-fuzzy matches are less productive than post-editing MT segments. Finally Guerberof (2009) measured the increase in productivity contrasting the translation of fuzzy matches (80–90%) vs. human translation vs. MT: She found an increase of productivity of 11% (measured in words per minute) for fuzzy matches in contrast to translation from scratch and an increase of 25% for MT in contrast to human translation. This result was corroborated by Läubli et al. (2019) – in addition to an increase in productivity, they also found out that post-editing MT results in a similar quality or better compared to TM-based translations.

For Easy Language, solutions with an even lower match value can also prove helpful; the indicated solutions can be used as inspiration for the intended translation (as the example below illustrates). In addition, reuse of text fragments contributes to consistency on the text level. Figure 10 shows a 55% match in the TM Across from an Easy Language project of the Research Cen-

tre for Easy Language with the Landesbildungszentrum für Hörgeschädigte Hildesheim (Education Centre for the Deaf and Hard of Hearing Lower Saxony at Hildesheim).

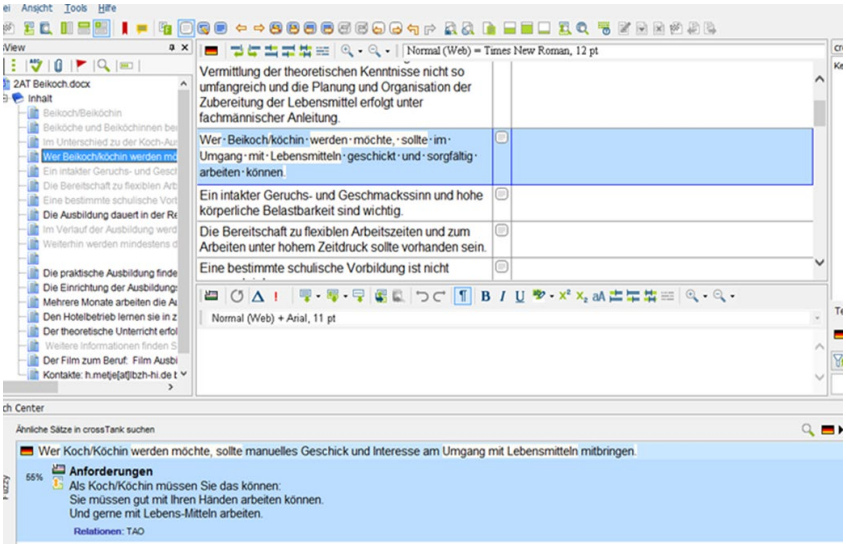

Figure 10: Fuzzy match for German standard language to German Easy Language

(1) Sentence to be translated:

Wer Beikoch/köchin werden möchte, sollte im Umgang mit Lebensmitteln geschickt und sorgfältig arbeiten können. (People who want to be a (female) assistant cook have to be skilful in handling food and be able to work diligently.)

Sentence contained in the translation memory:

Wer Koch/Köchin werden möchte, sollte manuelles Geschick und Interesse am Umgang mit Lebensmitteln mitbringen. (People who want to be a (female) cook have to have manual skills and an interest in handling food.)

The fragment highlighted in blue (i.e. the second segment of the source text) is a 55% match with the fragment from the translation memory (at the bottom of

the TM window). The Easy Language fragment will however be usable in the target text and will lead to a more consistent target text. While matches below 70% are often disregarded in interlingual translation as they need too much adjustment, this example shows that solutions with a match value far below 70% may be helpful for intralingual translators as the structure of the similar syntax can be copied.

4.2 Intralingual alignment

Projects that were completed prior to using a translation memory can be aligned and fed into the translation memory. This makes solutions available that were not produced directly within the tool and leads to larger translation corpora and thus to a potentially larger number of matches. In interlingual translation, source text sequences usually have direct correspondence to target text sequences, because the translation rarely alters the information or the text structure radically. If the system does not correctly identify some of the corresponding sequences, the alignment can be manually edited post hoc.

For Easy Language, this procedure is not as straightforward, given that there is usually no direct correspondence between source text and target text and there may be considerable changes that are necessary to make the texts work. These are the different options:

- information is shifted or restructured
- central information is moved to the top
- explanations and exemplifications are added as follows:
  - one source text unit → more than one target text unit
  - one source text unit → target text units in several places in the target text
  - no source text unit → target text unit added
- information is omitted, which may lead to the following alignments:
  - two or more source text units → one target text unit
  - one source text unit → no target text unit

Of course, these n:m alignments or zero alignments also occur in interlingual translation – they are, however, not as frequent as in EL translation. EL texts have to be far more selective with respect to the source text information. As

outlined in Section 2, this is a prerequisite for adequate and functional Easy Language target texts. This leads to more complicated relations between source text and target text, a problem that has to be tackled for Easy Language translation if CAT is to be applied. As a result, the quantity and quality of information delivered in the source and target text differ – as mentioned above – the alignments are only very rarely 1:1 alignments at the sentence level. Where the information is restructured, the alignment has to be performed or corrected manually. As the macrostructures of the source and target texts are so different, there is no direct equivalence at the sentence level.

The following corpus examples from the Geasy Corpus (https://traco.uni-mainz.de/geasy-korpus) will show some typical alignment problems: In addition to n:m alignments (2), we also encounter empty link alignments (3). Often, it is not obvious which segments the information belongs to (4).

(2) **Standard German:** Bildung und Beschäftigung sind Schlüsselkomponenten für die Teilhabe an allen Bereichen unserer Gesellschaft. (Education and work are main components for participation in all parts of our society.)
Easy German: Alle Menschen sollen überall in unserer Gesellschaft dabei sein und mitmachen können. (All people should always be part of and interact with our society.)
Dafür müssen sie eine gute Schul-Bildung haben. (Therefore, they need a good education.)
Und sie müssen eine gute Arbeit haben. (And they need good jobs.)

(3) **Standard German:** Berufliche Förderung (Job Support)
Easy German: Berufliche Förderung (Job Support)
{b>Berufliche Förderung<b} bedeutet: ({b>Job Support<b} means:) Menschen mit Behinderung finden schwerer einen guten Arbeits-Platz. (People with disabilities have more difficulties finding a good job.)
Aber ein guter Arbeits-Platz ist wichtig für die Menschen. (But a good job is important for people.)

(4) **Standard German:** Die offizielle deutsche Übersetzung der UN-Behindertenrechtskonvention spricht von einem „integrativen Bildungssystem". (The official German translation of the UN Convention of the Rights of Persons with Disabilities talks about an "integrative education system".)

> Die englische Fassung, die zu den sogenannten authentischen Sprachfassungen gehört, dagegen von „inclusive education". (The English version, which belongs to the so-called authentic language versions, however, talks about "inclusive education".)
> **Easy German:** Bisher gab es in Deutschland an einigen Schulen schon Integration. (So far, there has already been integration at some schools in Germany.)
> Einzelne Kinder und Jugendliche mit Behinderung lernten mit Kindern ohne Behinderung zusammen. (Some children and teenagers with disabilities learnt together with children without disabilities.)
> Inklusion bedeutet aber: (Inclusion means, however:)
> Die Schulen müssen für alle Kinder mit und ohne Behinderung gut sein. (The schools have to be good for all children with and without disabilities.)

Example (2) shows a 1:3 alignment since the source sentence is translated into three sentences in the Easy Language version. Example (3) starts with a 1:1 alignment for "Berufliche Förderung" (Job support). The subsequent Easy Language additions (see Section 2), however, do not have an equivalent in the source text, which leads to empty link alignments. The simplified version in (4) cannot be aligned at all as there are no equivalences in the source. This leads to very low performances when applying automatic alignment algorithms: Klaper et al. (2013) report very low alignment scores for an intralingual corpus of standard and Easy German: they only achieved 27.7% precision and 5% recall. These results suggest that the alignment has to be performed or corrected manually in order to be successfully used for MT training. However, Barzilay and Elhadad (2003) reported precision values of 77% and recall of 55.8% for a monolingual corpus of standard and simplified English. However, they aligned sub-corpora comparing the Encyclopaedia Britannica to the Britannica Elementary, which addresses children, and which consists of Plain rather than Easy Language. This leads to the assumption that the larger the contrast in complexity between the monolingual subcorpora, the weaker the automatic alignment performance.

5 Automatising intralingual translation

By aligning and annotating corpus data, Aluísio et al. (2008), Aluísio/Gasperin (2010) and Scarton/Specia (2018) present an approach to text simplification systems, which can be used by the intended target audience – i.e. people with communication impairments – to simplify the texts they are reading by themselves, or for authors to write texts according to Easy or Plain Language rules. Other approaches towards automatic text simplification often concern specific aspects like lexical and syntactical simplifications (e.g. Cheng et al. 2016, Glavaš/Štajner 2015, Mandya et al. 2016, Paetzold 2015). In contrast, our approach will work towards semi-automating the translation process from standard German into Easy Language with the help of machine translation approaches that are adjusted to the needs of translations into Easy Language and post-editing. The combination of pre-translating a text with an MT system and a professional translator or post-editor post-editing the raw MT output has been established as a workflow option for professional translations in the last ten to fifteen years (Ottmann 2017, Porsiel 2017, 2020). Post-editing "is the correction of raw machine translated output by a human translator according to specific guidelines and quality criteria" (O'Brien 2011: 197–198). Consequently, it seems plausible that MT systems for intralingual translations will be developed and that, accordingly, post-editing of machine-generated Easy Language will become a task for professional translators in the future.

Raw MT output is perceived as an aid for professional translators to accelerate the translation process and makes the process more profitable. A post-editor needs translation competences (bilingual, translation, extra-linguistic, instrumental, research, and revision competences) with additional competences in MT and PE. The latter also involves the post-editor's risk assessment, strategic, consulting, and service competences, which must be adapted to the PE requirements (Nitzke et al. 2019). PE for intralingual translation also has to be conducted by professional translators. In the remainder of this section, we will discuss which MT approach to choose, the role of text types and which data to choose for alignment.

In the past 80 years, different approaches have been developed to automate the translation process. We will discuss the pros and cons for rule-based, statistical and neural MT regarding translation into Easy Language. Rule-based approaches launched the development of MT. Generally, these systems attempt

to define the single characteristics of the source language and how these need to be converted into the target languages. As Easy Language is defined by various rules (Bredel/Maaß 2016a, b), this approach seems tempting, although it is commonly considered outdated. Different approaches to represent these linguistic characteristics have been developed over the years, which will only be discussed briefly (cf. Hutchins/Somers 1992 for further details). The direct approach defines language rules from one language into another without further language representation. Essentially, the words of the source text are morphologically analysed and then looked up in a dictionary, which means that, ideally, all morphology rules are defined, so that the dictionary only contains word stems. In the next steps, the words of the source language are replaced by the words in the target language and all morphological changes required by the target language are applied. Accordingly, these systems are usually only applicable for one language combination and one language direction. The main disadvantage of this approach is that it takes a great deal of effort to develop such a system, because the better the intended system, the more rules have to be defined. Transfer systems have an intermediate syntactic representation, which enables them to work (theoretically) in both language directions. In interlingual MT, an interlingua is the intermediate representation, which would make the system more flexible for adding new languages. However, the task of presenting content and meaning in a formal and neutral manner is still an unresolved issue. The direct approach seems to be the most suitable of the rule-based approaches for MT from German to Easy Language, because there is no need to add any further languages, which would also require implementation of the other rules.

Another concept of MT that has become popular in MT research starting in the late 1980s is data-based MT. Data-based MT relies on mono- and multilingual corpus data. Initially, statistical MT (SMT) had been the state of the art for decades. The basic idea behind this approach is to generate a translation from a parallel training corpus by calculating the most likely equivalent of a source word/phrase/sentence in the target language. Statistical translation models are generated and trained on the corpus data. Both mono- and bilingual corpora are used to capture the typical linguistic structure of the languages – the monolingual corpora generate the language models and the bilingual parallel corpora generate the translation model. In addition, statistical MT uses word-aligned n-grams – sequences of words (usually $n \leq 7$) – which

are assigned probabilities that represent how likely the word sequences occur in the training corpus. Further, additional information can be extracted during the training phase, e.g. models of relative sentence length (cf. also Hearne/Way 2011 for detailed information). The training of SMT systems can be realised relatively quickly if aligned parallel corpora are available. Additionally, rules can be added in hybrid MT systems (a combination of SMT and rule-based approaches).

The latest approach to MT is the use of neural networks and can also be applied to parallel training corpora. Neural MT (NMT) systems build large neural network for translation, while statistical MT systems are composed of many small subcomponents. NMT systems use deep-learning approaches and learn automatically from the training data. The training is comparably time-consuming and no specific rules can be added, as the systems develop the hidden layers of the system automatically. Hence, only input and output layers are known, and the rest is a blackbox (cf. Koehn 2014 for detailed information).

Although NMT systems have some disadvantages, it might be most interesting to test them for intralingual translation into Easy Language first, as the current NMT systems for interlingual translation currently outperform all other systems in most cases (Bentivogli et al. 2016; Toral/Sanchez-Cartagena 2017). It seems plausible that the neural networks might be able to represent the rules for translating standard German into Easy German during the training phase. For this purpose, a parallel corpus of standard German source texts and Easy German target texts will be necessary (e.g. Klaper et al. 2013). To our knowledge, no NMT system has been developed for intralingual translation, yet.

However, what kind of MT system should be used is not the only consideration when dealing with MT systems for Easy Language. Similar to MT training for standard natural languages, we have to consider which text types are relevant for training. First of all, it would be advisable to choose only one text type for MT training if enough text material is available. If not, it might be advisable to choose texts that are as similar as possible to generate sufficient data. Some text types might be completely excluded from the training data. For example, texts in Easy Language which are distributed as extra information to administrative forms are hardly usable for MT training, because they are not a translation of the source text, but provide additional and supplementary in-

formation and explanations to make it easier for the target group to understand the source text.

Finally, an important question is which language data are included in training the MT system. As we saw in Section 2, Easy Language translations often include different information compared to the target text, because information has to be in- or excluded in the translation process to meet the demands of the main target group. Hence, we have to consider whether all data is included, even empty link alignments, or whether only a selection is included. For us, the most plausible solution seems to be to exclude the empty link-alignment data, although it reduces the size of the training corpus. Reduction instances (n:0) could, however, also be retained in the training data as the NMT system might be able to learn when to exclude information. One example in our alignment data is the following passage from our corpus:

> Segment 1: "Externer Link:" ("External Link:")
> Segment 2: „Es folgt eine Weiterleitung zum Portal Einfach-teilhaben (Öffnet neues Fenster)" ("This will be followed by a redirection to the portal *Einfach-teilhaben* (A new window opens)")

These two segments were not translated, i.e. we have empty links in the target text. If such segments are typically not translated into Easy German, the NMT system might be able to learn that those segments (and maybe even similar segments) are not needed in the target text. For all other instances, the post-editor will be responsible for reducing and adding information. However, it might occur that the NMT system excludes information incorrectly, which increases the PE effort drastically. In such cases, it is important that the post-editor correctly evaluates whether the deletion of information was appropriate, i.e. we need professional translators for the post-editing task. Further, comparing the translation with the source text while post-editing is of essential importance. Post-editing Easy Language MT without source text is not recommendable.

In summary, we considered the pros and cons of using different MT solutions and concluded that NMT systems are most suitable for building an MT system as they are State-of-the-Art and promise the highest quality MT output after a system has been trained, given that enough training data is available. However, several aspects have to be considered for training. First, very large

corpora are necessary. Further, not all texts are usable for generating parallel corpora as they are explanatory texts rather than translations of the source texts.

6 Conclusion: professionalisation of Easy Language translation

In the past, Easy Language translation was often carried out by persons without academic translation training. The main focus was and partly continues to be on the participative aspect of text evaluation by the primary target groups (mainly: people with cognitive impairments). Public authorities often place text orders with social service agencies who have access to focus groups but frequently do not have staff with the necessary text expertise and adequate formal training in intralingual translation. As a consequence, the quality of Easy Language texts is often very poor; this is a problem for different reasons:

- High text quality is required especially for target groups with special communication needs who are not able to compensate for defective texts.
- Easy Language texts of poor quality shape the public image of Easy Language and may actually stigmatise the users (cf. Hansen-Schirra/Maaß in the present volume).
- Concerning terminology management, it is important to adhere to existing style guides and to apply them consistently. A lay translator might select terms and explanations according to their own preferences, which might not be in line with the clients' language policies.
- From the viewpoint of machine translation, the multitude of poorly executed Easy Language texts limits the possibilities of training machine translation systems: only rule-consistent texts can be used for the corpus and texts will have to be evaluated first.
- Finally, human-machine interaction in terms of post-editing Machine Translation will only be possible if professional translators assume the responsibility for quality management. Lay translators will not be able to cope with the tools on the one hand or with error detection and correction strategies on the other.

The situation on the translation market is gradually changing, though: Translators' associations like the Federal Association of Interpreters and Translators (Bundesverband der Dolmetscher und Übersetzer – BDÜ) or the Associated Interpreters and Translators of Northern Germany (Assoziierte Dolmetscher und Übersetzer in Norddeutschland – ADÜ Nord) have stepped up their efforts to include Easy Language translation in their scope of action; the BDÜ offers a training programme and certification aimed at professional translators who want to add Easy Language translation to their portfolio. These are professionals who will need CAT tool support and will also be able to work with machine translation systems. At the same time, university training for Easy Language translation has been established, Easy Language translation being part of translators' curricula of different profiles. This is good news as professionalisation is necessary in order to achieve a functional text practice that is actually helpful to the target groups.

With the increasing availability of translation corpora in Easy Language, terminology management, the use of translation memories, automatic alignment as well as post-editing machine translation will become more and more popular. Post-Editing of Easy Language will not only include corrections of the machine translation output, but also implementation of the special requirements of computer-assisted Easy Language translation. In addition, the post-editor has to check and adjust the specialised terminology and its specific characteristics in the target text. Since the main additional task in PE will be to determine which information needs to be expanded or added and which needs to be reduced (see Section 2 and Rink 2020), it might be expedient to test pre-editing workflows in addition to or instead of post-editing. It could also be a fruitful strategy to select information before automatically translating the texts. Pre-editing the source text – comparable to post-editing the target text – requires a lot of professional knowledge since expansion and reduction decisions have to be carefully and thoroughly motivated. By filtering the information in advance, the MT system will be able to produce a straightforward translation of the text without any expansion or reduction strategies. However, these workflows have neither been implemented in practical translation settings nor tested by empirical science.

Works cited

Aluísio, Sandra M; Specia, Lucia; Pardo, Thiago AS; Maziero, Erik G; Caseli, Helena M, and Renata PM Fortes. "A Corpus Analysis of Simple Account Texts and the Proposal of Simplification Strategies: First Steps towards Text Simplification Systems". *Proceedings of the 26th Annual ACM International Conference on Design of Communication*. ACM, 2008. 15–22. Web. 15 June 2020. <http://conteudo.icmc.usp.br/pessoas/taspardo/SIGDOC2008-AluisioEtAl.pdf>.

Aluísio, Sandra Maria, and Caroline Gasperin. "Fostering Digital Inclusion and Accessibility: The PorSimples Project for Simplification of Portuguese Texts". *Proceedings of the NAACL HLT 2010 Young Investigators Workshop on Computational Approaches to Languages of the Americas*. Association for Computational Linguistics, 2010. 46–53. Web. 15 June 2020. <https://www.aclweb.org/anthology/W10-1607.pdf>.

Arntz, Reiner; Picht, Heribert, and Klaus-Dirk Schmitz. *Einführung in die Terminologiearbeit*. Hildesheim: Olms, 2014. Print.

Barzilay, Regina, and Noemie Elhadad. "Sentence alignment for monolingual comparable corpora". *Proceedings of EMNLP*. ACL, 2003. Web. 15 June 2020. <https://www.aclweb.org/anthology/W03-1004/>.

Bentivogli, Luisa; Bisazza, Arianna; Cettolo, Mauro, and Marcello Federico. "Neural versus phrase-based machine translation quality: a case study". Web. 15 June 2020. arXiv preprint arXiv:1608.04631.

Bredel, Ursula, and Christiane Maaß. *Leichte Sprache. Theoretische Grundlagen, Orientierung für die Praxis*. Berlin: Duden. 2016a. Print.

Bredel, Ursula, and Christiane Maaß. *Ratgeber Leichte Sprache*. Berlin: Duden. 2016b. Print.

Chen, Ping; Rochford, John; Kennedy, David N.; Djamasbi, Soussan; Fay, Peter, and Will Scott. "Automatic Text Simplification for People with Intellectual Disabilities". *Artificial Intelligence Science and Technology*. 2016. Web. 15 June 2020. <https://uxdm.wpi.edu/research/2016-AIST.pdf>.

Clark, Herbert. *Using Language*. New York: Cambridge UP, 1996. Print.

DIN 2330 (2013-07). *Begriffe und Benennungen; Allgemeine Grundsätze*. Berlin: Deutsche Industrienorm.

DIN 2342 (2011-08). *Begriffe der Terminologielehre*. Berlin: Deutsche Industrienorm.

Dragsted, Barbara. *Segmentation in translation and translation memory systems: An empirical investigation of cognitive segmentation and effects of integrating a TM system into the translation process*. Copenhagen: Samfundslitteratur, 2004. Print.

DTT, Deutscher Terminologietag e. V., und DIT, Deutsches Institut für Terminologie e. V. *Terminologiearbeit – Best Practices*. Köln: DTT, 2010.

Fuchs, Julia. "Leichte Sprache auf dem Prüfstand. Realisierungsvarianten von kausalen Relationen in Leichte-Sprache-Texten". *Sprachwissenschaft* 44.4 (2019): 441–480. Print.

Glavaš, Goran, and Sanja Štajner. "Simplifying Lexical Simplification: Do We Need Simplified Corpora?" *Proceedings of the 53rd Annual Meeting of the Association for Computational Linguistics and the 7th International Joint Conference on Natural Language Processing (Volume 2: Short Papers)*, 2015. 63–68. Web. 15 June 2020. <https://www.aclweb.org/anthology/P15-2011.pdf>.

Guerberof, Ana. "Productivity and quality in the post-editing of outputs from translation memories and machine translation". *Localization Focus* 7.1 (2009): 11–21. Print.

Hearne, Mary, and Andy Way. "Statistical Machine Translation: A Guide for Linguists and Translators." *Language and Linguistics Compass* 5.5 (2011): 205–226. Print.

Heyn, Maias. "Translation memories: Insights and prospects", Eds. Lynne Bowker, Michael Cronin, Dorothy Kenny, and Jennifer Pearson. *Unity in diversity? Current trends in translation studies*. Manchester: St. Jerome, 1998. 123–136. Print.

Hutchins, W. John, and Harold Somers. *An Introduction to Machine Translation*. London: Academic Press Inc, 1992. Web. 15 June 2020. <http://www.hutchinsweb.me.uk/IntroMT-TOC.htm>.

Klaper, David; Ebling, Sarah, and Martin Volk. "Building a German/Simple German parallel corpus for automatic text simplification". *ACL Workshop on Predicting and Improving Text Readability for Target Reader Populations*. Sofia: ACL, 2013. 11–19. Print.

Koehn, Philipp. 2014. *Neural machine translation*. Web. 15 June 2020. arXiv preprint arXiv:1709.07809.

KÜDES. Konferenz der Übersetzungsdienste Europäischer Staaten. *Empfehlungen für die Terminologiearbeit* 2nd ed. Bern: Schweizerische Bundeskanzlei, 2002. Print.

Läubli, Samuel; Amrhein, Chantal; Düggelin, Patrick; Gonzalez, Beatriz; Zwahlen, Alena, and Martin Volk. *Post-editing Productivity with Neural Machine Translation: An Empirical Assessment of Speed and Quality in the Banking and Finance Domain*. arXiv, 2019. Web. 15 June 2020. arXiv:1906.01685 [cs].

Lieske, Christian, and Melanie Siegel. "Verstehen leicht gemacht". *Technische Kommunikation* 1, 2014. Web. 15 June 2020. <www.melaniesiegel.de%2Fpublications%2F2014_tekom_Lieske-Siegel.pdf>.

Maaß, Christiane, and Isabel Rink. "Über das Handbuch Barrierefreie Kommunikation." Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 17–25. Print.

Mandya, Angrosh Annayappan; Nomoto, Tadashi, and Advaith Siddharthan. *Lexico-Syntactic Text Simplification and Compression with Typed Dependencies*. ACL, 2014.Web. 15 June 2020. <https://oro.open.ac.uk/58891/1/C14-1188.pdf>.

Moorkens, Joss; Toral, Antonio; Castilho, Sheila, and Andy Way. *Translators' perceptions of literary post-editing using statistical and neural machine translation*. TS 7, 2018. 240–262. Web. 15 June 2020. <https://doi.org/10.1075/ts.18014.moo>.

Nitzke, Jean; Hansen-Schirra, Silvia, and Carmen Canfora. "Risk management and post-editing competence." *Journal of specialised translation* 31 (2019): 239–259.

O'Brien, Sharon. "Eye-tracking and translation memory matches". *Perspectives: Studies in Translatology* 14.3 (2007): 185–205. Web. 15 June 2020. <doi: 10.1080/09076760708669037>.

O'Brien, Sharon. "Towards Predicting Post-Editing Productivity." *Machine Translation* 25.3 (2011): 197–215. Web. 15 June 2020. <doi:10.1007/s10590-011-9096-7>.

Ottmann, Angelika. *Best Practices – Übersetzen und Dolmetschen: Ein Nachschlagewerk aus der Praxis für Sprachmittler und Auftraggeber*. Berlin: BDÜ Fachverlag, 2017. Print.

Paetzold, Gustavo. "Reliable Lexical Simplification for Non-Native Speakers". *Proceedings of the 2015 Conference of the North American Chapter of the Association for Computational Linguistics: Student Research Workshop*. ACL, 2015. 9–16. Web. 15 June 2020. <https://www.aclweb.org/anthology/N15-2002.pdf>.

Pedersen, Jan. "How is Culture Rendered in Subtitles?". Ed. Sandra Nauert. *MuTra 2005 – Challenges of Multidimensional Translation: Conference Proceedings*. Saarbrücken, 2005. 1–18.

Pedersen, Jan. "High felicity. A speech act approach to quality assessment in Subtitling". Eds. Delia Chiaro, Christine Heiss, and Chiara Bucaria. *Between Text and Image. Updating Research in Screen Translation*. Amsterdam: Benjamins, 2008. 101–115.

Porsiel, Jörg. *Machine Translation – What Language Professionals Need to Know*. Berlin: BDÜ Fachverlag, 2017. Print.

Porsiel, Jörg. *Machine Translation for Translation Professionals* Berlin: BDÜ Fachverlag, 2020. Print.

Reinke, Uwe. *Translation Memories: Systeme – Konzepte – Linguistische Optimierung*. Frankfurt am Main: Peter Lang, 2004. Print.

Reuther, Ursula. *Leichte Sprache und regelbasiertes Schreiben in der Technischen Dokumentation*. Web. 15 June 2020. <https://www.slideshare.net/slideshow/embed_code/key/3nXLarkXXHMzMU>.

Rink, Isabel. *Rechtskommunikation und Barrierefreiheit. Zur Übersetzung juristischer Informations- und Interaktionstexte in Leichte Sprache*. Berlin: Frank & Timme, 2020. Print.

Scarton, Carolina, and Lucia Specia. "Learning Simplifications for Specific Target Audiences". *56th Annual Meeting of the Association for Computational Linguistics*. Melbourne, 2018. 712–718.

Schaeffer, Moritz; Nitzke, Jean, and Silvia Hansen-Schirra. "Predictive Turn in Translation Studies: Review and Prospects". Eds. Stanley Brunn, and Roland Kehrein. *Handbook of the Changing World Language Map*. Springer, Cham, 2019a. <doi: 10.1007/978-3-319-73400-2_217-1>.

Schaeffer, Moritz; Halverson, Sandra, and Silvia Hansen-Schirra. "'Monitoring' in translation. The role of visual feedback." *Translation, Cognition & Behavior*, 2.1 (2019b): 1–33. <doi: 10.1075/tcb.00017.sch>.

Schaeffer, Moritz; Nitzke, Jean; Tardel, Anke; Oster, Katharina; Gutermuth, Silke, and Silvia Hansen-Schirra. "Eye-tracking revision processes of translation students and professional translators." *Perspectives* 27.4 (2019c): 589–603. Print.

Schaeffer, Moritz; Tardel, Anke; Hofmann, Sascha, and Silvia Hansen-Schirra. "Cognitive Effort and Efficiency in Translation Revision." Eds. Elsa Huertas-Barros, Sonia Vandepitte, and Emilia Iglesias-Fernández. *Quality Assurance and Assessment Practices in Translation and Interpreting.* Hershey: IGI Global, 2019d. 226–243.

Schmitz, Klaus-Dirk. "Über (das) Setzen von Terminologie." Eds. Barbara Ahrens, Silvia Hansen-Schirra, Monika Krein-Kühle, Michael Schreiber, and Ursula Wienen. *Translationswissenschaftliches Kolloquium II. Beiträge zur Übersetzungs- und Dolmetschwissenschaft* (Köln/Germersheim). Frankfurt am Main: Peter Lang, 2012. 221–228. Print.

Seewald-Heeg, Uta. "Der Einsatz von Translation-Memory-Systemen am Übersetzerarbeitsplatz." *MDÜ (Mitteilungen für Dolmetscher und Übersetzer)* 4–5(2005): 8–38. Web. 15 June 2020. <http://www.across.net/doc/811.pdf>.

Siegel, Melanie, and Christian Lieske. "Beitrag der Sprachtechnologie zur Barrierefreiheit: Unterstützung für Leichte Sprache." *trans-kom* 8.1 (2015): 40–78.

Tardel, Anke, Hansen-Schirra, Silvia, Schaeffer, Moritz, Gutermuth, Silke, Denkel, Volker, and Hagmann-Schlatterbeck, Miriam. "Monitoring in the intralingual subtitling process." Eds. Silvia Hansen-Schirra, Moritz Schaeffer, Jean Nitzke, Katharina Oster, Silke Gutermuth, Anke Tardel, Anne-Kathrin Gros, and Janna Verthein. *Translation, Interpreting and Cognition*. Berlin: Language Science Press, in print. Print.

Toral, Antonio, and Víctor M. Sanchez-Cartagena. "A Multifaceted Evaluation of Neural versus Phrase-Based Machine Translation for 9 Language Directions". *Proceedings of the 15th conference of the European chapter of the association for computational linguistics, vol 1*. Long Papers: Valencia, 2017. 1063–1073. Web. 15 June 2020. arXiv:1701.02901 [cs.CL]

Toral, Antonio, and Andy Way. "Machine-Assisted Translation of Literary Text: A Case Study". *Translation Spaces* 4.2 (2015): 241–268. Print.

Toral, Antonio, and Andy Way. *What Level of Quality can Neural Machine Translation Attain on Literary Text? 2018.* Web. 15 June 2020. CoRR abs/1801.04962.

Vardaro, Jennifer; Schaeffer, Moritz, and Silvia Hansen-Schirra. "Comparing the Quality of Neural Machine Translation and Professional Post-Editing". *Eleventh International Conference on Quality of Multimedia Experience (QoMEX)*. Berlin, 2019a. 1–3. Print.

Vardaro, Jennifer; Schaeffer, Moritz, and Silvia Hansen-Schirra. "Translation Quality and Error Recognition in Professional Neural Machine Translation Post-Editing". *Informatics* 6.3 (2019b): 41. Print.

Welch, Birgit, and Gabriele Sauberer. "Easy-to-Read Language and Terminology: New Needs, New Rules, New Software?" *Proceedings of the European Conference on*

Software Process Improvement. EuroSPI 2019: Systems, Software and Service Process Improvement, 2019. 647–658. Print.

ZEHRER, CHRISTIANE. "Schreib- und Übersetzungswerkzeuge für die Barrierefreie Kommunikation." Eds. CHRISTIANE MAAß, and ISABEL RINK. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 583–597. Print.

Part 3:
Multimodal and Multicodal Easy Language Texts

Christiane Maaß, Sergio Hernández Garrido

Easy and Plain Language in Audiovisual Translation

1 Introduction

Accessibility of audiovisual communication is in demand and a stated mission of producers and providers of audiovisual products. This applies to all forms of audiovisual formats and distributing platforms. In television, public television channels in particular are systematically making their broadcasts accessible through audiovisual translation (subtitles, audio description etc.) (Jüngst 2010: 1ff, for an outline of the situation of German public television, cf. Heerdegen-Wessel 2019). European film funding requires that films that receive subsidies are made accessible for people with disabilities. On the internet, it is the Directive (EU) 2016/2102 of the European Parliament and of the Council on the accessibility of the websites and mobile applications of public sector bodies (EN 2102) that stipulate accessibility of public websites.

Easy and Plain Language are two very effective and visible forms of accessible communication (Bredel/Maaß 2016a; cf. also the other articles in this volume). In practice, attention has so far mostly been limited to reading printed information or online information. The important activity of implementing Easy and Plain Language in audiovisual translation has been largely ignored.

This paper is based on a concept of audiovisual translation that includes all forms of translation and interpreting between different modalities involving tertiary media of any type. Audiovisual products often contain forms of translation; specialised forms of audiovisual translation such as Subtitling for the Deaf and Hard of Hearing (SDH) or Audio Description have emerged and are conceived as forms of accessible communication. There is currently a solid foundation of scientific research on these forms of translation (Mälzer/Wünsche 2019a, Benecke 2014a, 2014b, 2019, Díaz-Cintas/Remael 2009, Neves 2019, Dosch/Benecke 2004, Braun 2007, etc.).

The present paper explores how Easy and Plain Language can be inserted in audiovisual texts. A general outline is presented and hypotheses are formu-

lated on the basis of previous research and insight into the text practice. As a next step, these hypotheses will have to be verified with different target groups of Easy and Plain Language and profiled in order to further differentiate the field.

2 Easy and Plain Language as means of accessible communication

2.1 Easy and Plain Language translation as a means to overcome communication barriers

Easy and Plain Language are language varieties with enhanced comprehensibility. They are used in different scenarios and have different target groups, depending on context and mediality (cf. for example the publications of Bredel/Maaß as in 2016a,b, 2018, 2019; of Maaß as in 2015, 2019b, 2020 and the articles in Bock et al 2017). Creating Easy and Plain Language texts on the basis of a standard language or expert language source text is considered intralingual translation according to Jakobson (1959; for an application to Easy Language cf. Bredel/Maaß 2016a, Maaß 2019a, Rink 2020).

Translation can be defined as overcoming communication barriers (Maaß 2019a: 292ff; Rink 2020: 135ff). Those barriers prevent users from accessing texts. Rink (2019, 2020: 135ff) points out that a text can be

- … a **sensory barrier** if it requires a sensory channel that the users do not have at their disposal (for example an audio text for a person that does not hear).
- … a **cognitive barrier** if it is too abstract for the recipient to process.
- … a **motoric barrier** if its physical shape and mediality are not adequate for the users, for example if a website is only accessible via mouse and the user navigates online sites via tab stop.
- … a **language barrier** if it is in a language that the users do not have at their disposal.
- … an **expert knowledge barrier** or **expert language barrier** if it uses specialised language or addresses experts and the users are not experts.

- … a **cultural barrier** if a text presupposes cultural concepts that the users do not know or share.
- … a **media barrier** if its mediality or channel of distribution are not preferred by or accessible to potential users.

Not all users will have access to all forms of platforms or medialities, depending on their physical capabilities, media preferences or the equipment infrastructure that is available to them (Maaß 2020). Audiovisual translation thus dismantles the barriers that prevent users of different profiles to access content.

2.2 Easy Language

Easy Language is known to tackle

- the **sensory barrier** insofar as Easy Language texts are perceptibility enhanced (cf. Kröger in the present volume);
- the **cognitive barrier** insofar as presuppositions and implicatures in texts are brought to the text surface and explained while texts are often information reduced in order to not provoke cognitive overload in users with special needs (cf. Maaß/Rink in the present volume);
- the **language barrier** insofar as only central vocabulary and basic grammatical structures are used (cf. Schiffl in the present volume);
- the **expert knowledge** and **expert language barrier** insofar as expert language is reduced to the necessary minimum and knowledge is not presupposed but systematically built up (cf. Ahrens in the present volume);
- the **cultural barrier** as, again, EL texts explain explicitly what is presupposed in terms of culture (cf. Keller in the present volume).

Easy Language is produced by rule-governed techniques of reduction and addition (Bredel/Maaß 2016a, b): On the one hand, the vocabulary and grammatical inventory are reduced to a minimum making it difficult to express complex issues. On the other hand, covert complexity is made explicit and knowledge is built up by explanations in the text (cf. Hansen-Schirra/Bisang/Nagels/Gutermuth/Fuchs/Borghardt/Deilen/Gros/Schiffl/Sommer, Hansen-Schirra/Maaß

and Maaß/Rink in the present volume). Strategies to enhance perceptibility lead to a further increase in volume. On the other hand, the total amount of information has to be limited with regard to the target audience's capacities of information intake, and additionally with regard to restrictions of the medium (for example in audiovisual translation: the number of characters that fit into a subtitle).

Easy Language primarily addresses people with communication impairments: People with cognitive disabilities (see Keller in the present volume), prelingual hearing impairments (cf. Deilen in the present volume), dementia, aphasia as well as other forms of disability (Bredel/Maaß 2016a). If texts are made available in Easy Language, there is usually a bigger range of users who profit from those offers, including non-natives (cf. Ahrens in the present volume), and especially in expert-laypeople communication (for example medical or legal communication). According to the established guidelines, Easy Language is maximally perceptible and comprehensible. On the other hand, it has an acceptability issue (cf. Bredel/Maaß 2016a, 2019b, Hansen-Schirra/Maaß in this volume, Maaß 2020): Easy Language communication offers often have the potential to stigmatise users with disabilities.

The origins of Easy Language are in printed information, hence its alternative name "Easy-to-Read"; see Maaß (2019b and 2020) on why this term is inappropriate. In our context of audiovisual translation, only some of the forms (like subtitles) are actually intended for reading so that the term "Easy-to-Read" would impose unnatural boundaries in the field of accessible audiovisual communication. Today, most Easy Language information is made available online; the information in Easy Language is intended for reading, but audio formats may be also included:

Figure 1: Embedded audio version of a news text on NDR.de

Translation of Figure 1:
Experts find a lot of cocaine.
This year, experts have found a lot of cocaine.
Cocaine is a drug.
Drugs are dangerous for the body.
Therefore, drugs are illegal.

In recent years, we have seen an expansion in the domains of Easy Language. What stands out especially is Easy Language interpreting (cf. Schulz et al. in the present volume) that is used in Germany in the setting of inclusive conferences and events. Forms of court interpreting into Easy Language have also been reported. It is very probable that Easy Language interpreting does not follow the strict rule set of Easy Language as for example in Bredel/Maaß (2016a, 2016b) or Maaß (2015), but that instead it is a form of Plain Language. Plain Language is less rule-governed (cf. Bredel/Maaß 2016a and 2016b, Maaß 2020) and easier to produce spontaneously in an interpreting situation. Even if it is rather Plain than Easy Language that is produced in such settings, the term Easy Language is used in practice as the target audiences are usually people with disabilities, or, more specifically, mostly people with cognitive impairments. In Germany, they have the right to receive certain types of written and oral information in Easy Language so that Easy Language interpreting refers to that right to accessible information in the context of disability legislation.

In audiovisual contexts, Easy Language has not yet been addressed theoretically, even though there is a mounting number of practical examples (for instance, the NDR in Germany, see example above).

2.3 Plain Language

Plain Language is more flexible in its rules and closer to the standard than Easy Language (cf. Bredel/Maaß 2016a, Maaß 2020). It is not primarily aimed at users with disabilities, but rather at an audience with reading difficulties or reduced language skills including functional illiterates or people with German as a second language. It is also used in the context of expert-laypeople communication, and this beyond the German context:

- In technical communication, there are several manuals for complexity reduced technical communication, see for example Simplified Technical English (Hoard et al. 1992) or other projects.
- In projects of citizen-oriented language, we refer to the example of Switzerland (Nussbaumer 2017).
- In projects of medical communication, these efforts in Germany are just being intensified with the National Action Plan Health Literacy (2018) that demands Plain Language medical and health information to improve health competence of groups vulnerable to chronic disease.
- In news broadcasts like www.nachrichtenleicht.de or the News Information of Deutschlandfunk on Instagram that use Plain Language to address an audience without disabilities searching for quick and easy-to-process information.

Target texts in Plain Language are closer to the standard and do not differ from unimpaired users' expectations. The downside is that it is less effective at reducing the barriers a text may represent for users with communication impairments. This might impede understanding for those users but usually leads to more acceptability of the target text by an unimpaired audience (cf. Hansen-Schirra/Maaß in the present volume and Maaß 2020).

In interpreting settings, Easy Language is also used to address people with disabilities: Easy Language interpreting has already been mentioned. As the

interpreting situation involves further information like facial expression and body language, a reduction to the level of Easy Language is not always necessary to grant access. What is more, it is hardly possible to produce clear-cut Easy Language spontaneously. Therefore, it is speculated that the variety produced in Easy Language interpreting is rather Plain than Easy Language with regard to linguistic complexity; further research is needed, however, to prove this assumption.

3 Easy and Plain Language in audiovisual translation

3.1 Audiovisual translation

Audiovisual translation (AV translation) is usually defined as translation of media formats that have an auditory and a visual component (Jüngst 2010: 1, Pérez-González 2014). The translation techniques involve oral or written, spontaneous and pre-planned forms. AV translation scenarios are considered to be "partial translations" (Catford 1965), meaning that elements from the source text remain unchanged; material from the source text is either replaced (e.g. dubbing, where the audio track is exchanged with a new track in another language) or complemented by new material (e.g. subtitling, where the subtitles are added to the source text).

In the strictest sense, audiovisual translation is limited to filmed material (subtitles, audio description). In a broader sense, the concept extends to all kinds of multimodal information offers: many contexts convey audio as well as visual information in different forms of mediality. For example, opera supertitles are often counted as a form of audiovisual translation. But opera is a real-life situation and not a filmed media text. The same is true for film interpreting: The interpreters and the audience are present in the same room where the film is played and the interpreters spontaneously produce an additional audio that is separate from the audio track of the film and is perceived through headphones in the real-life situation. These forms are not covered by the classical, strict concept of AV translation, but it would defy logic to exclude them as they share many qualities with AV translation in its strictest sense. On the other hand, the concept would be blurred if it was opened to all forms of translation and interpreting situations where audio and visual information is involved: This is also the case for all forms of face-to-face interpreting that take

place in enriched situations where people interact and share objects and sign systems of different types.

We thus propose the following definition: Audiovisual translation includes all forms of translation and interpreting between different modalities involving tertiary media of any type. This concept is based on Pross' (1972) distinction between primary, secondary and tertiary media. Primary media do not use devices, that is, a technically enforced channel between the sender and the recipient of a text; instead, "people's senses are sufficient to produce, transport and consume the message" (Bedijs/Maaß 2017: 3 with reference to Pross 1972: 145). Examples of primary media texts are in fact opera or theatre performances, concerts and other forms of stage texts. Secondary media use technical devices to produce content, but there are no devices for content perception. Typical secondary media are printed materials that need a printing press to be produced but can be used directly without a device. "Tertiary media depend on technical devices for content production and content perception" (Bedijs/Maaß 2017: 3). Tertiary media texts are produced to be consumed via devices: TV, radio, smartphone or computer, electrical indicator panels or others. Audiovisual translation, therefore, involves audio and visual information and perception of at least parts of the complex text via screen. This concept includes theatre supertitles (as the translated surtitles are fed into the complex primary media text via screen) and speech-to-text interpreting (as the spontaneously produced verbal content of a complex primary media text is transformed and projected via screen) but excludes other forms of interpreting in face-to-face settings.

In research, AV translation has gradually been gaining more and more relevance since the beginning of the 21st century, becoming a strong branch within the field of translation studies or rather establishing itself as an area of research in its own right (Romero-Fresco 2019: 8, Díaz Cintas/Anderman 2009, Pérez-Gonzalez 2014: 91).

Classical forms of AV translation take place in television and cinema formats, but there are also other scenarios and text types that fit into the definition of AV translation given above. Typical forms of audiovisual translation are **dubbing**, (interlingual) **subtitling** and **voiceover.** Taking into account accessibility services, **audio description** and **subtitling for the deaf and hard of hearing** (SDH) can be added to the list. As we argued above, forms like **supertitles** (in theatre and opera) and **speech-to-text interpreting** (for example, in confer-

ences for persons with hearing impairments) can likewise be considered part of the field of AV translation. Jüngst (2010) adds **film-interpreting** as another form of AV translation. Due to technical advances in society, new text types in different scenarios arise constantly (Jüngst 2010), rapidly leading to innovations within already established modalities and even to new possible forms of AV translation (Pérez-Gonzalez 2014, Díaz Cintas/Anderman 2009).

AV translation has a strong link to accessibility (Romero-Fresco 2019). In order to make audiovisual products accessible for persons with communication impairments, and thus follow international accessibility directives, translators work with forms of AV translation such as audio description and subtitling for the deaf and hard of hearing (SDH) (Romero-Fresco 2019: 9, Pérez-Gonzalez 2014: 24). In this case, the term "translation" does not limit itself to overcoming the language barrier in the sense of interlingual and intercultural translation, but can also be intralingual (e.g. SDH, where the source language is not changed) and/or intersemiotic (e.g. audio description, where images are translated into words) in order to overcome other types of communication barriers (see Section 2.2) (cf. Bredel/Maaß 2016 with reference to Jakobson 1959). For this reason, accessibility services as the ones listed above are part of the field of AV translation.

Easy and Plain Language have not been explored systematically in light of audiovisual translation (for a first outline, cf. Bernabé Caro/Orero 2020). We will discuss the different forms of audiovisual translation listed above and consider the possibilities of using them with Easy or Plain Language (see Section 3.4).

3.1.1 Dubbing

This form of audiovisual translation helps to overcome the language barrier. It replaces the original dialogues with another track that contains the recorded translation into a target language. In the process, the remaining tracks (music and sound effects) are left in their original version (Chaume 2012: 1, Jüngst 2010: 59). Quality standards such as synchrony (including lip-sync, kinesic synchrony and isochrony), credible and realistic dialogue lines, coherence between images and dialogues, clear sound quality, performance of the recorded dialogues and loyalty during the translation process are key for the success of a dubbed product (Chaume 2012: 15, Wisniewski 2012: 269ff, Herbst 1994).

Historically, dubbing has been connected to a sense of loyalty and mistrust (Chaume 2012: 17, Jüngst 2010: 61). Viewers often expect to be presented with, to as great an extent as possible, the same film that the original target audience watched, including the content, function, effect and form of the dialogues (Chaume 2012: 17). Nevertheless, dubbing is by its nature a process that changes, or replaces, a specific aspect of the original product, namely the dialogues. It is not possible to transfer the content in its entirety while dubbing (Leinert 2015), something that most viewers expect due to their years of experience with this form of audiovisual translation (Chaume 2012: 1). This causes a sense of mistrust that represents an acceptability issue, which is a limiting factor for Easy and Plain Language renderings of the dialogue track.

3.1.2 Audio description

This accessibility service helps to overcome the sensory barrier that originates from visual impairments when consuming an audiovisual product. Through audio descriptions (AD), "[…] visually impaired viewers can access films, television programs, theatre performances and museum exhibits, and thus participate more fully in cultural and social life" (Mazur 2018: 127). In the sense of Jakobson, AD can be defined as an intersemiotic translation (Jakobson 1959, Mazur 2018: 127, Igareda 2011), where images are "described" in a written text (AD script) that is afterwards recorded in an audio track that has to fit into the intervals without any dialogues, music or (relevant) sound effects (Benecke 2019, 2014a, 2014b, Reviers 2012, Jüngst 2010: 103). This means that the additional information has to be rendered without changing or intervening in the original soundtrack. The new "total" soundtrack, with the audio description, has to be a logically integrated whole (Jüngst 2010). In comparison to SDH (subtitles for the deaf and hard of hearing, see below), where the empowerment movement and end-users have already stated some reservations (see below), AD so far has not shown acceptability problems. This may be because it is restricted in regard to mediality and because there is also a change in the semiotic resources.

3.1.3 Supertitles

Also known as "surtitles", this form of audiovisual translation is mainly used in opera and theatre scenarios (Jüngst 2010: 146, Burton 2009, 2010, Vervecken 2012, Mälzer/Wünsche 2019b, Díaz Cintas/Remael 2009). The communication

barrier that is tackled through supertitles is the language barrier. Their name is derived from the position in the final product: The supertitles are (generally) located above the stage. There are strong similarities with another form of audiovisual translation, namely subtitling; the differences are, however, the mediality of the complex media text (opera being a primary media text but for the supertitles, film being a tertiary media text) and the workflows to produce super- and subtitles respectively. The surtitles translate the lines of an opera or a play with as much synchrony as possible (like in the case of subtitles). Supertitles are usually scripted and inserted live during the play so that there are no specific time cues to be followed; Griesel (2007) therefore distinguishes between a translation component (the scripting) and an interpreting component (the live insertion) of supertitles.

3.1.4 Subtitles

Due to its frequent use, this form of AV translation is perhaps, besides dubbing, the most well-known amongst those listed. Subtitles render the original dialogue of the speakers in a film or TV production in written form (Díaz Cintas/Remael 2009, Jüngst 2010: 25, Romero-Fresco 2019: 62). They generally appear on the lower part of the screen and also recount "[…] the discursive elements that appear in the image (letters, inserts, graffiti, inscriptions, placards, and the like), and the information that is contained on the soundtrack (songs, voices off)" (Díaz Cintas/Remael 2009: 8).

Subtitles come in different forms:

- intralingual (without language shift) or interlingual (with language shift), depending on the target group that is being addressed
- scripted (produced in a translation process) or non-scripted (produced in an interpreting process)
- closed captions (the viewer can choose to activate them) or open captions (subtitles are part of the production and cannot be deactivated)

Subtitles, unlike e.g. dubbing, are visible (Romero-Fresco 2019: 62). This means that the viewers visually perceive them while hearing the original dialogues. Furthermore, subtitles render a condensed translation of the original. These two aspects are sources for critics of this form of audiovisual translation (Diaz Cintas/Remael 2009, Romero-Fresco 2019, Jüngst 2010). An audience

that knows the source language detects the "missing" information and that the text does not fully match what the character is saying.

3.1.5 Subtitles for the Deaf and Hard of Hearing

Subtitles for the Deaf and Hard of Hearing (SDH) help to overcome the sensory barrier; they make audio information visible. SDH come in the form of intralingual as well as interlingual subtitles (Romero-Fresco 2019: 98, Jüngst 2010: 124, Neves 2009: 151, 2010: 123, 2019). Unlike subtitles for viewers without hearing impairments, SDH do not only include verbal information, but also non-verbal information like sound effects, music, manner of speaking, and information for character identification (Romero-Fresco 2019, Jüngst 2010, Mälzer/Wünsche 2019a). They can be open or closed; their distinctive aspect is that the product is mainly targeted at a specific group: the deaf and hard of hearing.

In order to promote perceptibility and comprehensibility of SDH, subtitles often have to select information (Romero-Fresco 2019, Jüngst 2010, Mälzer/Wünsche 2019a). This also plays a role in the subtitles' synchrony to the product's spoken lines. Nevertheless, target group associations frequently express their discomfort with this practice. They believe that it leads to withholding of information from target groups that cannot otherwise access this information (Romero-Fresco 2009, Mälzer/Wünsche 2019a). Furthermore, they should be able to decide for themselves which information is relevant and which is not. This leads to a dilemma: How much information can be left out in SDH in order to still keep them acceptable for the target group? On one side, verbatim subtitles that render the whole content could overtax the viewers and not leave them enough time to read and watch the film. On the other side, edited subtitles are accused of withholding information (Romero-Fresco 2009, Mälzer/Wünsche 2019a).

3.1.6 Voiceover

In this form of audiovisual translation, "[…] the translating voice is heard on top of the translated voice" (Franco/Matamala/Orero 2013: 19). Unlike dubbing, the original dialogue is not replaced but overlaid by the translation. It is common practice to allow the viewers to hear the first seconds of the original voice before the voice-over track starts. Then, the original speech's volume is reduced and the voiceover is played in; the translation ends a few seconds

before the original speech, so that the audience can hear the last seconds of it (Jüngst 2010: 87, Romero-Fresco 2019: 59, Franco/Matamala/Orero 2013: 19, Díaz Cintas/Orero 2010: 441). In some countries in Eastern Europe, this form of audiovisual translation is also used in fiction formats while in other countries it mainly appears in non-fiction formats such as news, documentaries, reports, etc. (Romero-Fresco 2019: 59). Voiceover tackles the language barrier as voice over is a form of interlingual translation.

3.1.7 Film interpreting

This scenario is used during a live transmission of the film in question. The film interpretation is transmitted either through loudspeakers or selectively through headphones (Jüngst 2010: 157). Just like voiceover, film interpreting does not replace the original track; the viewers can still hear the original dialogues played at a lower volume, the interpretation is over this soundtrack. The interpreters do their job live during the film transmission (Jüngst 2010: 157).

This form of audiovisual translation is mainly implemented at film festivals if no dubbed version is available at the moment of transmission. As it is produced spontaneously, is closer to spoken than to written forms. If the script is available before the event, the interpretation can be scripted, but this scenario is not frequent (Jüngst 2010).

3.1.8 Speech-to-text interpreting

Speech-to-text interpreting is an intersemiotic form of audiovisual translation, in which a spoken source text is transformed simultaneously into a written text by an interpreter using speech recognition software (Witzel 2019: 303, Romero-Fresco/Pöchhacker 2017). It is also known as "real-time captioning". It is considered to be one of the most challenging forms of media accessibility and mistakes and delays almost always occur (Romero-Fresco/Pöchhacker 2017: 149). The target group of this service are persons with hearing impairments that, with the help of this form of AV translation, can follow a live conference, presentation, event, etc. This form of accessibility service can be understood as audiovisual translation in the sense that audio information in a given situation is transferred into written information on screen.

3.2 Parameters of EL/PL AV translation

In this section we will systematically explore what factors influence the choice of EL and PL in AV translation. In the following sections, we will then focus on overall challenges to EL and PL AV translation (3.4) and continue with an overview of the implementation of EL and PL in various modalities of AV translation (3.4). As became apparent, the following parameters are decisive for the EL/PL options presented:

3.2.1 New creation vs. translation:

a) An AV text can be scripted directly in EL/PL, for example the audio track of a film.
b) An EL / PL component can be added to an AV text (the latter being or not being in EL/PL). Here, different forms of AV translation can be chosen (Jüngst 2010: 1ff), for example:

- dubbing
- audio description
- subtitles/supertitles (also in the form of SDH), live or scripted
- voiceover
- film interpreting
- speech-to-text interpreting

These forms have different opportunities and hazards, depending on the factors presented hereafter. The opportunities are linked to this first criterion: If an AV product is originally in EL/PL, there are many more options for EL/PL forms of AV translation. If the original AV text is **not** in EL/PL, EL in particular shows an increased risk of stigmatising the users if used in AV translation. This is the case even if they are part of the effort to grant access to people with communication impairments (Bredel/Maaß 2016, 2019, Maaß 2019b, 2020).

3.2.2 Inclusive vs. accessible

With regard to the conception of EL/PL in AV translation, there are again two possibilities:

a) Are EL or PL translations planned or integrated into an AV product right from the start that is designed to be as accessible ab initio?
b) Or are they added at a later point of time into a "regular" AV product that was initially designed without EL/PL?

This dichotomy proves to be a rather strong restriction especially for EL: Some forms of AV translation prove to be inadequate if the product is not designed as such from the start. For example, EL/PL dubbing is only possible if the dialogues in the original audio track are also in EL/PL. Because EL differs so considerably from the typical standard, it is technically and ethically problematic to make the original actors or the narrator speak in EL if they do not do so in the original (see Section 3.4.1 for more information).

If the whole project is situated in the frameworks of accessibility or, what is more, inclusion (for the difference between accessible and inclusive offers cf. Mälzer/Wünsche 2019b), it is possible to plan accordingly, involving the original actors, writers etc. in the process: see Romero-Fresco (2019) for what he describes as "accessible filmmaking", where AV translation and accessibility are planned from the beginning; to succeed, the interaction amongst all actors must be given. The earlier the integration of EL/PL is planned, the higher the probability of creating an inclusive product that also includes the target groups. If the EL/PL AV translation is added afterwards and is not planned from the beginning, the product will result in being "just" accessible as the EL/PL translation would only help to overcome barriers in the original version. As EL greatly deviates from the standard, it is unsuitable for most of these uses and PL will mostly be more appropriate (see Section 4).

An example for an inclusive text offer that integrates EL *ab initio* into an accessible communication offer is the fairytale project that the Research Centre for Easy Language and the North German Broadcasting Association shared: In the project, German fairytales were rendered in sign language with EL audio track and subtitles. The script of the project is in EL and the texts are also available in an illustrated reading version in EL with EL audio-track. The sign language version was recorded on the basis of the EL script what makes it conceptually compatible. The script was then transferred into EL subtitles; the EL audio track was integrated in the illustrated sign language video. The image shows a screenshot from the project.

Figure 2: Little Red Riding Hood in Sign Language with EL audio track and subtitles. © NDR.de

Translation of the subtitle in Figure 2: This fairytale is called: Little Red Riding Hood

3.2.3 Fictional vs. non-fictional

With regard to the genre, there are two options:

a) The AV text is **fiction**.
b) The AV text is **non-fiction**. We propose categorising non-fictional AV texts in three groups:
   - news / infotainment / coverage of events
   - teaching and education
   - organisational communication

Leaning on categorisations in the field of translation studies, where a differentiation between the translation of literary and factual texts is traditionally made (cf. e.g. Siever 2015, Stolze 2018, Reiss/Vermeer 1984, Kadric/Kaindl/Cooke 2011, Koller 2011, etc.), we propose the dichotomy of fictional vs. non-fictional AV texts. In translation studies, these terms refer to the texts' content; fictional (or literary) texts describe a content resulting from the imagination of the writer, while non-fictional (or factual) texts work with factual material. We

adhere to this definition and use "fiction" and "non-fiction" to refer to the content of the AV text. A difference between literary and factual texts is the relevance of the aesthetic dimension that is higher for the first text type. Conventionally, literary texts are expected to follow and fulfill specific aesthetics criteria (Koller 2011). In AV translation, this differentiation is not that categorical, as AV products – fictional as well as non-fictional – usually have an aesthetic dimension.

In EL, comprehensibility ranks well above the aesthetic value and diversity of language. Linguistic beauty and poetic language use are usually linked to linguistic diversity and go beyond the central linguistic inventory in lexis and grammar that is typical for EL. Though it is possible to use simplicity of language and expression in an aesthetic way, and in this respect create EL texts with an aesthetic dimension, this will only work if the AV product is designed as such (see parameter 1). If EL is added to a regular fictional product, it is improbable that the poetic language function will work well (Bredel/Maaß 2016a: 45ff).

Non-fiction shows different opportunities and restrictions for EL. We focus on the three areas of application listed above. There are and have been from the beginning numerous offers in the area of news / infotainment. This is true across languages[1], but there is a strong focus on written information with only little AV offers. There is a huge market for such services. These rank from news offers that were directly designed in EL/PL to offers that contain only one EL/PL component (for example, subtitles rendering only central information in a linguistically simple manner corresponding to the EL rules). The field of teaching and education is open to all kinds of EL/PL intervention. The goal of achieving inclusive education and enable lifelong learning for people with diverse communication needs largely depends on adequate offers. As these offers may address specific groups whose needs might be well-known, there are few limitations as to what is feasible with respect to EL/PL in AV translation.

The third big area of application is organisational communication, that is, an organisation (for example, a ministry or a company) offering information for or interaction with people with diverse communication needs. This area has been legally regulated in the past years: Government bodies in Germany, for example, have been required for some years now to offer information in EL

1 See for instance the North German Broadcasting Association, the Easy Finnish newspaper Selkosanomat, the Finnish Broadcasting Association, the German Broadcasting Association www.nachrichtenleicht.de, etc.

and sign language on their websites; the Directive (EU) 2016/2102 of the European Parliament and of the Council "On the accessibility of the websites and mobile applications of public sector bodies" has extended the accessibility demand to the whole public sector (see European Commission: https://eur-lex.europa.eu/eli/dir/2016/2102/oj). As of now, there are relatively few AV texts offered though as the focus is still on written information.

3.2.4 Children vs. adults

a) The AV text is directed toward children of different ages.
b) The AV text is directed toward adults.

Age proves to be one of the central factors for accessible products that affect retrievability, perceptibility, comprehensibility and especially acceptability of media products (Maaß 2019b, 2020). Retrievability is linked not least to media preferences and access to platforms or devices and has not yet been sufficiently taken into account. On the one hand, it is the question whether children or adults are addressed (and what age the addressed children are). The frequent explanations and knowledge building that are typical for EL bear the risk of addressing users asymmetrically and 'explaining the world to them'. Such texts (also AV texts) pose the threat of stigmatising the users (Bredel/Maaß 2016a, 2019; Maaß 2020, Hansen-Schirra/Maaß in the present volume). Old age, on the other hand, has considerable consequences for media preference. It might thus not be sufficient to make accessible offers available exclusively online (Maaß 2019b).

It is possible to address children with EL/PL, but in practice such offers are mainly directed towards adult users; in order not to blur the borders to standard language media texts directed especially towards children, in our analysis we only focus on EL/PL in AV translation for an adult audience.

3.3 Challenges to EL/PL AV translation

Easy Language is the most comprehensible of the accessible language varieties. But it is also the one that deviates the most from the standard register (cf. Bredel/Maaß 2016a, 2016b, 2019, Maaß 2020). Written EL texts usually

have enhanced perceptibility. We will briefly point to three aspects that make adequate use of EL a challenge for AV translation:

- It has limited acceptability.
- Its use is affected by the medial restrictions that come with AV translation.
- It has limits with respect to AV translation being a partial translation.

3.3.1 Limited acceptability

Acceptability is always an issue for EL, but especially so for aesthetic texts (Bredel/Maaß 2018: 10); we already discussed that fictional AV texts tend to have an aesthetic dimension making it difficult to include EL translation. Therefore, EL is normally not suited for fictional AV texts across forms of realisation. Some forms of EL translation might be used in non-fiction formats, but will usually need to be introduced and commented as negative reactions are to be expected here as well. This is due to the reduced level of acceptability of EL (cf. Hansen-Schirra/Maaß in this volume, Maaß 2020).

3.3.2 Medial restrictions

EL usually goes hand in hand with elevated levels of perceptibility. For written texts, readers have time to take in contents at a pace that suits them. AV texts are time bound. Some forms of AV translations, like subtitles, are bound to the velocity of the source text (cf. Díaz Cintas/Remael 2009). Users will have to follow the pace of the AV product. Slow readers might not be able to follow or might be able to follow only the subtitles and miss out on the other AV components of the film. Here, research is needed to learn more about the reading pace of the target groups in comparison with standard readers.

Medial restrictions for the use of EL can be highlighted more clearly by focusing on each modality of AV translation. This will be done in more detail further below (see Section 3.4)

3.3.3 AV translation as partial translation

Expanding on Benecke (2019 und 2014a), it has to be stated that some forms of audiovisual translation are partial translations. A translation of a written text usually replaces the source text in the target situation: Readers will mostly not compare the two versions but simply use the translated text as if it were an

original. Some forms of AV translation are, in contrast, partial translations: In the case of subtitling or audio description, the source text remains perceivable at least to some of the users (Jüngst 2010). Users with eyesight will be able to switch on the audio description and compare it to what they see. Hearing users might switch on SDH and compare them to what they hear. For interlingual subtitles, readers that are in control of the source language will be able to draw their conclusion from the translation. The same holds true for supertitles, text-to-speech interpreting and, partly, for voice-overs or even for dubbing, as the mouth movements will have to fit the dubbed sequence. Therefore, the EL translation has to match the other verbal parts of the AV product. This is a challenge to the use of EL in AV translation, as will be shown below.

With regard to PL, which is less stigmatising and allows more lexical, syntactical and textual complexity (see Section 2.3), these three aspects present less of a challenge (for details, see Section 4 below).

3.4 EL and PL in the different AV translation forms

This section focuses on the possibilities and constraints of EL and PL in various modalities of AV translation.

3.4.1 Dubbing

The issue of credibility and mistrust that is inherent to dubbing (Chaume 2012: 17) is more pronounced for Easy and Plain Language renderings of the dialogue track. Dubbing has a rich history of "altering" the original that is not only criticised by the viewership, but also by academia and research (Jüngst 2010: 61). Dubbing a standard language dialogue text into Easy Language would represent an even stronger intervention in the plot and characterisation of the speakers. One of the most relevant criteria to measure the quality of a dubbed text is that the dialogues in the target language should sound credible, realistic, and plausible (Chaume 2012: 83). Translating the lines into EL/PL would not only change the register and language variety in which the character is expressing him- or herself, but might also sound unnatural. This leads to a constraint with respect to dubbing into Easy and Plain Language that relates to the adequacy and acceptability of the dubbed material. Furthermore, dubbed dialogues in EL would hardly match the original dialogues: The practice of dubbing asks for synchrony in many aspects (Herbst 1994: 29ff): lip-sync, or at

least synchrony in the articulation of vowels (Jüngst 2010: 70ff), kinesic synchrony and isochrony. The first aspect refers to the body movements and gestures and the latter to the duration of the utterance (Jüngst 2010: 70ff, Chaume 2012: 15). It is impossible to achieve a total synchrony in all these aspects; synchrony rather is an overall goal to strive for (Brons 2012: 169). The medial restrictions of dubbing as such already pose a challenge with regard to synchrony. To add Easy or Plain Language would make synchrony an even bigger challenge.

To sum up, implementing EL or PL in dubbing when not planned from the beginning or rather if original dialogues were not in these language varieties would represent various challenges. In the case of EL, the deviation from the standard is so considerable that it would be technically and ethically problematic to make the original actors or the narrator speak in EL if they did not do so in the original. In the case of PL this problem is somewhat milder, but we are still presented with a variety that might not sound realistic for the dialogues. There are, however, more options if the dialogues in the original audio track are also in EL or PL.

3.4.2 Audio description

In audio description (AD), visual information is transformed into verbal information, the descriptions added into the original production result in a logical whole. Therefore, it would not be appropriate nor useful to produce an AD in EL or PL if the original dialogues are not adapted to match the variety used for the AD. Having an AD either in EL or in PL and dialogues without enhanced comprehensibility would create a product with different language complexities. This would affect the product's acceptability, considering that it would be disconcerting and probably not helpful.

The strong medial restrictions of AD pose a considerable challenge for EL and PL. The descriptions have to fit into the available gaps that are often extremely limited with regard to time and space. If the descriptions are in EL or PL, with their typical additions and slow renderings, these gaps might prove to be insufficient. Therefore, EL/PL audio description can be applied only in cases where the remainder of the audio track is in the same language variety and if there are gaps of sufficient size to insert it. This points in the direction of accessible filmmaking: the accessibility of the final product has to be planned from the start (Romero-Fresco 2019).

3.4.3 Supertitles

Supertitles, or surtitles (see Section 3.1.3) show similarities to subtitling: intersemiotic change occurs in the same direction (verbal spoken signs to written signs) and criteria such as synchrony still apply. Supertitles written in Easy or Plain Language could help the viewers to understand dialogue contents faster and therefore leave more capacities for other visual codes to be processed, for example the events on stage. Nevertheless, opera and plays have a clear marked aesthetic dimension, which also applies to the supertitles (Mälzer/Wünsche 2019b). Easy Language has limited capacities with regard to the aesthetic dimension of language (Bredel/Maaß 2016: 518; see Section 3.2.3).

There is no room for the typical explanations given in EL in supertitles; this means, rule-conform EL is not possible with regard to the mediality of supertitles and their role in the media text as a whole. Information has to be brief as reading times are short and the supertitles have to follow the rhythm of the events on stage. PL is less elaborate with regard to extra information and presupposes higher reading speed as it does not address an audience with impairments; PL supertitles thus seem feasible, even though there are no systematically examined precedents and research is missing in this respect.

3.4.4 Subtitles

Synchrony is one of the most relevant criteria for subtitling, which is already challenging without taking EL or PL in account. Medial restrictions on this form of AV translation limit the time that a subtitle can stay on screen. The necessary information selection is visible for the audience leading to a critical reception of subtitles (Jüngst 2010). Using Easy or Plain Language, where an evaluation and selection of information from the source text is regularly necessary (Bredel/Maaß 2016), potentially increases this problem.

Certain technical and medial constraints as well as subtitling norms do not align with regular Easy and Plain Language regulations. The general rule that subtitles should not be longer than two lines (Díaz Cintas/Remael 2009, Jüngst 2010) clashes with the strategy in Easy Language to be more explicit and add explanations. This strategy is thus not compatible with subtitling. The text's synchrony with the characters' lines (Díaz Cintas/Remael 2009, Jüngst 2010) leads to a situation where EL and PL subtitles need to considerably decrease content as the EL/PL audience need more reading time (Bredel/Maaß 2016).

This problem is alleviated, again, if the subtitled product is itself in Easy or Plain Language.

Other standards such as display times, font size, number of characters, etc. are again not in line with EL or PL standards. Display times are not easily prolongable as the AV content advances (for example, beyond a speaker's turn or scene cuts etc.). Font size cannot be easily enhanced for reasons of technical and aesthetic feasibility. Explanations in the subtitles that give extra information are unsettling to all users – even standard users (cf. Jüngst 2010). Thus, differently from regular EL standards, no extra information is to be given in subtitles and subtitles will have to remain closer to the source text than is usual for EL. Subtitles in EL will thus only work with a restricted ruleset in comparison to other text types and medialities.

Some forms of AV translations, like subtitles, are bound to the velocity of the source text (cf. Díaz Cintas/Remael 2009). Users will have to follow the pace of the AV product. Slow readers might not be able to follow or might be able to follow only the subtitles and miss out on the other AV components of the film. Here, research is needed to learn more about the reading pace of the target groups in comparison with standard readers.

3.4.5 Subtitles for the deaf and hard of hearing (SDH)

The target group of this accessibility service, as it has been stated before (see Section 3.1.5), has openly expressed reservations in regard to the information that is portrayed in the subtitles. Just like in general subtitling, in order to follow norms and standards of this modality of AV translation, information has to be evaluated for selection or condensation. Representatives of the target group show reservations and suspect information withholding. In EL/PL SDH, this dilemma becomes more acute. SDH in Easy or Plain Language should thus be an additional service that does not replace the regular SDH. This raises the question of technical and economic feasibility.

3.4.6 Voiceover

Voiceover scripts should not only be faithful to the original source text, but also be literal, authentic and a complete version of the original. These qualities clash with the rulesets of Easy and Plain Language: Unless the speakers themselves use Easy Language in the original, the voiceover version in Easy Language would attribute a language variety to the speaker that is not authentic,

faithful, literal or complete to the original version. Just like dubbing, this scenario would mean putting words and a language variety into the speaker's mouth that he or she has not used. Consequently, reservations regarding acceptability and matching are to be expected regarding the use of EL/PL with the voiceover technique.

In products that are accessible from the start, PL is the preferred candidate for the spoken format. With teaching and organisational communication formats, EL can be used in the original audio and thus also for the voiceover of such products.

3.4.7 Film interpreting

The implementation of film interpreting is closer to spoken than to written forms. For this reason, PL seems to be more appropriate. Interpreting scenarios, even if they are considered to be in EL, are supposed to be closer to PL (cf. Schulz et al. in the present volume). The interpretation is accompanied by other semiotic codes. These codes deliver additional information that would not be necessary in the interpretation. PL, which is more similar to the standard language, appears to be suitable for film interpretations, although there are, as far as we know, no precedents.

3.4.8 Speech-to-text interpreting

Speech-to-text interpreting occurs in a live setting and may be adapted to the literacy level of the audience. It is common practice to use forms of reduction and simplification (Witzel 2019). A hearing-impaired audience needs shortened forms of visual texts, especially if the hearing impairments are prelingual (Hennies 2019 a,b). In this context, Easy and especially Plain Language are often the method of choice.

EL/PL speech-to-text interpreting is regularly requested by the clients; interpreters have the whole screen at their disposal but have to adapt to the reading capacity of their clients. As this method is simultaneous and has to follow the pace of the oral presentation, there will, however, be limited capacities for extra information and explanations on the producing as well as on the receiving end. As it is produced spontaneously, the tendency will go towards PL rather than EL renderings (cf. Schulz et al. in the present volume).

4 Synthesis

What has been said can be summarised in the following table. The table head displays the different forms of AV translation and a differentiation in EL and PL. The left table column is segmented according to the different genres as presented in Section 3.2. The table body shows the different realisations; these are deduced from the theoretical explanations in the text above and are, as of now, hypotheses that need to be verified in empirical settings.

Easy and Plain Language in audiovisual translation		Fiction	Non-fiction		
			News	Teaching	Organisation Commun.
Dialog original	EL	–	–	+	+
	PL	+	+	+	+
Dialog dubbed	EL	–	–	1	1
	PL	1	1	1	1
Audio description	EL	–	–	1	1
	PL	1	1	1	1
Supertitles/ Subtitles scripted	EL	–	–	+	+
	PL	1	3	+	+
Supertitles/ Subtitles live	EL	2	2	2	2
	PL	–	3	4	+
SDH scripted	EL	–	–	+	+
	PL	1	3	+	+
SDH live	EL	2	2	2	2
	PL	1	3	+	+
Voice-Over	EL	–	–	1	1
	PL	1	1	1	1
Film interpretation	EL	2	2	2	2
	PL	1	2	2	2
Speech-to-text-interpr.	EL	–	–	2	2
	PL	–	–	+	+

Table 1: Easy and Plain Language in audiovisual translation

1) **Only if the original AV product is in EL / PL.**
   The most frequent restriction occurs with regard to the original AV product: Whether it is in EL or PL, AV translation formats will have to be in EL/PL as well. If, for example, a film is produced with a German EL dialogue track, it will have to be dubbed, audio described, or subtitled (and other) in English EL. If the original audio track is NOT in EL/PL, it may not be dubbed in EL/PL. PL audio description in a standard language dialogue track does not make sense as audio description is partial translation. For subtitling, there is a difference for fiction vs. nonfiction: PL subtitles are not easily acceptable for fiction formats but may be ok for nonfiction formats.

2) **Logically or technically improbable variants.**
   Fully-fledged EL is hard to produce spontaneously; what emerges will usually be a form of PL. Therefore, all realisations that include EL in interpreting scenarios are improbable in terms of realisation. Some of them – like film interpretation in EL – are problematic for other reasons as well: in this example because of the potentially inappropriate combination of EL and fiction. As film interpretation is usually limited to festival settings, the nonfiction constellations of EL/PL film interpretation with "news", "teaching" and "organisation communication" do not apply.

3) **Acceptability is doubtful. Only as additional service.**
   As we have outlined above, there is a discussion concerning denial of access to information by cutting information from subtitles. This concerns PL sub- and supertitles as well as SDH in scripted and live formats. One possible workaround could be to use open caption and offer PL subtitles / SDH as one option among others.

4) **Not yet implemented, but generally possible.**
   Live subtitling in teaching formats is, to our knowledge, not yet implemented but generally possible.

5 Conclusion

To sum up, EL in AV translation is subject to more severe restrictions than PL. Its use in fiction formats is generally inadequate. For non-fiction formats, it will be used in AV translation if the original AV product is planned and created in EL. If this is not the case, its use is limited to scripted sub/supertitles and SDH. The following formats do not easily align with EL:

- In formats like audio description, where the AV translation is only one part of the audio track, EL is of no use.
- In formats like dubbing or voice-over, where it intervenes with the dialogues in the audio track, EL is not applicable as it wrongly insinuates that speakers produce EL dialogues.
- In interpreting formats like film interpreting or live subtitles / live SDH, EL does not apply because it is not easily produced spontaneously.

PL is applicable in audiovisual accessibility services, if the initial product is conceptualised in Plain Language from the beginning. But there are also other areas of application where PL can be systematically considered in AV translation to make verbal content more accessible in audiovisual communication. At the moment, EL/PL is marginal in AV translation and the statements with regard to EL vs. PL in AV translation are hypotheses on the basis of our knowledge on Easy Language research. We still lack user-oriented research with respect to AV formats and EL/PL renderings; such research is needed in order to understand how AV products have to be designed for better accessibility.

Works cited

Bedijs, Kristina, and Christiane Maaß. "Preface". Eds. Kristina Bedijs, and Christiane Maaß. *Manual of Romance Languages in the Media*. Berlin: De Gruyter, 2017. 3–9. Print.

Benecke, Bernd. *Audiodeskription als partielle Translation. Modell und Methode*. Berlin/Münster: LIT, 2014a. Print.

Benecke, Bernd. "Der Ton macht die Audiodeskription. Über Erleichterungen und Herausforderungen durch den Ton des Ausgangsmediums einer Audiodeskription und die Tonwahrnehmung von Blinden und Sehbehinderten". Eds. Susanne Jekat, Heike Jüngst, Klaus Schubert, and Claudia Villiger. *Sprache barrierefrei gestalten. Perspektiven aus der Angewandten Linguistik*. Berlin: Frank & Timme, 2014b. 109–125. Print.

Benecke, Bernd. "Audiodeskription – Methoden und Techniken der Filmbeschreibung". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 455–470. Print.

Bernabé Caro, Rocio, and Pilar Orero. "Easy to Read as Multimode Accessibility Service". *Hermeneus* (21), 2020. 53–74.

Bock, Bettina; Fix, Ulla, and Daisy Lange. *"Leichte Sprache" im Spiegel theoretischer angewandter Forschung*. Berlin: Frank & Timme, 2017. Print.

Braun, Sabine. Audio Description from a discourse perspective: a socially relevant framework for research and training. *Linguistica Antverpiensia* NS (6), 2007. 357–369.

Bredel, Ursula, and Christiane Maaß. *Leichte Sprache. Theoretische Grundlagen. Orientierung für die Praxis*. Berlin: Duden, 2016a. Print.

Bredel, Ursula, and Christiane Maaß. *Ratgeber Leichte Sprache. Die wichtigsten Regeln und Empfehlungen für die Praxis*. Berlin: Duden, 2016b. Print.

Bredel, Ursula, and Christiane Maaß. "Leichte Sprache – Grundlagen, Prinzipien und Regeln". *DU-Heft* (5), 2018. 1–14. Print.

Bredel, Ursula, and Christiane Maaß. "Leichte Sprache". Eds. Christane Maaß and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 251–271. Print.

Brons, Kathleen. "Dialekt als Synchronisationsproblem am Beispiel des französischen Spielfilms *Bienvenue chez les Ch'tis*". Ed. Peter A. Schmitt. *Filmübersetzung. Probleme bei Synchronisation, Untertitelung, Audiodeskription*. Frankfurt am Main: Peter Lang, 2012. 159–268. Print.

Burton, Jonathan. "The Art and Craft of Opera Surtitling". Eds. Jorge Díaz Cintas, and Gunilla Anderman. *Audiovisual Translation. Language Transfer on Screen*. Houndmills: Palgrave Macmillan, 2009. 58–72. Print.

Burton, Jonathan. "The Joy of Opera: The Art and Craft of Opera Subtitling and Surtitling". Eds. Lukasz Bogucki, and Krzysztof Kredens. *Perspectives on Audiovisual Translation*. Frankfurt am Main: Peter Lang, 2010. 179–187. Print.

Catford, John C. *A Linguistic Theory of Translation*. London: Oxford University Press, 1965. Print.

Chaume, Frederic. *Audiovisual Translation: Dubbing*. Manchester: St. Jerome, 2012. Print.

Díaz Cintas, Jorge, and Gunilla Anderman. *Audiovisual Translation. Language Transfer on Screen*. New York: Palgrave Macmillan, 2009. Print.

Díaz Cintas, Jorge, and Pilar Orero. "Voiceover and Dubbing". Eds. Yves Gambier, and Luc van Doorlaer. *Handbook of Translation Studies. Volume 1*. Amsterdam: John Benjamins, 2010. 441–445. Print.

Díaz-Cintas, Jorge, and Aline Remael. *Audiovisual translation: subtitling*. Manchester: St. Jerome Publishing, 2009. Print.

Dosch, Elmar, and Bernd Benecke. *Wenn aus Bildern Worte werden*. München: Bayerischer Rundfunk, 2004. Print.

Franco, Eliana; Matamala, Anna, and Pilar Orero. Voice-*Over Translation. An Overview*. Bern: Peter Lang, 2013. Print.

Griesel, Yvonne. *Die Inszenierung als Translat: Möglichkeiten und Grenzen der Theaterübertitelung*. Berlin: Frank & Timme, 2007. Print.

Heerdegen-Wessel, Uschi. "Barrierefreie Angebote des NDR und der ARD – Stand, Aufgaben, Ziele". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 725–739. Print.

Hennies, Johannes. "Schriftspracherwerb", Eds. Christiane Hochstadt, and Ralph Olsen. *Handbuch Deutschunterricht und Inklusion*. Weinheim/Basel: Beltz, 2019a. 322–337. Print.

Hennies, Johannes. "Prälinguale Hörbehinderung und Schriftsprachkompetenz". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019b. 201–220. Print.

Herbst, Thomas. *Linguistische Aspekte der Synchronisation von Fernsehserien*. Tübingen: Niemeyer, 1994.

Hoard, James E.; Wojcik, Richard, and Katharina Holzhauser. "An Automated Grammar and Style Checker for Writers of Simplified English". Eds. Patrik O'Brian Holt, and Noel William. *Computers and Writing*. Dordrecht: Springer, 1992. 278–296. Print.

Igareda, Paula. "The audio description of emotions and gestures in Spanish-spoken films". Eds. Adriana Serban, Anna Matamala, and Jean-Marc Lavaur. *Audiovisual Translation in Close-Up*. Bern: Peter Lang, 2011. 223–238. Print.

Jakobson, Roman. "On linguistic aspects of translation". Ed. Lawrence Venuti. *The Translation Studies Reader*. New Delhi: Bhari Publications, 1959. 46–60. Print.

Jüngst, Heike E. *Audiovisuelles Übersetzen. Ein Lehr- und Arbeitsbuch*. Tübingen: Narr, 2010. Print.

Kadric, Mira; Kaindl, Klaus, and Michèle Cooke. *Translatorische Methodik*. Wien: facultas, 2011. Print.

Koller, Wilfried. *Einführung in die Übersetzungswissenschaft*. Tübingen: Narr, 2011. Print.

Leinert, Claudia. "Kann Synchronisation dem Original gerecht werden?" Eds. Thomas Bräutigam, and Nils D. Peiler. *Film im Transferprozess. Transdisziplinäre Studien zur Filmsynchronisation*. Marburg: Schüren, 2015. 49–65. Print.

Maaß, Christiane. *Leichte Sprache. Das Regelbuch*. Berlin: LIT, 2015. Print.

Maaß, Christiane. "Übersetzen in Leichte Sprache". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019a. 273–302. Print.

Maaß, Christiane. *Easy Language and beyond: How to maximize the accessibility of communication*. Planary Speech at Klaara Conference 2019 in Helsinki. 2019b. Web. 15 October 2019. <https://doi.org/10.25528/023>.

Maaß, Christiane. *Easy Language – Plain Language – Easy Language Plus. Balancing Comprehensibility and Acceptability.* Berlin: Frank & Timme, 2020. Print.

Mälzer, Nathalie, and Maria Wünsche. "Untertitelung für Hörgeschädigte". Eds. Christiane Maaß and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019a. 327–344. Print.

Mälzer, Nathalie, and Maria Wünsche. "Barrierefreiheit und Inklusion am Theater: Das Projekt Inklusives Theater an der Uni Hildesheim". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019b. 599–614. Print.

Mazur, Iwona. "Audio Description Crisis Points: The Idea of Common European Audio Descriptio Guidelines Revisited". Eds. Jorge Cintas Díaz, and Kristijan Nikoli. *Fast-Forwarding with Audiovisual Translation*. Bristol/Blue Ridge Summit: Multilingual Matters, 2018. 127–140. Print.

Neves, Josélia. "Interlingual Subtitling for the Deaf and Hard-of-Hearing". Eds. Jorge Cintas Días, and Gunilla Anderman. *Audiovisual Translation. Language Transfer on Screen*. Houndmills: Palgrave Macmillan, 2009. 151–169. Print.

Neves, Josélia. "Music to my eyes… Conveying music in subtitling for the Deaf and the Hard-of-hearing". Eds. Lukasz Bogucki, and Krzysztof Kredens. *Perspectives on Audiovisual Translation*. Frankfurt am Main: Peter Lang, 2010. 123–178. Print.

Neves, Josélia. "Subtitling for deaf and hard-of-hearing audiences: moving forward". Ed. L. Pérez-González. *The Routledge handbook of audiovisual translation*. London: Routledge, 2019. 82–96. Print.

Nussbaumer, Markus. "Gesetze verständlich machen – Gesetze verständlich 'verkaufen'". Eds. B. Bock, U. Fix, and D. Lange. *"Leichte Sprache" im Spiegel theoretischer und angewandter Forschung*. Berlin: Frank & Timme, 2017. 351–372. Print.

Pérez-González, Luis. *Audiovisual Translation. Theories, Methods and Issues*. New York: Routledge, 2014. Print.

Pross, Harry. *Medienforschung. Film, Funk, Presse, Fernsehen*. Darmstadt: Habel, 1972. Print.

Reiss, Katharina, and Hans J. Vermeer. *Grundlegung einer allgemeinen Translationstheorie*. Tübingen: Niemayer, 1984. Print.

Reviers, Nina. "Audio description and translation studies: A functional text type analysis of the Dutch play *Wintervögelchen*". Eds. S. Bruti, and E. Di Giovanni. *Audiovisual Translation across Europe. An Ever-changing Landscape*. Bern: Peter Lang, 2012. 193–207. Print.

Rink, Isabel. "Kommunikationsbarrieren". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 29–65. Print.

Rink, Isabel. *Rechtskommunikation und Barrierefreiheit. Zur Übersetzung juristischer Informations- und Interaktionstexte in Leichte Sprache*. Berlin: Frank & Timme, 2020. Print.

Romero-Fresco, Pablo. "More haste less speed: edited versus verbatim respoken subtitles". *Vial* (6), 2009. 109–133. Print.

Romero-Fresco, Pablo. *Accessible Filmmaking. Integrating translation and accessibility into the filmmaking process*. London/New York: Routledge, 2019. Print.

Romero-Fresco, Pablo, and Franz Pöchhacker. "Quality assessment in interlingual live subtitling: The NTR model". *Linguistica Antverpiensia, New Series: Themes in Translation Studies* (16), 2017. 149–167. Print.

Siever, Holger. *Übersetzungswissenschaft. Eine Einführung*. Tübingen: Narr, 2015. Print.

Stolze, Radegundis. *Übersetzungstheorien. Eine Einführung*. Tübingen: Narr, 2018. Print.

Vervecken, Annika. "Surtitles: Types and functions". Eds. Silvia Bruti, and Elena Di Giovanni. *Audiovisual Translation across Europe. An Ever-changing Landscape*. Bern: Peter Lang, 2012. 235–256. Print.

Wisniewski, Annika. "Synchronisation und Zensur in der BRD zwischen 1950 und 1960. Eine Untersuchung der Synchronfassungen von 'Casablanca', 'Notorious' und 'Mrs. Miniver'". Ed. Peter A. Schmitt. *Filmübersetzung. Probleme bei Synchronisation, Untertitelung, Audiodeskription*. Frankfurt am Main: Peter Lang, 2012. 269–345. Print.

Witzel, Jutta. "Ausprägungen und Dolmetschstrategien beim Schriftdolmetschen". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 303–325. Print.

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Easy Language Interpreting

1 Introduction

Language barriers do not only exist in communication in foreign languages. Although it does not seem self-evident, some people do not or only insufficiently understand their own mother tongue. Therefore, interpreting is not only necessary when it comes to foreign languages, but also within the same language to make information accessible for everybody. Due to the awareness of the need for accessible communication and the supply of texts in Easy Language, the demand for Easy Language in oral communication is also increasing and the German market for interpreting services in Easy Language has been continuously growing for several years. In this article, the concept of Easy Language interpreting concentrates on the situation in Germany. The term Easy Language will refer to Easy German Language. Easy Language interpreting will first be situated in the context of Translation and Interpreting Studies, followed by an overview of the origin and current situation of Easy Language interpreting in Germany. With a view to the demand for professionalisation and didactisation, a model for interlingual interpreting will be used to explain which competences are necessary for Easy Language interpreting. Thus, similarities and differences to interlingual interpreting will be shown, resulting in a modified competence model for Easy Language interpreting.

2 Interpreting

2.1 Interpreting competence in interlingual interpreting

Based on the term translation, interpreting refers to the translation of a text in a source language which is presented only once into a text of the target language. In most cases, the text cannot be corrected due to a lack of time (Kade

1968: 35). Koller (2011: 5) adds the aspect of orality in his definition of interpreting as the oral translation of texts which are presented orally. Following the definition of the term translation according to Hansen-Schirra/Maaß (2019), interpreting, like translating, also means overcoming communication barriers (cf. Rink 2020) which make access to texts impossible.

In interpreting, a fundamental distinction is made between simultaneous and consecutive interpreting. While the processes of listening and translation into the target language take place successively in consecutive interpreting, in simultaneous interpreting the processes are performed almost in parallel (Kalina 1998: 23+ 25). However, full simultaneousness is not given as the interpreter can only start transferring into the target language after a few words or parts of a sentence have been spoken (ibid.: 25).

For the didactisation and implementation of interpreter training at universities the question of the skills an interpreter needs and how they can be taught (Sawyer/Roy 2015: 128) was and is of central importance. For many years, there was a long discussion about whether interpreting was an innate talent or something that could be learned (Timarová 2015: 17). Today, interpreting is considered a complex activity that can be learned. It is widely accepted that Interpreting and Translation Studies are linked and that the former belongs to the latter; even though the exact nature of this relationship has not been entirely defined (Pöchhacker 2015: 202). To define interpreting competence, it therefore makes sense to look at existing research regarding translation competence. The PACTE research group defined translation competence as a "system of knowledge needed to translate" (PACTE 2003: 16) which comprises the following sub-competences:

- bilingual
- extra-linguistic (including bicultural knowledge)
- knowledge about translation
- instrumental
- strategic

The European Master's in Translation (EMT) network also developed a translation competence framework which has gained a great deal of importance. The assumption underlying the EMT framework is that translation is a com-

plex profession which demands a set of competences and skills. The EMT names five main competences:

1. Language and culture
2. Translation
3. Technology
4. Personal and Interpersonal
5. Service Provision (EMT 2017: 4)

The two models were developed for written translation only and not for interpreting. However, these competence models can be transferred to interpreting to a certain extent, since translation and interpreting can be viewed as "[…] instances of cross-linguistic and cross-cultural mediation" (Grbić/Wolf 2012: 8). Bilingual, extra-linguistic as well as personal and interpersonal competences are also fundamental in interpreting. But as translation and interpreting are still two different activities, it is at the very least questionable to develop an interpreting competence model based only on translation competences. The strategies required to succeed in the translation process differ from those needed to interpret with technology playing a different role in the professions.

Pöchhacker developed a cylindrical model which refers only to interpreting competence (Pöchhacker 2000: 45). He names linguistic competence as the first competence and therefore the basis for becoming a qualified interpreter (Pöchhacker 2000: 42). Many interpreters know and master at least two languages (ibid.). However, he criticises that the mastery of the working languages has long been regarded as the only important aspect and therefore also adds cultural competence. Cultural competence means that interpreters have to be aware of their behavior during the communication situation according to the communication partner's culture. It is important to impart a cultural understanding when a new language is learned and to not only focus on the language itself (ibid.: 43). For Pöchhacker, being able to speak two languages is not sufficient to perform the job of an interpreter. The most central competence is the translational competence but this does not only mean that the spoken text is transferred into a target language. According to the role and ethics of an interpreter, for Pöchhacker (2000: 44) translational competence also means that the interpreter knows how to behave professionally in an interpreting situation as well as before and after it. He refers to these behaviours

as pre and post interaction in his model. Translational competence builds on linguistic and culture competences and also includes the way the subject of communication for interpretation is handled (Pöchhacker 2000: 44). The term translational competence could be misleading here as the model focuses on the competences required for interpreting. Translational competence is considered one part of interpreting competence as a whole. As has already been shown, the role and ethics of an interpreter are closely related to the translational competence. This strong relation is shown in Pöchhacker's cylindric model, where role and ethics encompass all the other competences that constitute the core of the cylinder: translation, linguistic and cultural competences (ibid.: 44f). In his model, Pöchhacker (ibid.: 45) shows that the competences develop from the bottom to the top: the linguistic and cultural competences are the foundation of the cylinder with the translational competence resting on top. But he leaves the question of whether and when the mastery of language and culture enters into translational competence unanswered.

Kalina defines interpreting competence as the ability to receive and reproduce a text in an interlingual communication situation (Kalina 2000: 5). This includes the interpreter being able to cope with the inherent constraints in interpreting situations, such as time pressure (ibid.: 5). Like Pöchhacker, she also determines knowledge of language and culture to be the base (Kalina 2000: 3). Moreover, she mentions mental skills such as motivation and stress resistance (ibid.: 3). Another model of interpreting competence is that by Albl-Mikasa, which was developed based on results collected through interviews with experienced conference interpreters (Albl-Mikasa 2012: 59). Her model is process-oriented and focusses on the skills needed before, during and after the interpretation process (ibid.: 62f). These are, for example:

- high language skills
- low-key skills in terminology management programs
- broad knowledge
- teamwork skills
- extrovertedness (ibid.: 64ff)

Most of the skills mentioned in Albl-Mikasa's model can be associated with the general competences defined by Pöchhacker.

Due to the similarities between the presented models, Pöchhacker's model of interpreting competence was chosen as the main theoretical basis for this article. It best aligns with the purpose of this article to model competence in Easy Language interpreting by defining the most basic competences an interpreter must have to perform this task.

2.2 Interpreting competence in Easy Language interpreting

In order to be able to define Easy Language interpreting, it is necessary to classify it within existing concepts from translation science. First of all, the distinction between consecutive and simultaneous interpreting can also be made for Easy Language interpreting. However, in this article, the focus is on simultaneous interpreting into Easy Language as it is the most common type of interpreting used on the German market at the moment. Furthermore, Jakobson (1959: 114) distinguishes between interlingual, intralingual and intersemiotic forms of translation. The basis for the definition of Easy Language interpreting is translating into Easy Language, which can be classified as intralingual translation (Bredel/Maaß 2016: 182). Translating into Easy Language only crosses a variety border within the same language and does not cross a language border (ibid.). The same applies to Easy Language interpreting, which can therefore be classified as intralingual interpreting. Based on translation as overcoming communication barriers (Maaß 2019), the function of Easy Language interpreting is to make orally represented content in a standard language or specialised language accessible to people who do not or only insufficiently understand it. Simultaneous interpreting into Easy Language is aimed at social participation for people with cognitive impairments by making information accessible and thus enabling an exchange process with the environment (see Article 3, Bundesgesetzblatt CRPD 2008: 4). Easy Language interpreting, like translation, is a component of accessible communication.

At this point, it should be noted that Easy Language has not yet been modelled for oral communication and that Easy Language interpreting cannot implement all the rules of Easy Language application in written texts. This aspect is currently being examined in research on different strategies used during the Easy Language interpreting process. Although practical experience so far shows that the result of the interpretation is more similar to Plain Lan-

guage, it is called Easy Language interpreting as people with cognitive impairments are often considered the target group.

Based on Pöchhacker's competence model, linguistic competence is also a basic requirement for Easy Language interpreting. As this is an intralingual communication situation, linguistic competence does not refer to the mastery of one (or more) foreign language(s), but to Easy Language. The mastery of the rules of written Easy Language, the ability to apply these rules to oral communication and the ability to actively speak Easy Language are essential for interpreting into Easy Language. In order to achieve linguistic competence, excellent mother tongue skills are required. This includes good expression, grammatical knowledge and knowledge of what contributes to making or makes language difficult to understand. The knowledge of comprehensibility is closely linked to the mastery of the rules of Easy Language.

Cultural competence is also fundamental. Easy Language interpreting requires knowledge of the culture of the addressees, which is why communication with them is necessary. For this purpose, there is the possibility to acquire knowledge about the target group in an academic context (top-down) or to have direct contact with the target group in order to be able to draw conclusions about their needs with regard to the linguistic realisation of Easy Language (bottom-up). The best solution is a mixture of both, top-down and bottom-up. Cultural competence includes, among other aspects, knowledge of the reality of life of the addressees, the current social situation and social paradigms. This refers above all to being able to assess which topics and social discourses are important for the addressees. This plays a central role in Easy Language interpreting and is also more important than in interlingual interpreting. The aim of Easy Language interpreting is to make information accessible and to increase the comprehensibility of the spoken source text. In order to achieve this goal, the interpreter must actively intervene in the source text and filter information, omit it if necessary and add explanations. In order to do this in an appropriate context, the interpreter must be able to assess what information is relevant to the addressees, what may or may not be known and where explanations are needed.

In terms of translational competence, specialised knowledge is of increased importance in intralingual interpreting. There is no doubt that it also plays a significant role in interlingual interpreting. However, the interlingual interpreter has different emergency strategies than the Easy Language interpreter.

If, for example, the interpreter is unfamiliar with a law, organisation etc., he/she can, in cases of doubt, adopt the proper name in the target language without any changes which does not usually jeopardise comprehension. This strategy is problematic in the case of intralingual interpreting as direct transfer into the target language without explanation is likely to impair comprehension. Therefore, the interpreter needs good specialised knowledge in order to supplement explanations in such cases. This expertise is also necessary if the speaker requires knowledge of the target audience, which cannot be assumed for the target group of Easy Language. In this case, if he/she considers the information to be relevant, the interpreter must be able to supplement any knowledge not explicitly mentioned in the source text and provide any explanations necessary for comprehension. Without the appropriate specialised knowledge, this active intervention in the source text is nearly impossible.

A central point in which Easy Language interpreting differs from interlingual interpreting is the role and power of the interpreter. While in an interlingual interpreting situation interpreters are normally not allowed to leave out information which they consider to be irrelevant or of no interest (Kalina 2000: 5), the opposite is the case for interpreting into Easy Language. The interpreter actively intervenes in the source text, which is accompanied by a power which the interpreter should be aware of and which should be handled responsibly. The interpreter is much more responsible for comprehensibility in an intralingual interpreting situation than in interlingual interpreting. It is therefore desirable that the interpreter adopt the Easy Language approach and use it as a basis for his/her own role and interpreting activities. The role of the Easy Language interpreter is comparable to the role of community interpreters. One of the roles community interpreters can adopt is the role of *clarifier*, which means they add (more detailed) explanations in order to guarantee comprehension (Otero Moreno 2019: 413). This entails that the interpreters need the ability to adapt their language to the addressees on a lexical and syntactical level (ibid.: 422, 424) as is also the case in Easy Language interpreting. While Pöchhacker (2000: 45) sees the aspect of ethics and role as an encasing of the other competences, for Easy Language it is suggested that the aspect is listed as an individual competence: the ethical competence. This is done to emphasise that Easy Language interpreting is associated with a lot of power and requires a distinct sense of the target group. The ethical competence also includes other characteristics frequently mentioned in interlingual interpreting

literature (e.g. Timarovà 2000: 17; Kalina 2000: 13), which are also considered a requirement for Easy Language interpreting. These characteristics are enjoyment of communication and language mediation, extroversion, a certain degree of stress tolerance, empathy and tolerance.

The following modified competence model therefore results for Easy Language interpreting:

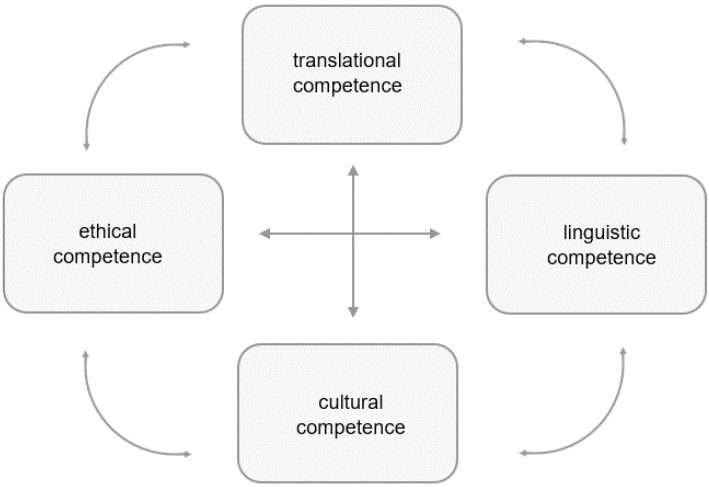

Figure 1: Competences for Easy Language interpreting

In this model it becomes clear that the individual competences are interrelated. Only the combination of language, cultural, translational and ethical competence leads to successful interpreting. If the interpreter neglects one of the competences, the model is out of balance.

3 The emergence and current situation of Easy Language interpreting in Germany

3.1 Origin

In the beginning of this section, it is necessary to mention that the findings are based on the observations and practical experience of the authors. As Easy Language interpreting is a relatively new form of interpreting, it is difficult to

collect representative data about the current market situation. At the moment, a professional association which represents interpreters for Easy Language does not exist. The German Association of Conference Interpreters (VKD) represents interpreters for over 30 languages, but Easy Language cannot be selected in the database and the term Easy Language does not appear anywhere on their site (VKD, 2020). The German Federal Association of Interpreters and Translators (BDÜ) also provides a database to search for interpreters, yet Easy Language is not listed among the languages (BDÜ, 2020). Due to this underrepresentation of Easy Language interpreting among the professional associations, it is difficult to determine the actual number of Easy Language interpreters in Germany or to receive official numbers. Therefore, the following section is an attempt to provide an insight into the current market situation in Germany and to present arising desiderata.

In Germany, Anne Leichtfuß was the first known Easy Language interpreter and provided simultaneous interpreting into Easy Language for the first time at the international and inclusive "No Limits" theatre festival in Germany in 2013 (Seifert 2016/TH Köln). Foreign language interpreters were booked for the symposium of the theatre festival. But almost half of the audience were people with cognitive impairments. Therefore, the organiser had the idea to have the lectures interpreted into Easy Language and thus make the event more accessible for the target audience. In addition to language barriers, cognition barriers also had to be removed (cf. Rink 2020: 31). In 2013, the concept of Easy Language was already known. The association Inclusion Europe had developed guidelines for Easy Language in 2009 (Inclusion Europe 2009) and the association Netzwerk Leichte Sprache was founded in 2006 (Netzwerk Leichte Sprache). Therefore, the 'idea' of overcoming language barriers by providing simultaneous interpreting into Easy Language was obvious.

The development of Easy Language Interpreting as a profession is comparable to Community Interpreting. The degree of professionalisation of Community Interpreting differs from one country to another depending on whether the need for multilingual communication services is neglected or recognised (Hale 2015: 66). The lack of academic training programs hinders professionalisation and the service is often provided by untrained bilinguals (Hale 2015: 67f). These untrained bilinguals are also often referred to as non-professional, as they have no formal training. They interpret based on their natural linguistic competences (Antonini 2015: 277f).

In Easy Language interpreting, we can observe a comparable development. As formal academic training programs do not exist so far, the work and contact with the target group was the basis for the interpreting activity. The regular exchange with people with cognitive impairments promoted the linguistic competence and the understanding for these people and their everyday live. So, at first, the foundation to interpret into Easy Language was not academic interpreting training but contact with the target group.

The aspiration to make events more accessible and therefore to provide Easy Language interpreting is closely linked to the UN Convention on the Rights of Persons with Disabilities, which requires that persons with disabilities be able to fully participate in life. This includes accessibility of information and communication (article 9, CRPD 2008: 8). At the same time, accessible communication is bound to the principle "Nothing about us without us" that has its origins in the disability rights movement. The underlying belief of "Nothing about us without us" is that people with disabilities know best what is good for them (Charlton 2000: 3f). One function of the written concept of Easy Language is the participatory function, as texts in Easy Language enable people to participate (Bredel/Maaß 2016: 56f). This function can also be applied to the oral form of Easy Language interpreting, as the objective is to enhance participation by making orally presented information more accessible.

3.2 Development of the market for Easy Language interpreting in subsequent years

At the annual conference on inclusion in Germany held by the Federal Ministry of Labour and Social Affairs in 2019, Easy Language interpreting was provided along with sign-language interpreting (BMAS 2019). Through such events, Easy Language interpreting has obtained a visible position in the field of accessible communication over the years (from the assumed beginning in 2013 to 2019).

This development was encouraged by the political efforts to implement the UN Convention on the Rights of Persons with Disabilities, which are described in the first and second action plans (BMAS 2011/2016). Enabling people to participate is enshrined in the UN Convention on the Rights of People with Disabilities and, since ratification in 2009, in federal law. This also reflects the

legal mandate for public authorities to make information more accessible. Accessible communication for people with cognitive impairments and other target groups of Easy Language is the basis for living social paradigms such as participation, inclusion and dialogue at eye level.

Although Easy Language in oral communication is gradually being demanded more and more frequently, simultaneous interpreting into Easy Language is rather unknown to the primary addressees. Therefore, simultaneous interpreting is currently not actively requested by the target group.

In order to describe the current market situation, a small-scale survey was carried out by the authors. This survey consisted of a short questionnaire in which interpreters for German Easy Language were asked to indicate at how many events (conferences, workshops, etc.) they worked as interpreters. The interpreters were asked to take into account every event since the beginning of their career until the 31st Dec 2019. Furthermore, they were asked to distinguish between events that were interpreted only by themselves and events interpreted by a team of at least two interpreters. For events that were covered by at least two interpreters, date and place had to be indicated to ensure that the events were not double-counted. Multi-day events were counted as one event. Thus, the figures do not represent the actual number of conference days but the number of events. The questionnaire was sent to ten interpreters providing Easy Language interpreting in Germany and nine answers were received. All following figures are based on the results of the questionnaire. As already mentioned, there is no exact number or list of Easy Language interpreters. Therefore, the authors depended on personal contacts and the informal network of interpreters in order to provide any figures. These following figures do not claim to be exhaustive nor representative. Nevertheless, considering the limited options, they provide an insight into the current market situation in Germany and show an increase in the demand for Easy Language interpreting.

The number of events nationwide that provided simultaneous interpretation into Easy Language amounted to 74 events in total in 2019. These 74 events include 47 events with only one interpreter and 27 with a team of at least two interpreters. In 2013, the 'starting point' of Easy Language interpreting in Germany, only two events were interpreted. From 2013 to 2014 the total amount of interpreted events in Germany increased by 450% to 9 events. In the following years the numbers steadily continued to increase but the increase

per year was less strong. The diagram below represents the events which were interpreted into Easy Language in Germany.

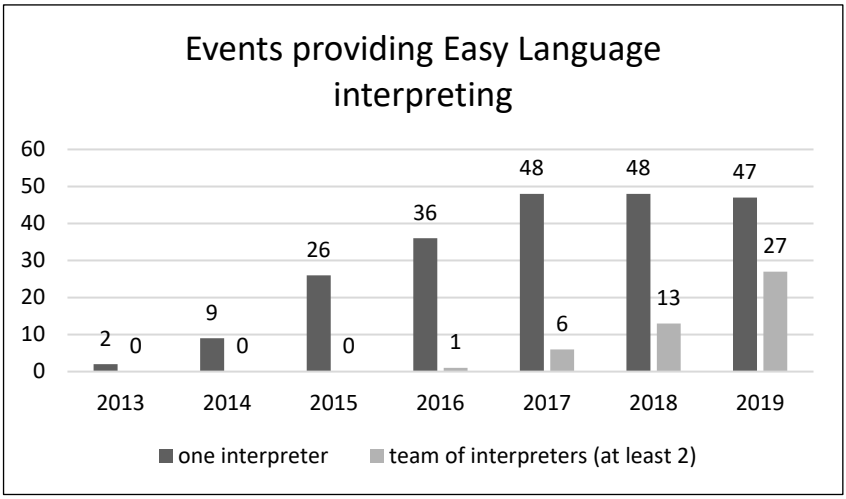

Figure 2: Events in Germany providing simultaneous interpreting for Easy Language (own diagram)

At present, simultaneous interpreting into Easy Language is offered as a service by only a small group of interpreters. From 2013 to 2015, Easy Language interpreting was provided by one actor, in 2016 a second actor started working in this field and since 2017 the number has gradually been increasing. With a total of 10 interpreters for Easy Language in April 2020 the number has quintupled in the past four years.

In order to give an overview of the different thematic areas of the interpreted events, the interpreters were also asked to specify the thematic field of the organisers of the events. Therefore, the interpreters were asked to indicate the thematic areas they had already encountered in connection with Easy Language interpreting. Seven interpreters out of nine indicated the following thematic areas, which are listed in descending order according to the number of mentions:

1. Inclusion/disability politics (7 mentions)
2. Culture (6 mentions)
3. Law (4 mentions)

4. Politics (aside from disability politics) (3 mentions)
5. Medicine (2 mentions)

This list is not exhaustive but it nevertheless shows that inclusion and culture are the main thematic areas of the events that included Easy Language interpreting.

The spread of the concept of Easy Language and the training opportunities for Easy Language interpreters, but also the successful empowerment of the target group, will lead to the emergence of a market in the next few years that will have to be increasingly professionalised. The integration of Easy Language interpreting into the curriculum of the Master's course in Accessible Communication at the University of Hildesheim (Universität Hildesheim 2019: 51) is one step towards academisation. It is only as a result of growing awareness that a real demand for Easy Language interpreting will develop and lead to the implementation of quality standards in training and practice.

4 Conclusion and outlook

Since it is to be expected that the possibility of simultaneous interpretation into Easy Language at events will become more widely known, a professionalisation of the field of interpreters for Easy Language is necessary. It is therefore important to define what skills the interpreters should have, which was explained on the basis of Pöchhacker's competence model for interlingual interpreting. In summary, it can be said that these skills are also of great importance for Easy Language interpreting. However, some aspects concerning the content of the individual competences are sometimes different or have to be weighted differently. There is an important difference especially in the role of the interpreter. Thus, the interpreter for Easy Language has a role that is associated with more power and a resulting different self-image. This also increases the importance of specialised knowledge. For interpreting into Easy Language, it is therefore proposed that the aspect of ethics in the role of the interpreter is listed as a competence, resulting in a modified competence model. In order to meet the expected increase in demand for simultaneous interpretation into Easy Language, professionalisation is essential. Therefore, considerations should be made on how to integrate intralingual interpreting into academic

Translation Studies. This also means the development of a curriculum for the training of Easy Language interpreters. It is conceivable here, for example, to consider how and whether intralingual interpreting and its required skills can be integrated into the existing training of foreign language interpreters. The modified competence model for Easy Language interpreting is intended to lay the foundation for scientific discussion of the subject and to initiate professionalisation. Further steps in research on Easy Language interpreting could be to consider how to empirically study the required competences as well as cognitive processes during interpretation. Another important aspect which has already been mentioned in 2.2 are strategies used during the process of interpreting into Easy Language, which is being researched through corpora consisting of interpretations by those already working on the market. Easy Language interpreting will become more and more important and also more demanded in the future, which is why this article is intended as the starting point for further examination of the topic by highlighting the possibilities for training and research.

Works cited

Albl-Mikasa, Michaela. "The importance of being not too earnest: a process- and experience-based model of interpreter competence." Eds. Barbara Ahrens, Michaela Albl-Mikasa, and Claudia Sasse. *Dolmetschqualität in Praxis, Lehre und Forschung. Festschrift für Sylvia Kalina.* Tübingen: Narr, 2012. 59–92. Print.

Antonini, Rachele. "Non-professional interpreting." Ed. Franz Pönchhacker. *Routledge Encyclopedia of Interpreting Studies.* London, New York: Routledge, 2015. 277–279. Print.

BDÜ. 2020. *Mitgliederdatenbank*. Web. 10 April 2020. <https://suche.bdue.de/>.

Bredel, Ursula, and Christiane Maaß. *Leichte Sprache. Theoretische Grundlagen. Orientierung für die Praxis*. Berlin: Dudenverlag, 2016. Print.

BMAS. 2011. *Unser Weg in eine inklusive Gesellschaft. Der Nationale Aktionsplan der Bundesregierung zur Umsetzung der UN-Behindertenrechtskonvention.* Berlin: BMAS, 2011. Web. 10 April 2020. <https://www.bmas.de/SharedDocs/Downloads/DE/PDF-Publikationen/a740-nationaler-aktionsplan-barrierefrei.pdf;jsessionid=7EC3B3CABA06E98B6A3919C8E62CB034?__blob=publicationFile&v=2>.

BMAS. "*Unser Weg in eine inklusive Gesellschaft*". *Nationaler Aktionsplan 2.0 der Bundesregierung zur UN-Behindertenrechtskonvention (UN-BRK).* BMAS, 2016. Web. 10 April 2020. <https://www.gemeinsam-einfach-machen.de/SharedDocs/Downloads/DE/AS/NAP2/NAP2.pdf?__blob=publicationFile&v=3>.

BMAS. 2019. *Inklusionstage 2019. Videoaufzeichnungen. Original, Leichte Sprache, Gebärdensprache.* Web. 10 April 2020. <https://www.gemeinsam-einfach-machen.de/GEM/DE/AS/Leuchttuerme/Kongresse/Inklusionstage_2019/Tag-1/Inklusionstage_2019_Tag_1_node.html>.

Charlton, James I. *Nothing about us without us. Disability Oppression and Empowerment*. Berkeley/Los Angeles/London: University of California Press, 2000. Print.

CRPD Bundesgesetzblatt. 2008. Übereinkommen über die Rechte von Menschen mit Behinderung vom 13. Dezember 2006. BGBL, 2008. Web. 19 January 2020. <https://www.institut-fuer-menschenrechte.de/fileadmin/user_upload/PDF-Dateien/Pakte_Konventionen/CRPD_behindertenrechtskonvention/crpd_b_de.pdf>.

European Master's in Translation. 2017. *European Master's in Translation. Competence Framework 2017*. 1–12. Web. 10 April 2020. <https://ec.europa.eu/info/sites/info/files/emt_competence_fwk_2017_en_web.pdf>.

Grbić, Nadja, and Michaela Wolf. "Common grounds in Translation and Interpreting (Studies)." Eds. Yves Gambier, and Luc van Doorslaer. *Handbook of Translation Studies. Vol. 3*. Amsterdam: John Benjamins, 2012. 7–16. Print.

Hale, Sandra B. "Community Interpreting." Ed. Franz Pönchhacker. *Routledge Encyclopedia of Interpreting Studies*. London, New York: Routledge, 2015. 65–69. Print.

Hansen-Schirra, Silvia, and Christiane Maaß. 2019. *Translation proper. Kommunikationsbarrieren überwinden.* Web. 10 April 2020. <https://nbn-resolving.org/urn:nbn:de:gbv:hil2-opus4-9687>.

Inclusion Europe. 2009. *Informationen für alle Europäische Regeln, wie man Informationen leicht lesbar und leicht verständlich macht.* Web. 10 April 2020. <https://www.inclusion-europe.eu/wp-content/uploads/2017/06/DE_Information_for_all.pdf>.

Jacobson, Roman. "On linguistic aspects of translation". Ed. Ruben Arthur Browner. *On Translation*. Harvard University Press, 1959. 232–239. Print.

Kade, Otto. *Zufall und Gesetzmäßigkeit in der Übersetzung.* (Beihefte zur Zeitschrift Fremdsprachen I). Leipzig: VEB Verlag Enzyklopädie, 1968. Print.

Kalina, Sylvia *Strategische Prozesse beim Dolmetschen. Theoretische Grundlagen, empirische Fallstudien, didaktische Konsequenzen.* (Languages in Performance Vol. 18.). Tübingen: Gunter Narr Verlag, 1998. Print.

Kalina, Sylvia. "Interpreting competences as a basis and a goal for teaching." *The Interpreters' Newsletter 10* (2000): 3–32. Print.

Koller, Werner. *Einführung in die Übersetzungswissenschaft*. 8. Neubearb. Auflage. Tübingen: A. Francke Verlag, 2011. Print.

Maaß, Christiane. "Übersetzen in Leichte Sprache". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation.* Berlin: Frank & Timme, 2019a. 273–302. Print.

Netzwerk Leichte Sprache. n.d. *Die Geschichte der Leichten Sprache*. Web. 10 April 2020. <https://www.leichte-sprache.org/die-geschichte/>.

Otero Moreno, Conchita. "Community Interpreting zur Überwindung von Kommunikationsbarrieren für Personen mit Deutsch als Zweitsprache: Einsatzbereiche, Anforderungen, Professionalisierung". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation.* Berlin: Frank & Timme, 2019. 403–434. Print.

PACTE. "Building a translation competence model." Ed. Fabio Alves. *Triangulating translation: perspectives in process oriented research.* Amsterdam: John Benjamins, 2003. 43–66. Web. 10 April 2020. <https://ddd.uab.cat/pub/caplli/2003/158624/2003_Benjamins_PACTE.pdf>. Pre-print version retrieved from: dipòsit digital de documents de la UAB: 1–25.

Pöchhacker, Franz. Dolmetschen. *Konzeptuelle Grundlagen und deskriptive Untersuchungen*. Tübingen: Stauffenburg Verlag, 2000. Print. Studien zur Translation Vol. 7.

Pöchhacker, Franz. "Interpreting Studies". Ed. Franz Pünchhacker. *Routledge Encyclopedia of Interpreting Studies.* London, New York: Routledge, 2015. 201–206. Print.

Rink, Isabel. *Rechtskommunikation und Barrierefreiheit. Zur Übersetzung juristischer Informations- und Interaktionstexte in Leichte Sprache*. Berlin: Frank & Timme, 2020. Print.

Roy, Cynthia B., and David B. Sawyer. "Education". Ed. Franz Pönchhacker. *Routledge Encyclopedia of Interpreting Studies.* London, New York: Routledge, 2015. 124–130. Print.

Seifert, Sabine. 2016. *Humor funktioniert ganz anders. taz*. Web. 10 April 2020. <https://taz.de/Dolmetscherin-fuer-Leichte-Sprache/!5355791/>.

Leichtfuß, Anne. *Simultan in Leichter Sprache*. TH Köln. Web. 10 April 2020. <https://www.th-koeln.de/hochschule/simultan-in-leichter-sprache_70508.php>.

Timarová, Šárka. "Aptitude Testing". Ed. Franz Pönchhacker. *Routledge Encyclopedia of Interpreting Studies.* London, New York: Routledge, 2015. 17–20. Print.

Universität Hildesheim. 2019. *Neufassung der Studienordnung für den Masterstudiengang "Barrierefreie Kommunikation" an der Universität Hildesheim Fachbereich 3 – Sprach- und Informationswissenschaften*. Web. 10 April 2020. <https://www.uni-hildesheim.de/media/fb3/uebersetzungswissenschaft/Leichte_Sprache_Seite/Master_BK/4-19-06-05_Heft_141_Neufassung_StO_MA_BK_Le.pdf>.

VKD. 2020. *Mitgliederdatenbank*. Web. 10 April 2020. <https://vkd-suche.bdue.de/>.

Janina Kröger

Communication Barriers and Cultural Participation: A Visit to a Wildlife Park as a Multicodal Accessible Text

1 Introduction

Accessibility is a highly relevant topic but as of now, the discussion is limited to certain text types, with the main focus remaining on texts associated with the administrative domain. These text types are often not functional for recipients with an impairment, even if they are translated into Easy Language (cf. Rink 2019 and Ahrens in this volume). But participation requires accessibility in *all areas* of everyday life. It is highly important that not only administrative texts are made accessible for everyone but also texts used for leisure activities. The Convention on the Rights of Persons with Disabilities (CRPD 2008) meets the needs of accessibility in all areas, including for example leisure activities, sports and cultural events. The CRPD requires "appropriate measures to ensure that persons with disabilities […] enjoy access to places for cultural performances or services, such as theatres, museums, cinemas, libraries and tourism services, and, as far as possible, enjoy access to monuments and sites of national cultural importance" (CRPD 2008 Article 30). Thus, accessibility is no longer limited to the administrative domain, it is also required for leisure activities and cultural life. However, the National Monitoring Body in Germany issued a parallel report to the UN Committee on the Rights of Persons with Disabilities in 2015 stating that: "the State Party (SP) is far from having taken all the possible and necessary steps for the implementation of the Convention" (National Monitoring Body 2015: 4). The impact on the everyday life of people with disabilities is still too small, especially in the area of cultural and leisure activities. A visit to a wildlife park is included in this area of everyday life. It is a leisure activity that combines entertainment with information about regional wildlife and contributes to social interactions.

This article provides an overview of an analysis of a visit to a wildlife park (Kröger 2019). A specific wildlife park (https://www.wildpark-schwarze-berge.de/)

was chosen to describe such a visit as a multicodal text. Partial texts were identified and described in their function as an aid for completing the activity. In describing the text, it becomes possible to identify the prerequisites of communicative accessibility for a visit to a wildlife park. This article gives readers an overview of this description. It also features an example of a partial text and discusses the barriers it may pose to the heterogeneous group of visitors.

2 Multimodal and multicodal texts

The terms *multicodal* and *multimodal* are defined in various ways by different authors, depending on the area of interest (for an overview, cf. Fröhlich 2017). A *code* can be defined as a system that regulates how signs are put together to achieve an intended meaning (Stöckl 2006: 17). Those codes are

- the verbal code,
- the pictorial code,
- and the number system (Weidenmann 2002: 46).

Messages and texts can be conveyed through different codes. Texts that are conveyed using more than one code are multicodal texts (Weidenmann 2002: 47). Fröhlich mentions the "co-occurrence of images and language" as an example of a multicodal text (Fröhlich 2017: 245). The term *mode* refers to the sensory organs with which recipients perceive a text (Weidenmann 2002: 46). A text can be described as multimodal if it can be perceived with more than one sensory organ (Weidenmann 2002: 47). A feature film is a multimodal text in that sense, as it can be perceived visually and aurally, the combination of which composes the text in its entirety. Weidenmann's approach consists of "a clear distinction between *multimodal* and *multicodal*, as the former refers to sensory channels and, in consequence, to reception and the latter to the composition of signs" (Fröhlich 2017: 250). The terms *code* and *mode* thus present different approaches: a text that consists of verbal and pictorial signs and layout features is – with regards to the code – multicodal, while it is – with regards to the mode – monomodal, as both signs are perceived visually. Fröhlich argues that "the limitation and separation of the two concepts mode and code can thus be considered as more 'precise'" (2017: 251).

Kauke-Keçeci takes a different approach towards the different codes. She uses a semiotic analysis of a youth initiation ceremony ("Jugendweihe", a ceremony in which 14-year-olds are given adult social status) in Eastern Germany to show that rituals can be defined as a text (Kauke-Keçeci 2002). She describes rituals as a text type that conveys meaning and is conventionally enshrined in a specific society (Kauke-Keçeci 2002: 21). Their form is solidified through repetition (Kauke-Keçeci 2002: 21). Consequently, rituals are defined as a text type. In this, Kauke-Keçeci lays the foundation for analysing rituals as multimodal and multicodal texts. The ritual is formed using verbal and non-verbal signs that are combined to achieve a joint meaning (Kauke-Keçeci 2002: 95). She uses the term text – as defined by de Beaugrande and Dressler (1981) – and the subsequent criteria to prove that a ritual can be defined as a text and thus be analysed as one (Kauke-Keçeci 2002: 286). The verbal code is in this case just a small part of the whole text and its importance is reduced. Her approach emphasises the other codes in the construction of meaning. She divides the different codes by their reception through different sensory channels: the visual code, the auditive code, the olfactory code, and the haptic code (Kauke-Keçeci 2002: 131). Thus Kauke-Keçeci combines Weidenmann's and Fröhlich's approaches and assigns sensory channels to different codes.

Kauke-Keçeci's approach can be applied to other complex text types as well. The next section describes a visit to a wildlife park as a multicodal text that consists of different codes. Each of these codes contribute to developing the overall meaning of the visit in its entirety. Each visit can thus be described as a text (in Kauke-Keçeci's understanding of the term) consisting of different codes and can be analysed as such. Kauke-Keçeci states that the ritual as a text is formed in the moment when the specific codes are combined by the audience (Kauke-Keçeci 2016: 103). In order to analyse the text, it is necessary to identify the different codes and discern how they work together to construct the meaning of the text (Kauke-Keçeci 2002: 144). Her approach to analysing rituals is used as the foundation that allows describing a visit to a wildlife park as a text. Similar to the youth initiation ceremony described by Kauke-Keçeci, a visit to a wildlife park is also a text that is formed in the situation of the visit itself. The situation in which the text occurs is an important part of its meaning, as it highly influences the way the text is formed (Kauke-Keçeci 2002: 147). Without the situation, the text loses (at least part of) its meaning. Following Kauke-Keçeci's understanding of texts, a visit to a wildlife park can be defined as a multicodal text. The text sender is the park as an institution while

the recipient is each visitor. The next section will show which codes are used to form this specific text and how they contribute to the overall meaning.

3 A visit to a wildlife park as a multicodal text

A visit to a wildlife park (in this case: https://www.wildpark-schwarze-berge.de/) consists of different codes as shown in Figure 1. A visit already begins before physically arriving at the park, when visitors search for information in order to plan their trip. Different written texts are available online and offline to provide this information, for example the parks' website, leaflets and articles in regional or national newspapers. Another important source of information, especially for visitors with impairments, is the online database "Reisen für alle" ("Travel for all"; https://www.reisen-fuer-alle.de/), which provides information on accessibility.

Having planned the trip, visitors arrive at the wildlife park. They pay the entrance fee and enter the park. They receive an entrance ticket and a map of the park, which shows the different paths, and the location of each enclosure. The visitors can walk through the park either alone or in groups and choose the path they prefer. They can follow the signs that indicate the way around the park, or they can follow their own route with the assistance of the map. The map enables the visitors to orientate themselves in the park and is thus an important resource. Another important resource are the signs in the park that indicate the way. The path visitors choose to get around the park determines the use of specific texts and codes.

Visitors can walk at their own pace, linger at the enclosures and watch the animals, and read the signs at the enclosures. Those signs include information about the animal, for example its natural habitat, its diet and reproduction. In some enclosures, visitors have the possibility to interact with the animals, to pet or feed them. Visitors can buy animal food at various locations in the park. Visitors may also take a break at one of the small restaurants or food stands. Twice a day there is a show during which falconers present the birds of prey and give information about these animals while letting them fly above the spectators. During this show visitors learn more about the animals through observation and auditory information. The park also offers short lectures during the feeding of the animals. A zookeeper feeds the animal and tells the visitors some facts about it. The visitors can observe the animal and ask questions.

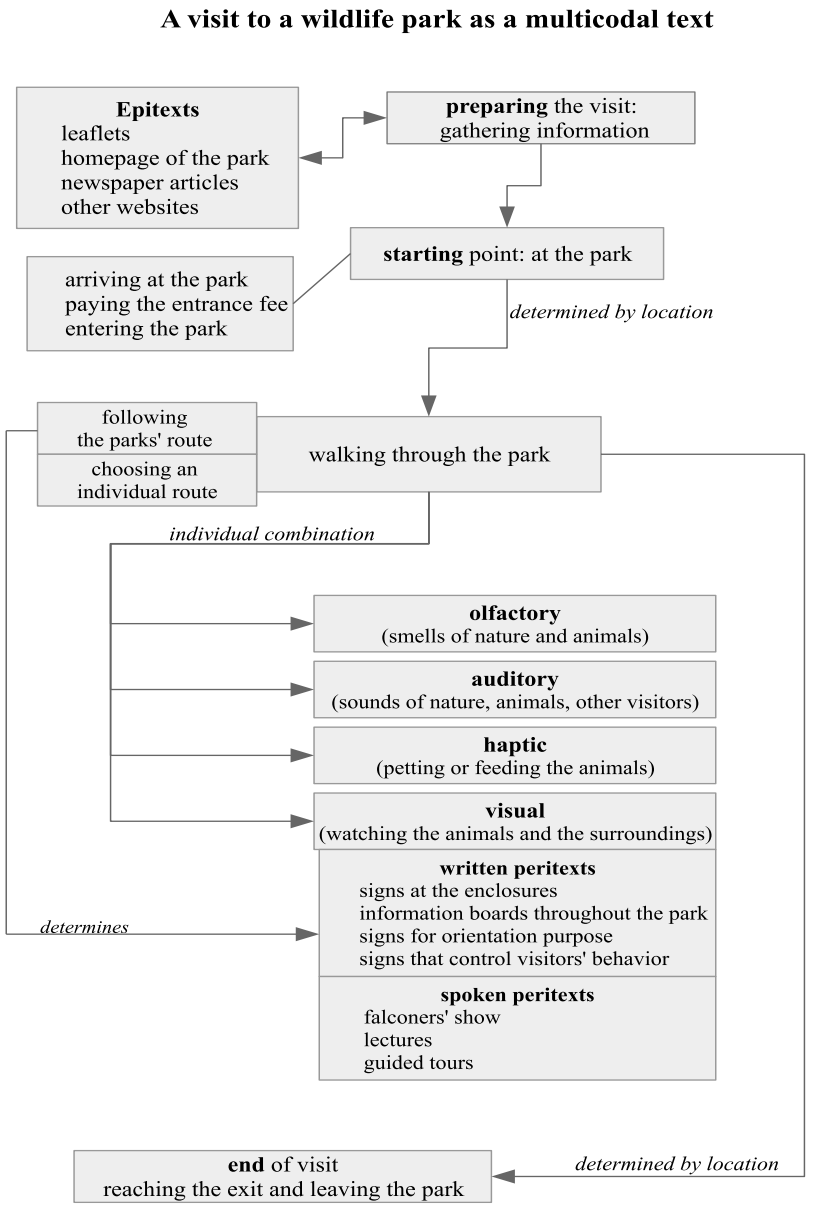

Figure 1: A visit to a wildlife park as a multicodal text

While walking through the park the visitors perceive information through various senses: They walk around the park, smell and see the forest and animals around them, and hear the sounds of nature. Visitors talk with each other about the park, the animals, or unrelated topics, thus strengthening their social bonds. A visit to a wildlife park is not only a means to learn more about nature but is also intended for recreation and spending time with family or friends. During their visit, visitors combine different codes – visual, auditory, olfactory and haptic – to form a text that represents their individual experience. Thus, every visit to the wildlife park is different as every visitor experiences the park individually but following the possibilities provided by the park itself. The visit ends when the visitors reach the exit and decide to leave the park.

To further define the different texts surrounding the visit, one can follow Genette in his classification. Genette (1997: 1) states that a "text is rarely presented in an unadorned state, unreinforced and unaccompanied by a certain number of verbal or other productions", which he calls paratexts. Those paratexts "surround it [the text] and extend it, precisely in order to *present* it" (Genette 1997: 1). The paratext contains partial texts located in close proximity to the text itself, which he calls peritexts, and partial texts located in greater distance from the text, which he calls epitexts (Genette 1997: 5). A visit to a wildlife park contains partial texts of several different text types. Following Genette in his description of paratexts (Genette 1997), there are both peritexts in close proximity to the park itself, as well as epitexts, distanced texts located outside the park.

Written epitexts include for example:

- the website of the park,
- leaflets,
- newspaper articles.

Written peritexts are for example:

- the map of the park,
- signs around the park for orientation purposes,
- the signs at the enclosures containing information about the animals,
- larger boards that contain further information about animals, plants and regional wildlife.

Rantamo/Schum (2019) underline the importance of written peritexts in a museum: They are essential to a visit, as they guide the visitors' thoughts and their perception hence leading the visitors' interpretation of what they see (Rantamo/Schum 2019: 615). The exhibits develop their meaning while visitors read the texts. Every visitor possesses individual knowledge about the exhibits, which is supplemented or newly constructed by the peritext. Written paratexts in themselves are thus part of accessibility, as they aim to level out education privileges (Rantamo/Schum 2019: 615). Nevertheless, written paratexts can also become a barrier if they are difficult to perceive, difficult to read, or difficult to understand (Rantamo/Schum 2019: 615). These observations can be applied to written paratexts in a wildlife park as well. The peritexts contain information about the animals and the local vegetation, while the epitexts may also contain information about the park itself, entrance fees, etc. Each visitor has a varying degree of prior knowledge about these topics while the paratexts are aimed at everyone equally. It is thus necessary to analyse these paratexts and the barriers they could pose for visitors. There is no research yet on the types of barriers a visit to a wildlife park might pose for the visitors. This article aims to provide a starting point for future work. In looking at one example of a peritext, the analysis exposes possible barriers. This is a necessary first step in order to improve accessibility for leisure activities. It is essential to understand the text to be able to improve its accessibility.

4 Barriers for a visit to a wildlife park

A visit to a wildlife park is a cultural activity. The previous section established the theoretical framework and showed that each visit is a text that consists of different codes. This text can pose various barriers to visitors. To improve cultural participation, these barriers need to be discovered. Only in being aware of possible barriers can they be addressed and removed. Maaß (2019: 6) describes the criteria for accessible communication:

- A text has to be *retrievable* for the users to be able to find it,
- the text has to be *perceivable* in order to be perceived by the target group,
- it has to be *comprehensible* in order to be understood,

- the information must be *linkable* to previous knowledge, otherwise the information cannot be retained.
- Furthermore, the text has to be *acceptable* and *action-oriented* so that the required action can be performed after the reception of the text.

The underlying hypothesis claims that a visit to a wildlife park is a text with unique features, thus requiring extensive strategies to access and process this text type. In order to reveal these strategies, it is necessary to first analyse the text and determine the barriers that visitors are confronted with when visiting a wildlife park.

This qualitative analysis aims to be a starting point for future works. One exemplary sign was taken from the wildlife park "Schwarze Berge" (https://www.wildpark-schwarze-berge.de/). The analysis focuses on factors contributing to:

- a perception barrier,
- a cognitive barrier,
- a language barrier,
- an expert language barrier,
- an expert knowledge barrier,
- a cultural barrier,
- and a media barrier (cf. Rink 2019, Maaß/Hernández Garrido in this volume).

The analysis was conducted with regard to the types of barriers (cf. Rink 2019), focusing on the texts rather than specific target groups, because a wildlife park is open for everybody and should thus strive to reduce all potential barriers posed by the partial texts.

Texts must be retrievable, otherwise the information cannot be found and thus not perceived, understood or retained (cf. Maaß/Rink 2019, Maaß 2019). Retrievable texts are the foundation for accessible communication. Before any other barrier can be addressed, it needs to be analysed how retrievable the texts are. In this case, the sign contains information about the specific animal and can be found directly at the enclosure. The park thereby ensures that visitors can find the signs, regardless of the direction from which they approach the enclosure. This is especially important for larger enclosures where visitors

can choose to linger at various points to observe the animal. In providing several identical signs at various points at the enclosure, the park ensures that visitors have the possibility to retrieve the text and use it to build their experience. Additionally, the park offers some larger information boards that contain further facts about some of the animals. Those boards were found close to the corresponding enclosure. The information boards are thus also retrievable and enhance the experience with additional visual information, providing text and pictures for the visitors.

5 Analysis

The example provided here addresses some of the barriers and explains what factors contribute to creating a barrier. This is a qualitative case analysis of one sign following the barrier types as described by Rink (2019). Furthermore, it is a text-based analysis of barriers posed by texts. The recipients were not part of the study. The sign was chosen as an example because it illustrates some of the most common barriers found in a larger corpus (Kröger 2019). Figure 2 shows the sign at the enclosure of the wild boar.

Figure 2: Sign at the enclosure of the wild boar

The sign consists of four parts: a painted picture of the animal in the upper left hand corner, a map showing the natural habitat marked in red in the upper right hand corner, a box containing the German and Latin name as well as the biological family in the lower left corner, and an informative text in the lower right part. The sign is retrievable, as it can be found directly at the enclosure, but it also poses different types of barriers for the various visitors of the park.

The sign poses a **perception barrier**. Three of the factors contributing to this barrier are discussed here: scratches, font size and words set in all uppercase letters. Scratches on the surface of the material disturb the perceptibility of the text. The scratches prevent the visitor from reading the letters at the end of the lines, rendering words unreadable. The visitors' literacy may help them discern the words if the visitor possesses enough knowledge in their mental lexicon. Visitors may use the co-text to complement the sentences and fill in the gaps created by the scratches. However, this process uses up a lot of cognitive resources which may put a strain on some of the visitors. The scratches impact the perceptibility of the text and contribute to a perception barrier. The font size used on the signs can contribute to a perception barrier, especially for visitors with visual impairments (cf. Alexander 2019). The term visual impairment includes numerous very heterogenous symptoms (Rink 2019: 16). Some of those recipients may have difficulties reading a small font size, some may need a larger distance between words. The font size in this example is roughly 12 pt and thus harder to perceive from a greater distance. Then, the perception of the words may use up a lot of cognitive resources which are then not available for further processes. The norm DIN 1450 proposes recommendations on the font type that can be used to improve readability of the signs. The writing of words in all capital letters, in this case the word "LINNE" in the lower left-hand box, also contributes to a perception barrier. This eliminates the difference between the letters and changes the form of the word, thus it may not be easily recognised (Bredel/Maaß 2016b: 176). This is especially problematic for readers with impaired literacy skills. The word also poses an expert knowledge barrier which will be discussed below.

The **cognitive barrier** arises due to the map on the sign. Maps are a code that needs to be learned for the recipients to be able to decode it properly (for Map Literacy cf. Montello 1998). Visitors thus need experience in reading maps as well as the ability to translate the information conveyed by it. This is made difficult by the presentation of the map, which does not include verbal

cues. The map shows only the contours of the continents but not the borders of the country, nor does the map show the countries' names. The recipients have to know which region is referred to by the location of the red marking alone and thus need a large amount of background knowledge about geography and on how to read maps correctly.

An **expert knowledge barrier** can be perceived with regards to the box under the image. It contains not only the name of the animal in German but also in English and the zoological nomenclature and its family (cf. Hadorn/Wehner 1986). The zoological nomenclature is used to correctly identify the animal and their species. The name is accompanied by the name of the author who first described the species (Hadorn/Wehner 1986: 507). The terms thus refer to expert knowledge; the visitors need a large amount of background knowledge to be able to correctly understand these terms and their reference to the world. Thus, the sign also poses an expert knowledge barrier for the visitors of the park. The use of **expert language** is also characteristic for these signs. Many terms belonging to the lexical field of biology are used, for example "Bache" ("wild sow"), "Allesesser" ("omnivore"), "Keiler" ("wild boar"). Those terms belong to the biological lexicon and are not frequent in everyday language. Thus, they may pose a barrier for understanding the content.

By further analysing the language used in the text, we can see that it creates a **language barrier** for the visitors. The text consists of four sentences with an average of 14 words per sentence. Bredel and Maaß state that a sentence can be comprehended better if it contains few words and more importantly few propositions (Bredel/Maaß 2016b: 47). Long sentences consisting of more than 11 words are thus harder to process (Bredel/Maaß 2016a: 128). The sentences on this sign entail lists of the boar's natural habitat and way of living as well as preferred foods. Readers have to remember the beginning of the sentence for quite some time until they reach the end and can properly integrate the propositions.

One sentence contains a passive alternative, using the verb "sein" ("to be") in combination with an infinitive "anzutreffen" ("to find"). Passive voice poses a barrier for some readers, as it suppresses the agent of the action, which has to be interpreted by the reader (cf. Bredel/Maaß 2016a: 314).

The possessive case (genitive) is also used in this example. This case is considered to be hard to process due to its infrequency in texts as well as its morphological complexity (Bredel/Maaß 2016a: 299). Aiming at understandable

texts for a heterogeneous group of visitors, grammatically complex forms such as the possessive case and passive are to be omitted.

Analysing the **mediality** of the sign, two observations should be addressed. The sign offers only limited space to convey information to its readers. This space has to be used economically to convey the most important and/or interesting facts to the readers. Thus, words are divided at the end of a line. This forces the reader to integrate a word over two lines, which possibly impacts the working memory and the resources available for other processes, such as morphological processing. This complexity is further increased by the scratches previously addressed.

The picture used on the sign can be both a barrier and a chance to enhance understanding. The image used is a realistic drawing of the animal and tries to convey similar visual information as the animal itself (cf. Ballstaedt 1997). The picture enables visitors to see the animal, even if it is not visible in the enclosure. Thus, the picture serves the function of entertainment. The image is also used to convey visual features of the animal in a fast and unambiguous way (cf. Ballstaedt 1997: 201). The picture allows the visitor to correctly identify the animal in the enclosure. The image serves the function of "showing" (Bredel/Maaß 2016a: 290), which allows the visitors to create a concept in their mental lexicon, thus creating new knowledge or reactivating prior knowledge (Bredel/Maaß 2016a: 290). Images used on the signs are an opportunity to facilitate the understanding. They reactivate prior knowledge or help to create a new concept in the readers' mental lexicon. However, correctly decoding images is a complex process that uses up cognitive resources and thus may pose a barrier for some visitors. Furthermore, the integration of text and image can contribute to this barrier.

The sign at the enclosure is a complex multicodal text that can create barriers for some visitors. Understanding these barriers is an important step to creating accessible experiences for all visitors to a wildlife park. The qualitative analysis shown here is the first step to understanding the text type "visit to a wildlife park", but in order to generalise these statements, a larger corpus needs to be analysed. Then, actions can be devised on how to improve accessibility of these texts.

One way to improve accessibility of texts could be their multicodal and multimodal presentation. Bredel and Maaß state that information can be perceived, processed and memorised best if they are presented in a multicodal

and multimodal way (Bredel/Maaß 2016a: 271). Using different signs and addressing different sensory organs thus helps recipients to better access the text. Hence, presenting texts as multicodal and multimodal is important for accessible communication.

6 Conclusion

A visit to a wildlife park can be described as a multicodal text. It consists of various partial text types that in themselves are mulitcodal, thus creating a complex fabric of texts that can pose various barriers for the visitors. The analysis conducted in this article was a qualitative text-based analysis of one sign that illustrates the different barriers visitors may be confronted with during their walk through a wildlife park. A perception barrier may arise due to scratches on signs, the font size used, and the typography. A cognitive barrier is fostered by using maps, demanding the ability to decode them correctly. An expert knowledge barrier as well as an expert language barrier arise due to the nature of the sign itself. The sign has to inform the visitors about the animals seen in the enclosures, their content thus belonging to a defined field of knowledge with a defined lexicon. A language barrier arises due to the length of words and sentences as well as grammatical structures like passive and genitive. Lastly, the mediality of the sign and the use of images can either help users to understand the written information or contribute to further barriers. However, the findings of this analysis are limited as they derive from only one exemplary text. To be able to generalise the statements made here, a larger corpus needs to be considered (cf. Kröger 2019). As mentioned, the analysis was text-based and thus needs to be flanked by further research conducted with regard to recipients. Research on how different target groups use the partial texts to create their individual experience in the park as well as the barriers they are confronted with is required. Then, measures can be defined that aim to reduce barriers and facilitate accessibility for *all* visitors. Accessibility of cultural activities is still on the periphery of research activities, especially with regards to recreational activities. Rantamo/Schum (2019: 627) present approaches to accessible museums that can be applied to the partial texts of a visit to a wildlife park, for example texts in Easy Language, audio guides and

videos in sign language. Still, more research approaches are needed to meet the needs of the CRPD and to ensure accessibility in all areas of life.

Works cited

Alexander, Kerstin. Ed. *Mit Typografie und Bild barrierefrei kommunizieren*. Berlin: Frank & Timme, 2019. Print.

Ballstaedt, Steffen-Peter. *Wissensvermittlung. Die Gestaltung von Lernmaterial*. Weinheim: Psychologie Verlags Union, 1997. Print.

Bredel, Ursula, and Christiane Maaß. *Leichte Sprache. Theoretische Grundlagen. Orientierung für die Praxis*. Berlin: Dudenverlag, 2016a. Print.

Bredel, Ursula, and Christiane Maaß. *Ratgeber Leichte Sprache. Die wichtigsten Regeln und Empfehlungen für die Praxis.* Berlin: Dudenverlag, 2016b. Print.

CRPD. Convention on the Rights of Persons with Disabilities. United Nations. 2008. Web. 3 June 2020. <https://www.un.org/development/desa/disabilities/convention-on-the-rights-of-persons-with-disabilities/convention-on-the-rights-of-persons-with-disabilities-2.html>.

De Beaugrande, Robert-Alain, and Wolfgang Dressler. *Einführung in die Textlinguistik*. Tübingen: Niemeyer, 1981. Print.

Fröhlich, Uta. "Analyzing Multicodal Media Texts". Eds. Kristina Bedijs, and Christiane Maaß. *Manual of Romance Languages in the Media.* Berlin/Boston: De Gruyter, 2017. 245–262. Print. Manuals of Romance Linguistics 23.

Genette, Gerard. *Paratexts. Thresholds of interpretation*. Translated by Jane E. Lewin. Cambridge: Cambridge University Press, 1997. Print.

Hadorn, Ernst, and Rüdiger Wehner. *Allgemeine Zoologie. Begründet von Alfred Kühn*. 21. unveränderte Auflage. Stuttgart, New York: Thieme, 1986. Print.

Kauke-Keçeci, Wilma. *Sinnsuche – Die semiotische Analyse eines komplexen Ritualtextes am Beispiel der ostdeutschen Jugendweihe nach 1989*. Frankfurt/Main: Peter Lang, 2002. Leipziger Arbeiten zur Sprach- und Kommunikationsgeschichte 8. Print.

Kauke-Keçeci, Wilma. "Jugendweihe als Ritualtext. Eine textwissenschaftlich-semiotische Analyse". Eds. Stephan Eschler, and Hartmut M. Griese. *Ritualtheorie, Initiationsriten und empirische Jugendweiheforschung: Beiträge für eine Tagung der Europäischen Jugendbildungs- und Jugendbegegnungsstätte Weimar.* Berlin: De Gruyter Oldenbourg, 2016. Print.

Kröger, Janina. *Kommunikationsbarrieren und kulturelle Teilhabe: Ein Wildparkbesuch als multicodaler barrierefreier Text*. Masterarbeit. Universität Hildesheim, 2019. Print.

Maaß, Christiane. 2019. *Easy Language and beyond: How to maximize the accessibility of communication*. Web. 3 June 2020. <https://doi.org/10.25528/023>.

Maaß, Christiane, and Isabel Rink. "Über das Handbuch Barrierefreie Kommunikation." Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 17–25. Print.

Montello, Daniel R. "Kartenverstehen: Die Sicht der Kognitionspsychologie". *Zeitschrift für Semiotik* 20.1–2 (1998): 91–103. Print.

National Monitoring Body for the UN Convention on the Rights of Persons with Disabilities. 2015. *Parallel Report to the UN Committee on the Rights of Persons with Disabilities. Institut für Menschenrechte*. Web. 3 June 2020. <https://www.institut-fuer-menschenrechte.de/fileadmin/user_upload/PDF-Dateien/Parallelberichte/Parallel_Report_to_the_UN_Committee_on_the_Rights_of_Persons_with_Disabilities_March_2015.pdf>.

Rantamo, Eeva, and Swenja Schum. "Museumstexte – Zum Abbau sprachlicher Barrieren in Museen und Ausstellungen". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 615–636. Print.

Reisen für alle. *Deutschland barrierefrei erleben*. Web. 3 June 2020. https://www.germany.travel/de/microsite/barrierefreies-reisen/deutschland-barrierefrei-erleben.html#!/barrierfree/search/search_query/Wildpark/language/de>.

Rink, Isabel. *Rechtskommunikation und Barrierefreiheit. Eine korpusgestützte Analyse der Übersetzung juristischer Informations- und Interaktionstexte in Leichte Sprache im Pilotprojekt "Leichte Sprache in der Niedersächsischen Justiz"*. Manuskript der Dissertation. Universität Hildesheim, 2019. Print.

Stöckl, Hartmut. "Zeichen, Text und Sinn – Theorie und Praxis der multimodalen Textanalyse". Eds. Eva Martha Eckkrammer, and Gudrun Held. *Textsemiotik. Studien zu multimodalen Texten*. Frankfurt am Main, New York: Peter Lang, 2006. 11–36. Print.

Weidenmann, Bernd. "Multicodierung und Multimodalität im Lernprozess." Eds. Ludwig J. Issing, and Paul Klimsa. *Information und Lernen mit Multimedia und Internet: Lehrbuch für Studium und Praxis.* 3. vollst. überarbeitete Auflage Weinheim: Beltz, 2002. 45–62. Print.

Wildpark Schwarze Berge. 2016. Web. 3 June 2020. <https://www.wildpark-schwarze-berge.de/>.

Part 4:
Cognitive Processing of Easy Language

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Intralingual Translation into Easy Language – Or how to Reduce Cognitive Processing Costs

1 Introduction

Political and public institutions are increasingly confronted with the fact that they have to translate existing texts with domain-specific contents into Plain and Easy Language. Easy and Plain Language can be considered controlled language varieties that aim at improving the readability and comprehensibility of texts. Plain Language is situated on a continuum between Easy Language and standard language. A controlled language is a subset of a natural language, such as German or English, which is restricted according to certain rules (Lehrndorfer 1996). So far, rules and formulation guidelines for Easy and Plain Language have been based on practical experience (Inclusion Europe 2009, Netzwerk Leichte Sprache 2013) or linguistic theory (cf. Bredel/Maaß 2016a, b for Easy Language and Baumert 2016, Hansen-Schirra/Gutermuth 2018 and Gutermuth 2020 for Plain Language). Among other things, they suggest limitations in the lexicon, reduced complexity on the morphological, phrasal, syntactic and textual layers and integration of pictures. We use the term "Easy Language" as an umbrella term for all variants of this language variety, whether it concerns the written channel with easy-to-read, the multimodal channel with easy-to-read-and-understand or even oral communication, which plays an increasingly important role within the area of interpreting into Easy Language. While the target group of Plain Language consists of people with low domain knowledge or little reading experience (Przybyla-Wilkin 2016: 135), Easy Language was initially developed for people with intellectual disabilities and learning difficulties. Today, the target group of Easy Language also comprises people with dementia, prelingual hearing impairments and aphasia as

well as functional illiterates and people with German as a second language (Bredel/Maaß 2016a: 140–172).

Translating specialised or technical content for a lay audience means filling the gap between expert knowledge and the knowledge of the recipient. With regard to the target groups of Easy Language, this gap is even bigger compared to Plain Language. On the one hand, the creation of a "common ground" (Pickering/Garrod 2004) is more difficult given the heterogeneous target groups. On the other hand, the specific target groups are characterised by their need for more inference and increased processing effort, which should be reduced through translations into Easy and Plain Language (Bock 2015). When evaluating the cognitive processing costs of the different language varieties, we adopt a psycholinguistic position measuring successful vs. dysfunctional perception and reception from a recipient's perspective. This enables us to focus on the target groups' demands that, in turn, are dependent on their specific language barriers (cf. Rink 2019). Cognitive-psychological approaches to the evaluation and systematisation of knowledge transfer include the integration of discourse-pragmatic text models on the one hand and mental models of the reader on the other (Brennan/Clark 1996). From this perspective, evaluating the interplay between structural linguistic complexity and processing costs involves measuring the efficiency of perception and reception processes. To capture these processes of understanding, cognitive science and psycholinguistics provide a comprehensive set of tools and methods, which have been adapted to the research of accessible communication (Hansen-Schirra/Gutermuth 2019). It is obvious that the guidelines aim at reducing structural linguistic complexity with the assumption that this also reduces cognitive complexity. Concerning cognitive complexity, comprehension processes have to be differentiated from comprehension products: the former concern the sequential intake of linguistic information and are investigated with online methods like eye-tracking, electroencephalography (EEG) or functional magnetic resonance imaging (fMRI). Comprehension products, on the other hand, are related to the acquired knowledge and are investigated via offline methods like questions, summaries etc. (Wolfer 2015, Christmann 2002). The very few existing studies addressing the cognitive complexity of German Easy Language have mostly used offline methods (e.g. Lange 2018). Little attention has so far been paid to comprehension processes related to

German Easy Language (cf. Gutermuth 2020 and Bock 2019 for first approaches).

The remainder of this article discusses Easy Language as intralingual translation (Section 2). Furthermore, it explains how structural linguistic complexity and cognitive complexity can be modelled for Easy and Plain Language varieties (Section 3). Finally, Section 4 introduces how processing costs can be measured for different language levels.

2 Easy Language as intralingual translation

Assuming that the premise of any translation is understandable communication and following Steiner's statement (2004: 1) "Every language act is a translation", we agree with Maksymski's definition that "anybody who acts as a mediator, removing comprehensibility problems by building bridges, could be a translator" (Maksymski 2015: 14). This broad view of translation is corroborated by other translation theories such as the skopos theory by Vermeer (1986, 1996) and Reiß/Vermeer (1984/2014) as well as other functional approaches such as Nord's concept of an instrumental translation, which is *per se* defined as being hetero-functional and allows for functional shifts (Nord 2011: 23).

When translating specialist texts as well as general-language texts from standard language into Easy and Plain Language, there is no classical language change in the sense of interlinguality, which is typically regarded as a criterion for the definition of translation in the sense of translation proper. Furthermore, since this type of transfer is primarily committed to function and not to the second definitional criterion, equivalence, coining this transfer as intralingual translation is discussed very controversially. The question of equivalence therefore needs to be theoretically differentiated and pragmatically relativised with regard to the function of texts in specific communication situations (Lerch 2008: 63). Instead of equivalence, we suggest applying the notion of adequacy since this is a more flexible and function-oriented framework to describe the relation between source and target text for intralingual translation into Easy Language.

But even linguistic approaches, such as Koller's concept of pragmatic equivalence (cf. Koller 2011: 251) include intralingual translation by character-

ising it as recipient-related equivalence. In a similar way, claims for invariance according to Albrecht (1990) could be taken into account by keeping the function but changing the comprehensibility of the text (cf. Maksymski 2015: 17). To narrow down this broad understanding of translation, Jakobson (1959: 127) adopts the following three categories:

> "1 Intralingual translation or *rewording* is an interpretation of verbal signs by means of other signs of the same language.
> 2 Interlingual translation or *translation proper* is an interpretation of verbal signs by means of some other language.
> 3 Intersemiotic translation or *transmutation* is an interpretation of verbal signs by means of signs of nonverbal sign systems."

In translation studies and applied linguistics, intralingual translation is often involved in communication settings with asymmetric knowledge distribution or gaps between the communication partners. This holds true for expert-lay communication, especially in medical communication (cf. Hill-Madsen 2014, Jensen 2015, Wilkes 2015) or legal and administrative language (cf. Hansen-Schirra/Neumann 2004, Lerch 2008, Wolfer/Hansen-Morath/Konieczny 2015).

In order to tackle this knowledge gap, various strategies can be used to generate a common ground between the communication partners. Possible strategies can involve simplifying structural linguistic complexity, reducing information density and thus improving the comprehensibility of texts (cf. Busse 1994: 42). The "reduction strategy" (Prahl/Petzold 1997), i.e. making the text less complex, is characterised by reducing content information, making it more general (and less specific) as well as simplifying linguistic structures (cf. Baker 1996). As a consequence, the target text contains less information but still adheres to the functional goals of the communicative situation (cf. Prahl/Petzold 1997: 5). A disadvantage associated with expert-lay communication is the ambiguity resulting from a more general vocabulary and more imprecise formulations, which may in turn lead to semantic understanding problems (Busse 1994: 33).

The achievement strategy, on the other hand, tries to compensate knowledge deficits by adding explanatory information and explications. Thus, comprehensibility problems may be reduced, but this strategy may lead to an increase in explanatory information as well as redundancies, which in turn

could negatively affect the clarity and argumentative structure of the overall text (cf. Busse 1994: 32–33). Applying exaggerated explication and explanation strategies may even result in the recipient feeling that he or she is being underestimated (cf. Vehmas-Lehto 2003: 333).

Against this background, the classification of writing Easy Language texts as intralingual translation is critically discussed in the strict sense of translation proper (cf. Bock/Lange 2015: 69, Lasch 2013, Linz 2014: 32). However, we agree with researchers postulating a broad notion of translation (e.g. Magris/Ross 2015: 31, Schubert 2013: 53) and consider the translation of standard or specialist texts into Easy Language as intralingual translation (cf. also Bredel/Maaß 2016a, Hansen-Schirra/Gutermuth 2018, Hansen-Schirra/Maaß 2019). More specifically, Bredel/Maaß (2016a: 185) define translation into Easy Language as follows:

- intralingual with a diastratic orientation, if the source text belongs to the German standard language
- intersemiotic, provided that the target text is processed visually in accordance with the regulations
- intraculturally, because source and primary target readers belong to the same paraculture, albeit often to different diacultural groups. (translation into English by the authors)

With regard to the translator, Bredel/Maaß (2016a: 188) describe the similarities to interlingual translation since in both cases the translator fulfils an intermediary expert position in adapting the target text to the (cultural) target group. Schubert (2013: 56) argues that translation into Easy Language does not only afford bridging a knowledge gap but also a difference in cognitive competence. The translator faces the trade-off between the need for explanation or explicitation and the reading ability and motivation of the addressee (cf. Maaß/Rink this volume). Adding necessary explanatory contents concerning difficult concepts may help the addressee to understand the text, it may however also lead to substantially lengthening the text, which may in turn lead to an increase in frustration with respect to the target group. Busse (1994: 33) calls this the dilemma of semantic specification (or optimisation). Here, the trade-off between excessive demands and restricted cognitive resources of the target group becomes clear. The rules for Easy Language (e.g. Bredel/Maaß 2016a)

serve as basis for operationalising the concrete translation procedures for the translator.

At the same time, the question arises as to the qualifications of text producers of Easy and Plain Language. According to Magris/Ross (2015), translators are suitable candidates since they have many skills and competences to cope with these new transfer tasks. For example, translators are trained to adapt the text to the readers' prior knowledge and, if necessary, to simplify it without risking too much loss of important information (Magris/Ross 2015: 32, cf. also Fluck 1996, 1976).

At the same time, text producers without academic translation training (e.g. people from empowerment initiatives, special educational needs teachers, language professionals from the area of accessible communication, etc.) have other important skills or knowledge (e.g. concerning the target groups, domain knowledge in social and political participation, etc.), which are equally important to define this special kind of translation activity. It can be concluded that translators have to be aware of the special translation procedures, which differ from interlingual translation, and that intralingual translation creates special demands with regard to the special needs of the recipients (cf. Rink 2019, Gutermuth 2020). This, in turn, shows the importance of the professionalisation debate in this area since this translation process requires not only knowledge of the specialised domain, of cultural specificities, of conventions and text types but also of the specific target group. Particularly, translators have to cope with the knowledge gap between source text producers and target text recipients by establishing a common ground for the special target groups. This requires expertise in maintaining semantic invariance in the translations, while keeping in mind the linguistic, textual and conceptual embedding in the target variety and simultaneously taking the domain-specific contents as well as addressee-oriented demands into account.

3 Modelling complexity for Easy Language

In linguistics, *complexity* is a multi-faceted notion lacking a clear, universally accepted definition (Comrie 1992, Dahl 2004, Miestamo 2008, Sinnemäki 2011, Bisang 2009, Pallotti 2015, Hennig 2017: 7). The distinction of absolute vs. relative complexity is a good starting point for discussing different perspec-

tives on complexity (Dahl 2004, Miestamo 2008, Sinnemäki 2011: 15–16). Absolute complexity is based on an abstract systematic level concerning phenomena like the number of grammatical categories, the fine-grainedness of their distinctions and grammatical relations. While the values of this type of complexity are abstract and do not depend on specific conditions, relative complexity pertains to cognitive costs and potentially varies between different individuals. What may be easy for one informant with her/his cognitive properties may be costly for another with different properties. Given this background, absolute complexity is mainly used in terms of structural complexity in linguistics by authors of various theoretical models, while relative complexity is adopted in psycho- and neurolinguistic research as well as in language acquisition, both L1 and L2. This basically leads to the following three types of complexity as discussed by Pallotti (2015: 118): structural complexity, cognitive complexity and developmental complexity.[1] The focus of this paper will be on structural complexity and cognitive complexity as it is typically investigated in psycho- and neurolinguistics with methods like eye-tracking, EEG or fMRI.[2] Developmental complexity investigates "the order in which linguistic structures emerge and are mastered in second (and, possibly, first) language acquisition" (Pallotti 2015: 11) and will not be further addressed in this paper.

Generally, a more fine-grained distinction is made between *global complexity* on the one hand and *local complexity* on the other. Whereas global complexity concerns a language or a dialect in its totality, local complexity is domain-specific (e.g. the complexity of the tense system or the case system). As Szmrecsany/Kortmann (2012: 8) point out, "[w]hile assessing a language's global complexity is a very ambitious and indeed probably hopeless endeavor […], measuring local complexities in linguistic subdomains is seen as a more doable task". Sinnemäki (2011: 17–19) discussed in his summary that there are many reasons for this. One of them is the impossibility of producing a comprehensive grammar of an individual language which covers all its relevant aspects ("problem of representativity"). Another has to do with the problem of weighing aspects of different complexity at different levels of grammar ("prob-

1 There is another approach based on algorithmic information theory which is not discussed in this paper. This type is called "Kolmogorov complexity" by many researchers.

2 Even though many researchers treat these two types of complexity as incompatible, it is to be expected that there is a correlation at least at a diachronic evolutionary level if one thinks that grammatical structures are motivated by cognitive properties of the brain (Bisang 2015, also cf. Sinnemäki 2014 on cognitive processing preferences).

lem of comparability"). For instance, how can we compare morphological and syntactic complexity or syntactic and semantic complexity? Any kind of variable to convert the complexity measure of one level into that of another level is basically arbitrary. Related to this question is the question whether all languages are equally complex. The assumption that this is the case was very popular in the twentieth century and is discussed under the label of "linguistic equi-complexity dogma". Its basic idea is that the complexity of different linguistic subdomains may differ between languages, but that the total complexity is always equal. In other words: higher complexity in one linguistic subdomain of a given language is compensated by lower complexity in another linguistic subdomain of that very language and vice versa (Szmrecsanyi/Kortmann 2012). Given that it is hard, if not completely arbitrary, to compare complexity across levels, the hypothesis that there is a trade-off between different levels is losing ground. In Dahl's (2009) view, global complexity can only be compared across structurally similar languages. In contrast to global complexity, it is generally agreed that it is possible at least to a certain extent to compare complexity at a local level, i.e., at the level of specific grammatical domains (e.g. sound systems, tense, case, relative-clause formation, complex clauses, etc.).

What all these approaches to complexity share is their focus on the linguistic form by which grammatical information is explicitly expressed. Starting out from the observation that articulation or human speech encoding is much slower than pragmatic inference (cf. Levinson 2000: 27–29), explicitness in terms of morphosyntactic expression is only one side of complexity; the other side has to do with economy and the extent to which grammatical information is allowed to be inferred by the grammar of a language. Explicitness-based complexity is called "overt complexity" by Bisang (e.g. 2009), while economy produces "hidden complexity". Hidden complexity manifests itself in two ways. 1.) Obligatoriness and the question of the extent to which the grammar of a language forces its speaker to use a category X for which that language has a set of markers. In languages with obligatory number marking, count nouns must be marked for that category in most of its constructions as in English or German, while that information can be left to the hearer's inferential abilities in languages with non-obligatory marking like Mandarin Chinese, Japanese or Turkish. Obligatory number marking leads to overt complexity with oppositions like *boy* (sg) vs. *boy-s* (pl). In contrast, non-obligatoriness allows for the

production of simpler looking surface structures like Mandarin Chinese *nánhái*, which can be seen as an instance of hidden complexity and means 'boy' or 'boys', depending on context. 2.) A linguistic sign is multifunctional and the correct meaning in a given context must be inferred (for more examples, cf. Bisang 2009, 2014, 2015).

Complexity as it was presented in the above discussion is generally focused on grammatical systems of individual languages or across different languages. What is rarely addressed is the perspective of language internal variation and the fact that speakers/writers can select from a pool of different constructions characterised by different degrees of hidden or overt complexity for adapting their message to a given situation. This is where Easy Language comes in. In this new research context, the grammar-based framework for defining hidden vs. overt complexity can still be used in certain domains of grammar (e.g. simple vs. complex clauses, (non)use of pronouns, etc.) but it is necessary to extend it in the wider context of explicitation to constraints given by the informational needs and the cognitive background of potential recipients.

When translating from standard language to Easy Language, several shifts take place concerning linguistic complexity. Existing research on Easy Language demands the "principle of maximum explicitness" (cf. Bredel/Maaß 2016a: 517). The proposed rules (see Section 1) result in an explicitation of contents and the simplification of complex linguistic structures, which in turn dissolve inferences for the target group by extending the linguistic common ground (cf. Pickering/Garrod 2004). This is supposed to improve the readability and comprehensibility of texts. However, the competing needs for linguistic economy and explicitness create two different types of complexity for the dynamics of the text sender and recipient. Linguistic economy is based on the omission of optional or inherent information, which must be inferred from the contexts, resulting in processing costs, i.e. hidden complexity. Linguistic explicitness, however, manifests itself in an increased overt complexity recognisable in linguistic structures. Bisang (2014: 133) interprets the conflict as follows: "Too much overt information makes the analysis more demanding and thus creates costs. Economy minimises the risk of creating disturbances through too much information but if too much information is missing this produces costs as well, since the parser will need time to decide between too many alternative analyses". This results in the following continuum:

- Expert language: highest hidden complexity, lowest overt complexity
- Plain Language: medium hidden complexity, medium overt complexity
- Easy Language: lowest hidden complexity, highest overt complexity

This continuum further explains the language continuum by Hansen-Schirra/Maaß (this volume: Figure 1), since it takes the notion of hidden and overt complexity into account (see Figure 1).

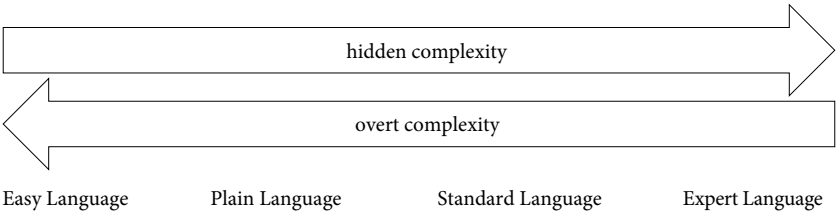

Figure 1: Complexity continuum

This continuum defines the strategic framework in which a translator for Easy Language can choose from various text variants depending on the target recipient group, their literacy and their ability to infer contents from implicit text. Increased linguistic complexity reduces processing complexity and vice versa. However, since the target groups are extremely heterogeneous within the context of accessible communication, the interaction between production complexity and processing complexity needs to be empirically tested in order to understand which kind of complexity negatively influences readability and comprehensibility. It has so far been unclear whether, for example, complex phrases or their resolution into subordinate clauses, which increases overt complexity on the syntactic level, are more problematic for the target groups of Easy Language. Another example would be the simplification of compounds, which inhibit a high degree of hidden complexity, leading to an increase in overt complexity at the phrase level (cf. Halliday/Martin 1993). Finally, it is unclear whether the formulation of single clauses with only one proposition as sentences, which is also recommended according to the rules, facilitates the comprehensibility of texts. This strategy increases overt complexity with respect to coherence and cohesion, which may in turn lead to more processing effort (cf. Wolfer/Hansen-Morath/Konieczny 2015).

Therefore, we can formulate the following research gaps:

- It remains unclear which kind of complexity (hidden or overt) leads to more processing costs for the target group. Therefore, we postulate that we need a more fine-grained set of rules depending on the specific recipient group since they might have different cognitive capacities to process overt or hidden complexity in texts.
- The highest degree of overt complexity might result in scenario A described in Maaß/Rink (this volume). This means that the information density might result in excessively long texts, which are not processable by the target group. Here, rules for counterbalancing overt complexity and information density (as suggested in scenario C by Maaß/Rink, this volume) have to be defined and empirically tested.

A promising theoretical framework seems to be the drawers model by Bredel/Maaß (2016b: 186ff), in which they propose a step-by-step enrichment of complexity from Easy Language towards Plain Language – or Easy Language Plus as proposed by Hansen-Schirra/Maaß (this volume). The more cognitive capacities the recipients have and the better their literacy is, the more complex structures can be chosen. But again, a solid empirical validation of these strategies is still lacking.

4 Empirical evidence for processing costs

We try to bridge the research gap for cognitive processing of Easy and Plain Language by introducing related empirical research from cognitive science. In the following we address the following linguistic layers: morphology, lexis, syntax, semantics and text. For each layer, we introduce one sample study showing how cognitive costs may be investigated within the context of comprehensibility research in general. More concretely, these studies are candidates to be replicated against the background of Easy and Plain Language rules.

4.1 Morphology

One of the main characteristics of German Easy Language, in terms of word formation, is the rule that compounds are to be optically structured into their constituent morphemes to facilitate lexical access and comprehension. While the first set of rules and regulations for Easy Language (Netzwerk Leichte Sprache 2013: 6) recommends separating compounds with a hyphen (*Winter-Jacke* [‘*winter jacket*’]), the German Research Center for Easy Language suggests structuring compounds with a hyphenation point called mediopoint (*Winter·jacke*) (Maaß 2015: 88).

The advantage of visual segmentation of compounds is accounted for by results of prior studies on the processing of compounds (e.g. Inhoff/Radach/Heller 2000; Placke 2001). The present section focuses on the study conducted by Inhoff/Radach/Heller (2000), since it is the only study that has dealt with the question of how compounds with more than two morphemes are cognitively processed.

In their study, Inhoff/Radach/Heller (2000) presented compounds in three different boundary conditions that either conformed to or violated German orthographic conventions. In the standard condition, compounds were presented concatenated, i.e. without interword spaces (*Spielzeugpistole* [‘*toy gun*’]. In the spaced condition, compounds were presented with blank spaces between components (*Spiel zeug pistole*), and in the upper-case condition, compounds were presented concatenated, with the first letter of the constituents being demonstrated by upper-case characters (*SpielZeugPistole*).

The cognitive processing of compounds was investigated in a naming and a reading task. The authors hypothesised that the marking of constituent boundaries by blank spaces and upper-case characters facilitates processing of compounds. If so, they expected the naming latencies to be shorter in the spaced and upper-case condition than in the standard condition.

Since presenting words without context is not an authentic situation, compounds were not only shown in isolation but also embedded in meaningful declarative sentences. As the authors assumed that the facilitating effect of compound segmentation is evident both on the word and on the sentence level, they also expected the main reading time variables (i.e. first-fixation duration, gaze duration and total viewing duration; Just/Carpenter 1980) to be shortest when compounds are read with interword spaces between constituents.

Hence, in both experiments, the boundary type (composed of three levels) was used as the independent variable. In the first experiment, the naming latency, i.e. the interval between presentation and naming of the target word, constituted the dependent variable. The second experiment, in which participants' eye movements were recorded during sentence reading, used the above-mentioned eye-tracking parameters as well as post-target viewing as dependent variables.

The study was conducted with 24 skilled readers who either had to name or read 72 trimorphemic German compounds. The naming latencies indicated that the insertion of interword spaces facilitated processing of compounds, with the spaced condition being named significantly faster than the standard condition. The upper-case condition yielded only a small, non-significant naming benefit. These results were confirmed by the eye-tracking data of the reading experiment which revealed the shortest first-fixation duration, gaze duration and total viewing duration in the spaced condition. Furthermore, the number of fixations was slightly lower in the spaced condition than in the standard condition. However, supplementary analyses of the fixation order showed that, in contrast to the first and second fixation, the last fixation was longer in the spaced than in the standard and upper-case condition.

According to Inhoff/Radach/Heller (2000), the longer final fixations in the spaced conditions are due to the fact that, even though the spaced condition provides the readers with a cue that facilitates accessing constituent word forms, namely segmentation, it also deprives them from another processing cue, namely the marking of the compound's end. Hence, especially for novel compounds, the reader does not immediately know whether a morpheme (a) constitutes the compound's head, (b) forms part of the compound without being its head or, (c) is already part of the following word. This was confirmed by analyses of post-target viewing, with the post-target viewing being longest in the spaced condition. As in most comparisons, the standard and the upper-case condition yielded almost parallel results.

The study consequently revealed that the insertion of interword spaces reduces processing costs as it facilitates lexical access of the compound's constituents. However, the study also showed that these processing benefits only occur during the initial phase of compound reading. Furthermore, the study indicated that, when the end of a word is not clearly marked, as in the spaced condition, people can have greater difficulty in both processing the compound

and reading the post-target. These findings lead to the conclusion that not only the use of visual structuring signs, but also the concatenation of the compound provides an important visual cue for lexical access and comprehension of compounds.

Consequently, to effectively reduce processing costs, the end of a compound, as well as the constituents' word boundaries, need to be marked. While the former is achieved by visual structuring signs, the latter is achieved by concatenation.

In Easy Language these requirements can be fulfilled by the insertion of the mediopoint. By structuring compounds with a mediopoint, morpheme boundaries are marked in a spatially unified compound, which both facilitates access to the meaning of the constituents and indicates the location of the head constituent, i.e. the end of the compound.

4.2 Lexis

The guidelines for Easy Language in German concerning word choice suggest the use of short and frequent words. In this sense they correspond to early psycholinguistic research, which has shown that processing costs on the word level are influenced by certain word factors. One of the most powerful determinants for the time for visual word recognition – besides word length – seems to be the frequency with which the word occurs in written language. There is widespread agreement on the effect of frequency not only on the processing time of words in reading but also other tasks like word naming (Kittredge et al. 2008), lexical decision (e.g. Balota et al. 2004) or memory performance (Yonelinas 2002). Several theoretical models aim to explain those effects for reading efficiency (e.g. The Dual Route Cascaded Model by Coltheart 2001).

Just/Carpenter (1976/1980) describe two assumptions to make word processing effects explorable in eye-tracking: the eye-mind hypothesis, meaning that the following word in a text will not be fixated until all cognitive processes that are necessary to process the first word are completed; and the immediacy assumption, meaning that the word will be interpreted on all processing levels right in the moment of reading.

One of the first widely cited and much discussed studies concerning those word frequency and word length effects referred to in the Easy Language guidelines was conducted by Just/Carpenter (1980). In an eye-tracking experi-

ment, the participants had to read scientific passages in their native language (English) while their eye movements were being tracked. This text type was chosen under the assumption that it reflects the reading material students are used to as regards content and style. The readers rated the text passages in terms of familiarity with the modal rating of "entirely unfamiliar". On the Flesch readability scale, the passages were judged between "fairly difficult" and "difficult" by the participants. On average, there were 17 words per sentence and 1.6 syllables per word. The passages were not controlled or parallelised for any other linguistic aspect. As Just/Carpenter (1980) wanted to investigate local and global processing effects, they developed a simple grammar to categorise the sectors of the text. The 15 stimuli texts for each participant were then presented on a television screen while the eye-tracker collected data at 60 Hz.

For the data analysis, the fixations on each word were aggregated into the words' gaze duration. The mean duration of gaze on each word (~ 2000) was computed by averaging over readers. This mean gaze duration was the primary dependent variable of interest, while independent variables were various word factors suspected to affect word processing costs (e.g. frequency, length). For more global processing measures, factors on the phrase and clause level were taken into consideration (e.g. case role assignment, interclause integration).

While up to this point all content words were thought to receive approximately the same duration of gaze (~250 ms), results of the regression analysis for this experiment showed variation in this matter for the first time. In particular, words of high and low frequency showed a significant difference in gaze duration – the frequent words being processed 53 milliseconds faster for each log unit (normative frequencies were analyzed by relating gaze duration to the logarithm of frequency, based on the Kučera and Francis (1967) norms). Furthermore, Just/Carpenter found an effect of word length on gaze duration by classifying words in terms of their number of syllables: the average gaze duration increased by 52 milliseconds per syllable. The authors explain the effect of the word's frequency by their reading model: a word's activation level can be increased by either its perceptual decoding, its parallel production or its serial production. Words with an increased activation level can then be reactivated quickly and therefore be read faster. The repeated reading of a word can also increase the word's activation level long term, making words with high frequency easier available for activation.

Although the results by Just/Carpenter (1980) have been argued about (e.g. Hogaboam/McConkie 1981), several more recent multimodal studies confirm the described effects (Desai/Wonil/Henderson 2018).

Up to today it is not clear whether those effects also apply to the target group of Easy Language, which usually does not have similar reading experience and therefore might not profit from long term increased activation levels for frequent words.

4.3 Syntax

The guidelines for Easy Language claim a prohibition of multi-part sentences. They must be restructured into autonomous sentences on the grounds that such structures with complex syntax cannot be completely understood by the primary target group, since they trigger a too high demand on working memory capacities (cf. Maaß 2015: 109–118; Bredel/Maaß 2016a: 120–121). During restructuring, the sentences are split but the linking connective is usually still maintained. For example, the parts of causal clauses are separated by a full stop, but the second part begins with a connective. For example, the sentence *John put on more clothes, because it was cold yesterday* is restructured in the two sentences *It was cold yesterday. Therefore John put on more clothes.*

Millis and Just (1994) describe four experiments in which they examined linked and unlinked clauses and, on that basis, formulate their Reactivation Hypothesis. This states, among other things, that the inter-clause integration takes place at the end of the second clause. The statement is mainly confirmed by the second experiment of their study (cf. Millis/Just 1994: 135–136), in which they used statement pairs that were either linked by the connective *because* or separated by a period.[3] The single sentences described an action or event and consisted of ten words each. The first statement contained a possible consequence of the event in the second statement, e.g. (1) *The elderly parents toasted their only daughter at the party*, (2) *Jill had finally passed the exams at the prestigious university*.

The materials were presented on a computer screen using a word-by-word, participant-paced moving-window display. While reading the scenarios, par-

3 In the first experiment described in the paper, Millis/Just (1994: 134–135) proved that the presence of a connective like *because* led participants to integrate the statements to a greater extent than in the absence of a connective. The presence of the connective facilitated the probe responses for the first statement.

ticipants had to recognise whether a probe word was present. The probe word was always the verb in the first clause. It was presented at two locations: one word after the connective or after the full stop (depending on whether it was a linked or unlinked scenario) or immediately after the last word of the second sentence. Word-reading times and probe-recognition times were recorded in a millisecond time range.

The study aimed at determining when inter-clause integration occurs. For this purpose, Millis/Just assumed two options: 1. activation of the contents of the first clause is maintained in the working memory throughout comprehension of the second statement (immediate reactivation); 2. the contents are reactivated at the end of the entire statement (delayed reactivation). Therefore, they tested the activation level of the verb at the early and the late location. In case of immediate reactivation, the connective facilitation effect detected in the first experiment (cf. Millis/Just 1994: 134–135) should be determined at both locations, while the delayed reactivation should cause a larger effect at the late probe-location.

A total of 60 sentences were used and randomly placed into four groups of stimulus lists. The lists were randomly assigned to one of the following four conditions: connective-early probe, connective-late probe, no connective-early probe, no connective-late probe. In addition, there were 54 filler sentences. The experiment involved 65 students who were native English speakers.

The collected data leads to the assumption of delayed reactivation. In case of the presence of a connective, probe times decreased when the probe occurred at the late location and increased when the probe occurred in the earlier location. The late probe times were significantly faster than the early ones. Both options assumed the reactivation effect at the late location, but only the immediate-reactivation hypothesis also assumed the effect in the early probe position, which was non-existent. Therefore, this hypothesis had to be rejected.

Millis/Just conclude that for each clause a separate representation is constructed by the reader before a compound unit is formed that represents both parts. The readers place the representation of the first clause aside while constructing a representation of the second clause. But the integration of the complete statement needs both parts to be simultaneously active in working memory, so that the first part has to be reactivated at the end of the second clause.

Of course it is plausible to keep the connector in Easy Language, even when splitting it into individual sentences, because the experiments show "that readers are less likely to integrate the two clauses into a common representation in the absence of an explicit connective" (Millis/Just 1994: 144). However, the question arises whether a restructuring into individual sentences is really necessary as facilitation for the working memory. The first statement for understanding the overall meaning is not reactivated until the end of the second sentence in both cases, so that the working memory has to spend the same effort.

4.4 Semantics

On a semantic level, transformation guidelines for Easy Language texts presuppose that verbal content which is not factual in the present reception situation, fictional or not expected, is difficult to process (Bredel/Maaß 2016a). In German, past tense, future tense, past perfect, subjunctive and perfect subjunctive express these scenarios. Translators should decompose and add these structures through explications. Furthermore, translators should express only one proposition per sentence, use only transparent metaphors taken from the communicative reality of the addressees (Maaß 2015: 40, 101) and substitute negated propositions by affirmative reformulations or explications (Maaß 2015: 124).

EEG is a method to measure extremely small voltages generated within the brain's structures as a response to certain events or the presentation of stimuli. These voltages are called event-related potentials (ERP) (cf. Blackwood/Muir 1990). Therefore, this method is often used for studies on semantic processing, especially when dealing with semantic complexity on several levels. On the most basic level, it has been investigated how the meaning of upcoming words is integrated into the meaning of a sentence (Kutas/Hillyard 1980 and elsewhere). Processing costs for incoming words have been proven as highly dependent on the probability and semantic relatedness of that word within a sentence. In ERP studies, this results in an enlarged N2-P3 amplitude the less probable a word within a sentence appears (Kutas/Hillyard 1980, Van Berkum/Hagoort/Brown 1999). Furthermore, the negativity after approximately 400 ms of the onset of an unsuitable word is highly increased and has been formulated as N400 with regard to a semantic mismatch indicator (Van Berkum/Hagoort/

Brown 1999: 661). On a more complex level, the influence of a wider context on the semantic integration of propositions has been examined (Knoepferle/Urbach/Kutas 2011; Van Berkum/Hagoort/Brown 1999 and elsewhere). Van Berkum/Hagoort/Brown (1999) investigated how the predictability of words can be influenced by context sentences and how the appearance of an anomalous context can influence the N400 effect of atypical words in a sentence. ERP results showed that context mismatch of target words elicit very similar negativity effects to the N400 observed in mismatching words within one sentence (Van Berkum/Hagoort/Brown 1999: 662f). Thirdly, the integration of negated and counterfactual constructions into the context of real-world expectations has been proven as hard to process (Ferguson/Sanford 2008). In addition, eye-tracking results showed that real world violations are integrated into a counterfactual context. Nevertheless, disruptions in the reading process are observed as soon as there is a real-world mismatch, regardless of the context congruency towards a counterfactual context (Ferguson/Sanford 2008: 622).

Fischler et al. (1983) investigated whether truth value violations lead to higher processing costs than a semantic mismatch between subjects and objects (observing the N400 as dependent variable). The independent variables of the study were the sentence constructions that were either true or false (*A robin is a bird* (true)/*A robin is a tool* (false)), and that are either affirmative or negative (*A car is a vehicle* (affirmative)/*A car is not a bird* (negative)) resulting in four conditions: true affirmatives, false affirmatives, true negatives and false negatives. The dependent variables were the accuracy and response latencies to the truth evaluation task of the sentences and the ERPs that were measured after the sentence final object. The authors hypothesised that if the truth value of a sentence is integrated as fast as the truth value inversion by negation, the negative components elicited in EEG after target objects should be similar in false affirmative sentences and in false negative sentences. Otherwise, if semantic relatedness of words represents the means of sentence processing and therefore is integrated faster than the truth value of sentences, false affirmative and true negative sentences should elicit enlarged negativity 400 ms after the onset of the target object.

The participants were eight male, English-speaking electrical engineering students. They had to read 36 sentences of each condition, resulting in 144 experimental sentences. Based on the rapid serial visual presentation method (cf. Foster 1970) the sentences were presented word-by-word in a fixed focal

position on a screen with 175 ms for each word with an interstimulus interval of 800 ms. The participants had to detect truth value of the sentences via button press after the presentation of each sentence.

The results of the study revealed significant main effects of sentence structure and truth value in all participants. The interaction between the two conditions was significant in all participating subjects, too: True affirmatives were detected faster and more correctly than false affirmatives, false negatives were detected faster and more correctly than true negatives, whereas negative sentences overall lead to 170 ms longer response times compared to affirmative sentences. The ERPs were measured from before the target object until 700 ms after the object onset. The N400 was found in negative sentences and in false sentences. Interestingly, false sentences elicited enlarged negativity only in affirmative structures, whereas in the negative condition the true sentences elicited negativity 400 ms after the object onset. Furthermore, negative sentences revealed enlarged positivity after 200 ms post-onset and enlarged positivity after 700 ms of the object onset. This late positivity in negated sentences was interpreted as increased processing costs for semantic complexity of negation. Finally, in first processing time windows, the semantic relationship between subject and object plays a more important role in sentence processing than the actual truth value of a sentence (Fischler et al. 1983: 406). Research on semantic complexity in Easy Language must therefore answer the questions whether the measured effects in Fischler et al. (1983) appear in all types of negation forms and whether the effects are modulated by bold printed negation words, as recommended in the rules for German Easy Language.

4.5 Text

Guidelines on the text level are very miscellaneous and empirical research considering the text as an entity is rare (one remarkable contribution cf. Christmann/Groeben 2019). Anaphoric expressions and pronouns serve as important markers of local and global coherence and thus help establish such relations during reading of a text.

However, any kind of inference can cause difficulties for the target groups of Easy Language, as potentially relevant information must be kept active in the working memory and new information must be updated while reading, as is the case with anaphoric expressions and the respective antecedents. This

places significant demands on working memory and is the reason why guidelines for Easy Language in German state that ambiguous anaphoric pronouns should be avoided (cf. Bredel/Maaß 2016a). Also, the referred antecedent is not always clear, for instance when two protagonists of the same gender are used.

Since children also belong to the target groups of Easy Language (cf. Hansen-Schirra/Maaß this volume), we approach the problem of anaphora resolution from this perspective: Ehrlich/Remond (1997) showed that 9-year-old children are able to resolve anaphora in texts when explicitly asked to do so and that children with a low reading comprehension competence are poor at answering questions about anaphora they have read in a text. However, not much is known about children's online processing of anaphora and individual processing differences affecting anaphora resolution.

The study by Joseph et al. (2015) presented here investigates the time course of online anaphora processing in children (10–11 years) in relation to individual differences in verbal working memory and reading comprehension competence. Daneman/Carpenter (1980) found a positive correlation between working memory capacity and reading comprehension in adults, and Lee Swanson (1993) found generalised working memory deficits in children with learning disabilities. Based on these findings, Joseph et al. (2015) used eye-tracking to find out whether working memory and reading comprehension competence affect the ability to resolve anaphoric pronouns in children. They hypothesised that, during anaphora resolution, for children with a high capacity of working memory and stronger reading comprehension competence, potential antecedents are more likely to be stored in the working memory than for children with a poor working memory and poorer comprehension competence resulting in more efficient anaphora processing.

Joseph et al. (2015) tested 30 children (10–11 years) who were fluent readers and therefore accustomed to anaphoric noun phrases. The participants underwent several pretests to assess their working memory span and reading comprehension competence. Participants were asked to read short English paragraphs with noun phrase anaphora. Semantic typicality of the antecedent and distance between anaphora and antecedent counted in number of words were manipulated to increase difficulty ("typical-near", "atypical-near", "typical-far", and "atypical-far"). Eye movements were recorded using eye-tracking technology.

According to Garrod/Terras' (2000) two stages of anaphoric processing, the antecedent, the anaphora and the word or words following the anaphora were identified as areas of interest. Eye movements that reflect early and late stages of processing like first fixation durations, gaze durations, regression probability, go past times and total reading times were measured.

The authors expected children with high working memory capacity to resolve the expression faster and to show effects of typicality and distance in early measures. Children with lower working memory capacity were hypothesised to show effects in later measures or no effects at all, as they are not eager to understand the texts. On the antecedent, larger effects of typicality and distance were expected for children with good reading comprehension because they try to resolve all anaphora. Children with lower reading comprehension would show fewer regressions as they continue reading without trying to resolve all anaphora.

Although the dataset was too small to conduct extensive statistical analyses, some reliable effects could be found. All in all, reading comprehension could be associated with shorter reading times in the post-anaphora region, but not in the other areas of interest. However, this effect could only be seen in the easy conditions, as slow reading due to poorer comprehension or slow reading due to processing could not be distinguished. Typicality and distance effects in early processing stages (on the anaphora and post-anaphora region) could be identified. Children with high working memory capacity had a longer first fixation duration on the anaphora in the "near"-condition. In the post anaphora region, they had a longer first fixation duration in the "far"-condition. This suggests that, while in the "near"-condition the antecedent was still activated, even children with high working memory capacity were not able to resolve the anaphora in the "far"-condition.

In the antecedent region, the authors speculate that children with high working memory capacity and good reading comprehension had resolved the anaphora when their eyes left the post-anaphora region, while their peers with low working memory capacity and poorer reading comprehension competence showed no signs of resolving at all. In the easiest condition ("typical near"), anaphoric resolution effects appear in early processing stages. In the most difficult condition ("atypical far") no evidence could be found that children are resolving the anaphora at all. The authors argue that this condition was too demanding for the children to resolve online. However, after questioning, the

children might have been able to resolve even this condition (cf. Joseph et al. 2015: 634).

These findings implicate that anaphoric expressions are difficult to process for children in general, but even more difficult for children with a low working memory capacity, which might affect younger target groups of Easy Language. In addition, Gress-Heister (2003) tested degeneration processes and showed that pronouns are especially problematic for dementia patients. This also supports the claim that anaphoric expressions should be avoided in order to enhance the comprehensibility of texts.

5 Empirical research desiderata for Easy Language

This paper addressed three main aims: 1. we discussed the status of Easy and Plain text production as intralingual translation. 2. we introduced a model for describing the complexity of these language varieties focusing on the relation between linguistic complexity and processing costs. 3. we introduced methods from cognitive science, which allow us to (indirectly) measure processing costs.

There are, however, several research gaps remaining: For Easy Language, it is not clear whether the existing sets of rules can be applied without losing functional adequacy of the reformulations (legal content must, for instance, be checked for legal validity). Plain Language is problematic since there are no universally applicable language rules or standards. For both varieties, it is not clear whether the reduction of textual complexity effectively leads to reduced processing effort. This paves the way for empirical studies on Easy and Plain Language using and combining online methods, which shed light on the interplay between linguistic complexity on several language levels and processing costs depending on the needs of specific groups of recipients.

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Works cited

Albrecht, Jörn. "Invarianz, Äquivalenz, Adäquatheit". Eds. Reiner Arntz, and Gisela Thome. *Übersetzungswissenschaft. Ergebnisse und Perspektiven. Festschrift für Wolfram Wilss zum 65. Geburtstag.* Tübingen: Gunter Narr Verlag, 1990. 71–81. Print.

Baker, Mona. *Corpus-based translation studies: The challenges that lie ahead.* John Benjamins Publishing Company, Benjamins Translation Library 18. 1996. 175–186. 175–186. Print.

Balota, David A; Cortese, Michael J.; Sergent-Marshall, Susan D.; Spieler, Daniel H., and Melvin J. Yap. "Visual word recognition of single-syllable words". *Journal of Experimental Psychology: General* 133.2 (2004): 283–316. Print.

Baumert, Andreas. 2016. *Leichte Sprache-einfache Sprache: Literaturrecherche, Interpretation, Entwicklung.* Hochschule Hannover. Web. 20 October 2019. <http://serwiss.bib.hs-hannover.de/frontdoor/deliver/index/docId/697/file/ES.pdf>.

Berkum, Jos J.A. van; Hagoort, Peter, and Colin M. Brown. "Semantic integration in sentences and discourse: Evidence from the N400". *Journal of cognitive neuroscience* 11.6 (1999): 657–671. Print.

Bisang, Walter. "On the evolution of complexity – sometimes less is more in East and mainland Southeast Asia". Eds. Geoffrey Sampson, David Gil, and Peter Trudgill. *Language complexity as an evolving variable*. Oxford: Oxford University Press, 2009. 34–49. Print.

Bisang, Walter. "Overt and hidden complexity – Two types of complexity and their implications". *Poznan Studies in Contemporary Linguistics* 50.2 (2014): 127–143. Print.

Bisang, Walter. "Hidden complexity – the neglected side of complexity and its consequences". *Linguistics Vanguard* 1.1 (2015): 177–187. Print.

Blackwood, D. H. R., and W. J. Muir. "Cognitive brain potentials and their application". *The British Journal of Psychiatry 157.S9* (1990): 96–101. Print.

Bock, Bettina. "Barrierefreie Kommunikation als Voraussetzung und Mittel für die Partizipation benachteiligter Gruppen – Ein (polito-) linguistischer Blick auf Probleme und Potenziale von 'Leichter' und 'einfacher Sprache'". *Sprache und Demokratie, Themenheft auf Linguistik Online* 73.4/15 (2015). Linguistik Online. Web.

Bock, Bettina M. "*Leichte Sprache*" *– Kein Regelwerk: Sprachwissenschaftliche Ergebnisse und Praxisempfehlungen aus dem LeiSA-Projekt.* Berlin: Frank & Timme, 2019. Print.

Bock, Bettina, and Daisy Lange. "Was ist eigentlich 'Leichte Sprache'? Der Blick der Sprachwissenschaft". Eds. Klaus Candussi, and Walburga Fröhlich. *Leicht Lesen. Der Schlüssel zur Welt. Wien: Böhlau,* 2015. 63–79. Print.

Bredel, Ursula, and Christiane Maaß. *Leichte Sprache: Theoretische Grundlagen? Orientierung für die Praxis.* Mannheim: Dudenverlag, 2016a. Print.

Bredel, Ursula, and Christiane Maaß. *Ratgeber Leichte Sprache: Die wichtigsten Regeln und Empfehlungen für die Praxis*. Mannheim: Dudenverlag, 2016b. Print.

Brennan, Susan E., and Herbert H. Clark. "Conceptual pacts and lexical choice in conversation". *Journal of Experimental Psychology: Learning, Memory, and Cognition* 22.6 (1996): 1482–1493. Print.

Busse, Dietrich. "Verständlichkeit von Gesetzestexten: ein Problem der Formulierungstechnik? Zu Möglichkeiten und Grenzen einer semantischen Optimierung der Rechtssprache". *Gesetzgebung heute* Heft 2 (1994): 29–37. Print.

Christmann, Ursula. "Methoden der Verstehens- und Verständlichkeitserhebung". *Zeitschrift für Literaturwissenschaft und Linguistik LiLi* 128.4 (2002): 76–97. Print.

Christmann, Ursula, and Norbert Groeben. "Verständlichkeit: die psychologische Perspektive". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 123–146. Print.

Coltheart, Max; Rastle, Kathleen; Perry, Conrad; Langdon, Robyn, and Johannes Ziegler. "Drc: a dual route cascaded model of visual word recognition and reading aloud". *Psychological review* 108.1 (2001): 204–256. Print.

Comrie, Bernard. "Before complexity". Eds. John A. Hawkins, and Murray Gell-Mann. *The evolution of human languages: Proceedings of the workshop on the Evolution of human languages, held August, 1989 in Santa Fe, New Mexico*, Redwood City: Addison-Wesley, 1992. 193–211. Print.

Dahl, Östen. *The Growth and Maintenance of Linguistic Complexity.* Amsterdam/Philadelphia: Benjamins, 2004. Print.

Dahl, Östen. "Testing the assumption of complexity invariance. The case of Efdalian and Swedish". Eds. Geoffrey Sampson, David Gil, and Peter Trudgill. Sampson, *Language Complexity as an Evolving Variable*. Oxford: Oxford University Press, 2009. 50–63. Print.

Daneman, Meredyth, and Patricia A Carpenter. "Individual differences in working memory and reading". *Journal of verbal learning and verbal behavior* 19.4 (1980): 450–466. Print.

Desai, Rutvik H.; Choi, Wonil, and John M. Henderson. "Word frequency effects in naturalistic reading". *Language, Cognition and Neuroscience* (2018): 1–12. Print.

Ehrlich, Marie-France, and Martine Remond. "Skilled and less skilled comprehenders: French children's processing of anaphoric devices in written texts". *British Journal of Developmental Psychology* 15.3 (1997): 291–309. Print.

Ferguson, Heather J.; Sanford, Anthony J., and Hartmut Leuthold. "Eye-movements and ERPs reveal the time course of processing negation and remitting counterfactual worlds". *Brain research* 1236 (2008): 113–125. Print.

Fischler, Ira; Bloom, Paul A.; Childers, Donald G.; Roucos, Salim E., and Nathan W. Perry Jr. "Brain potentials related to stages of sentence verification". *Psychophysiology* 20.4 (1983): 400–409. Print.

Fluck, Hans-Rüdiger. *Fachsprachen: Einführung und Bibliographie*. Stuttgart: UTB, 1976/1996. Print.

Foster, Kenneth I. "Visual perception of rapidly presented word sequences of varying complexity". *Perception & Psychophysics 8.4* (1970): 215–221. Print.

Garrod, Simon, and Melody Terras. "The contribution of lexical and situational knowledge to resolving discourse roles: Bonding and resolution". *Journal of memory and language* 42.4 (2000): 526–544. Print.

Gress-Heister, Markus "Abbau sprachverarbeitender Prozesse bei dementiellen Syndromen am Beispiel pronominaler Formen". Eds. Reinhard Fiehler, and Caja Timm. *Sprache und Kommunikation im Alter*. Radolfzell: Verlag für Gesprächsforschung, 2003. 292–309. Print.

Gutermuth, Silke. *Leichte Sprache für alle? Eine zielgruppenorientierte Rezeptionsstudie zu Leichter und Einfacher Sprache.* Berlin: Frank & Timme, 2020. Print.

Halliday, Michael; Kirkwood, Alexander, and James R. Martin. *Writing science: Literacy and discursive power*. London/New York: Routledge, 1993. Print.

Hansen-Schirra, Silvia, and Silke Gutermuth. "Modellierung und Messung Einfacher und Leichter Sprache". Eds. Susanne Jekat, Martin Kappus, and Klaus Schubert. *Barrieren abbauen, Sprache gestalten*. Winterthur: ZHAW, Züricher Hochschule für Angewandte Wissenschaften, 2018. 7–23. Print.

Hansen-Schirra, Silvia, and Silke Gutermuth. "Empirische Überprüfung von Verständlichkeit". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 163–182. Print.

Hansen-Schirra, Silvia, and Christiane Maaß. *Translation proper. Kommunikationsbarrieren überwinden. Hildesheim,* 2019. Web. 15 October 2019. <https://nbn-resolving.org/urn:nbn:de:gbv:hil2-opus4-9687>.

Hansen-Schirra, Silvia, and Stella Neumann. "Linguistische Verständlichmachung in der juristischen Realität". Ed. Kent D. Lerch. *Recht verstehen. Verständlichkeit, Missverständlichkeit und Unverständlichkeit von Recht.* Berlin/New York: de Gruyter, 2004. 167–184. Print.

Hennig, Mathilde. *Linguistische Komplexität – ein Phantom*. Tübingen: Stauffenburg, 2017. 7–18. Print. Stauffenburg Linguistik 94.

Hill-Madsen, Aage. *Derivation and transformation: Strategies in lay-oriented intralingual translation*. Department of Business Communication, Aarhus University, 2014. Print.

Hogaboam, Thomas W., and George W McConkie. *The rocky road from eye fixations to comprehension*. Technical Report no. 207. Center for the Study of Reading Illinois, 1981. Print.

Inclusion Europe. 2009. *Informationen für alle: Europäische Regeln, wie man Informationen leicht lesbar und verständlich macht*. Web. 20 October 2019. <http://easy-to-read.eu/wpcontent/uploads/2014/%C2%AC12/DE_Information_%C2%ACfor_all.pdf>.

Inhoff, Albrecht Werner; Radach, Ralph, and Dieter Heller. "Complex compounds in German: Interword spaces facilitate segmentation but hinder assignment of meaning". *Journal of Memory and Language* 42.1 (2000): 23–50. Print.

Jakobson, Roman. "On linguistic aspects of translation". *On translation* 3 (1959): 30–39. Print.

Jensen, Matilde Nisbeth. "Optimising comprehensibility in interlingual translation: The need for intralingual translation". Eds. Karin Maksymski, Silke Gutermuth, and Silvia Hansen-Schirra. *Translation and Comprehensibility*, vol. 72. Berlin: Frank & Timme, 2015. 163–194. Print.

Joseph, Holly SSL; Bremner, Georgina; Liversedge, Simon P., and Kate Nation. "Working memory, reading ability and the effects of distance and typicality on anaphor resolution in children". *Journal of Cognitive Psychology* 27.5 (2015): 622–639. Print.

Just, Marcel Adam, and Patricia A. Carpenter. "Eye fixations and cognitive processes". *Cognitive psychology* 8.4 (1976): 441–480. Print.

Just, Marcel Adam, and Patricia A. Carpenter. "A theory of reading: From eye fixations to comprehension". *Psychological review* 87.4 (1980): 329–354. Print.

Kittredge, Audrey K.; Dell, Gary S.; Verkuilen, Jay, and Myrna F. Schwartz. "Where is the effect of frequency in word production? Insights from aphasic picturenaming errors". *Cognitive neuropsychology* 25.4 (2008): 463–492. Print.

Knoepferle, Pia; Urbach, Thomas P., and Marta Kutas. "Comprehending how visual context influences incremental sentence processing: Insights from ERPs and picture-sentence verification". *Psychophysiology* 48.4 (2011): 495–506. Print.

Koller, Werner. *Einführung in die Übersetzungswissenschaft*. Francke, 2011. Print.

Kučera, Henry, and Winthrop Nelson Francis. *Computational analysis of present day American English*. Dartmouth Publishing Group, 1967. Print.

Kutas, Marta, and Steven A. Hillyard. "Reading senseless sentences: Brain potentials reflect semantic incongruity". *Science* 207.4427 (1980): 203–205. Print.

Lange, Daisy. "Comparing 'Leichte Sprache', 'einfache Sprache' and 'Leicht Lesen': A Corpus-Based Descriptive Approach". *1st Swiss conference on barrier-free communication*, Winterthur: ZHAW, Zürcher Hochschule für Angewandte Wissenschaften, 2018. 75–91.

Lasch, Alexander. "Leichte Sprache" – 10 Gestaltungshinweise. *Sprachpunkt (Webblog)*, 2013. Web.

Lehrndorfer, Anne. *Kontrolliertes Deutsch: Linguistische und sprachpsychologische Leitlinien für eine (maschinell) kontrollierte Sprache in der Technischen Dokumentation*. Gunter Narr Verlag, 1996. Print.

Lerch, Kent D. "Ultra posse nemo obligatur: von der Verständlichkeit und ihren Grenzen". Eds. Karin M. Eichhoff-Cyrus, and Gerd Antos. *Verständlichkeit als Bürgerrecht? Die Rechts- und Verwaltungssprache in der öffentlichen Diskussion*. Dudenverlag, 2008. 54–80. Print.

Levinson, Stephen C. *Presumptive Meanings. The Theory of Generalized Conversational Implicatures*. Cambridge, Mass.: The MIT Press, 2000. Print.

Linz, Erika. "Sprache als Barriere. Das Sprachbild in Konzeptionen von Leichter Sprache". *Sprache Und Literatur* 44.2 (2014): 20–42. Print.

Maaß, Christiane. *Leichte Sprache: Das Regelbuch*. Berlin: Lit Verlag, 2015. Print.

Magris, Marella, and Dolores Ross. "Barrierefreiheit auf Webseiten von Gebietskörperschaften: ein Vergleich zwischen Deutschland, Italien und den Niederlanden". *trans-kom* 8.1 (2015): 8–39. Print.

Maksymski, Karin. "Dimensions of translation". Eds. Karin Maksymski, Silke Gutermuth, and Silvia Hansen-Schirra. *Translation and Comprehensibility*, vol. 72. Berlin: Frank & Timme, 2015. 163–194. Print.

Miestamo, Matti. "Grammatical complexity in a cross-linguistic perspective". Eds. Matti Miestamo, Kaius Sinnemäki, and Fred Karlsson. *Language complexity: Typology, contact, change*. Amsterdam/Philadelphia: Benjamins, 2008. 23–41. Print.

Millis, Keith K., and Marcel Adam Just. "The influence of connectives on sentence comprehension". *Journal of memory and language* 33.1 (1994): 128–147. Print.

Netzwerk Leichte Sprache. 2013. *Die Regeln für Leichte Sprache*. Web. 20 October 2019. <https://www.leichte-sprache.org/die-regeln/>.

Nord, Christiane. *Funktionsgerechtigkeit und Loyalität: Theorie, Methode und Didaktik des funktionalen Übersetzens. Vol. 1*. Berlin: Frank & Timme, 2011. Print.

Pallotti, Gabriele. "A simple view of linguistic complexity". *Second Language Research* 31.1 (2015): 117–134. Print.

Pickering, Martin J., and Simon Garrod. "Toward a mechanistic psychology of dialogue". *Behavioral and brain sciences* 27.2 (2004): 169–190. Print.

Placke, Lars. *Das Lesen von Komposita: Blickbewegungsstudien zum Einfluss visueller, orthographischer und lexikalischer Faktoren auf die Verarbeitung komplexer deutscher und englischer Wörter*. Aachen: Shaker, 2001. Print.

Prahl, Birte, and Susanne Petzolt. *Translation problems and translation strategies involved in human and machine translation: Empirical studies*. Universität Hildesheim. Institut für Angewandte Sprachwissenschaft, 1997. Print.

Przybyla-Wilkin, Agnieszka. "Easy-to-read in English, German and Polish". Ed. Nathalie Mälzer. *Barrierefreie Kommunikation – Perspektiven aus Theorie und Praxis*. Berlin: Frank & Timme, 2016. 135–150. Print.

Reiß, Katharina, and Hans J Vermeer. *Grundlegung einer allgemeinen Translationstheorie*. Tübingen: Niemeyer, 1984. Print.

Reiß, Katharina, and Hans J Vermeer. *Towards a general theory of translational action: Skopos theory explained*. London/New York: Routledge, 1984/2014. Print.

Rink, Isabel. "Kommunikationsbarrieren". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 29–66. Print.

Schubert, Klaus. "Bürgernahe Sprache. Überlegungen ausfachkommunikationswissenschaftlicher Sicht". *Synaps* 29 (2013): 48–57. Print.

Sinnemäki, Kaius. *Language universals and linguistic complexity*. Helsinki: University of Helsinki, Department of Modern Languages, 2011. Print.

Sinnemäki, Kaius. "Cognitive processing, language typology, and variation". *WIREs Cognitive Science 5.4* (2014): 477–487. <doi: 10.1002/wcs.1294>.

Steiner, George. "Anthropological foundations, cultural contexts and forms of translation". Eds. Harald Kittel, Armin Paul Frank, Norbert Greiner, Theo Her-

MANS, WERNER KOLLER, JOSÉ LAMBERT, and FRITZ PAUL. *Übersetzung – Translation – Traduction.* 1. Teilband. Berlin: Walter de Gruyter, 2004. 1–11. Print.

SWANSON, H LEE. "Working memory in learning disability subgroups". *Journal of experimental child psychology* 56.1 (1993): 87–114. Print.

SZMRECSANYI, BENEDIKT, and BERND KORTMANN. Introduction. Eds. BENEDIKT KORTMANN, and BERND SZMRECSANYI. *Linguistic complexity – Second language acquisition, indigenization, contact.* Berlin: de Gruyter, 2012. 6–34. Print.

VEHMAS-LEHTO, INKERI. "Syteen vai saveen? Eksplikointi käännösstrategiana". *Erikoiskielet ja käännösteoria – LSP and Theory of Translation*. 23rd VAKKI Symposium. Publications of the Research Group for the Theory of Translation, LSP and Multilingualism at the University of Vaasa, vol. 30, 2003. 330–337. Print.

VERMEER, HANS J. *Voraussetzungen für eine Translationstheorie: Einige Kapitel Kultur- und Sprachtheorie*. Vermeer, 1986. Print.

VERMEER, HANS J. *A Skopos Theory of Translation (Some Arguments For and Against).* Heidelberg: TEXTconTEXT, 1996. Print.

WILKES, HANNA. *Ratgeber in Leichter Sprache als Teil der fachexternen Kommunikation*. BA thesis. Universität Hildesheim, 2015. Print.

WOLFER, SASCHA. "Comprehension and Comprehensibility". Eds. KARIN MAKSYMSKI, SILKE GUTERMUTH, and SILVIA HANSEN-SCHIRRA. *Translation and Comprehensibility*, vol. 72. Berlin: Frank & Timme, 2015. 33–51. Print.

WOLFER, SASCHA; HANSEN-MORATH, SANDRA, and LARS KONIECZNY. "Are shorter sentences always simpler? Discourse level processing consequences of reformulating jurisdictional texts". Eds. KARIN MAKSYMSKI, SILKE GUTERMUTH, and SILVIA HANSEN-SCHIRRA. *Translation and Comprehensibility*, vol. 72. Berlin: Frank & Timme, 2015. 263–287. Print.

YONELINAS, ANDREW P. "The nature of recollection and familiarity: A review of 30 years of research". *Journal of memory and language* 46.3 (2002): 441–517. Print.

Laura Schiffl

Hierarchies in Lexical Complexity: Do Effects of Word Frequency, Word Length and Repetition Exist for the Visual Word Processing of People with Cognitive Impairments?

1 Introduction

German Easy Language, as well as similar accessible (or 'barrier-free') language concepts across the globe aims to reduce the cognitive processing costs in reading for a specific target group. For this purpose, German standard texts are translated or edited into an easier, more comprehensible version, making Easy Language a topic of intralingual translation. So far, however, the relevant guidelines for translators and text editors have been developed on the basis of practical experience and have not been empirically evaluated. Although, subsequently, a theoretical foundation was carried out, founding on linguistic research (cf. Bredel/Maaß 2016), the current situation lacks studies on the precise effects on cognitive processing gained by complexity reduction in Easy Language texts. This applies not only to unimpaired people but especially to the heterogeneous target group of Easy Language in German: people with cognitive impairments. The present project tries to address this research gap by investigating processing costs on the word level within said target group. While the guidelines recommend the use of 'simple' and 'short' words (e.g. Netzwerk Leichte Sprache 2013: 22, 26) when translating a standard text into Easy Language to facilitate comprehension, we currently do not know – precisely – what kind of lexical factors make a word easy to process for people with cognitive impairments. There are several well-studied influences, however, that have an impact on the visual word processing in healthy grown-ups and children. The focus of the current examination will be on the word frequency effect (Just/Carpenter 1980, Tiffin-Richards/Schroeder 2015), the word length effect (Just/Carpenter 1980, Kliegl et al. 2004), the repetition effect (Raney/Rayner 1995, Kamienkowski et al. 2018) and long term learning effects for infrequent words (Just/Carpenter 1980). It seems possible that cognitively

impaired people, who often do not have comparable reading experience to unimpaired adults, will not show the discussed effects on visual word processing in the same way. Results of this study will make it possible to reevaluate the existing guidelines for Easy Language in German in terms of word use.

2 Scientific problem and hypotheses

Several cognitive models have tried to explain the underlying processes in reading (for an overview, cf. Norris 2013). The computational model referred to in the following hypotheses is the Dual Route Cascaded Model by Coltheart et al. (2001), which is based on the dual route theory, first described in the 1970s. Coltheart et al. suggest that visual word recognition is a cognitive process, consisting of two possible mental routes. Which route is available to us – and therefore the time we need to recognise a word and identify its phonological form – is very much influenced by the degree of our reading experience. Skilled readers are able to recognise many words by sight alone (lexical route) and access semantic and phonological information very quickly. In this route, words must have an entry in the mental lexicon. Because we read them more often, words of high frequency are more likely to have an entry in the mental lexicon (cf. Share 1995) compared to words of lower frequency. Words we do not have an entry for – because they are of low frequency or we do not read them often for other reasons – have to be decoded during the reading process (sublexical route). The decoding is achieved gradually through grapheme-phoneme-correspondence rules and takes up more time than the lexical route. This explains why long, infrequent words exhibit the longest gaze duration in eye-tracking-experiments (cf. Tiffin-Richards/Schroeder 2015 and elsewhere) compared to shorter words or words of higher frequency. The main research aim of the current study is to identify word parameters that facilitate or impede visual word processing for people with cognitive impairments. Therefore, four subquestions are taken into consideration. The hypotheses are as followed:

> [1] Does the word frequency effect for visual processing times of frequent and infrequent words (cf. Just/Carpenter 1980) appear in people with cognitive impairments in the same way it does in cognitively unimpaired individuals?

Due to less experience in reading and writing, the target group of Easy Language does not show the word frequency effect in the same way as unimpaired adults. Due to a smaller visual word form lexicon, people with cognitive impairments do not profit from frequent words as much as experienced readers do. This presents in a smaller difference in fixation times for frequent and infrequent words, a smaller difference in the number of regressions for frequent and infrequent words and a smaller difference in the answer accuracy for those words.

> [2] Does the word length effect for visual processing times of long and short words (cf. Just/Carpenter 1980) appear in people with cognitive impairments in the same way as it does in cognitively unimpaired individuals?

Due to less experience in reading and writing, the target group of Easy Language does not exhibit the word length effect in the same way as unimpaired adults. People with cognitive impairments mainly read by using the sublexical reading route, making it necessary to decode the phonological word form by applying grapheme-phoneme-correspondence rules. They therefore profit from short words even more than healthy adults do. This presents in a larger difference in fixation times for long and short words and a larger difference in the number of regressions for long and short words.

> [3] How does the repetition of infrequent words influence the visual word processing speed in people with cognitive impairments?

The repeated decoding with the help of grapheme-phoneme-correspondence rules of the infrequent words will transfer the visual word form of those words into the mental lexicon (Share 1995) and make the lexical reading route (Coltheart et al. 2001) accessible for those words. The words can then be read more quickly. This presents in shorter fixation times for repeated reading compared to first pass reading of the word and in a higher answer accuracy for the repeated words.

> [4] Are there any long-term learning effects for repeated infrequent words in people with cognitive impairments?

The repeatedly read infrequent words are available in the mental lexicon and are mapped with the memorised phonological form so that access is facilitated in the long-term (cf. Share 1995, Just/Carpenter 1980). This presents in shorter fixation times and fewer regressions for the infrequent words as well as higher answer accuracy during the follow-up-study, compared to first time reading of the same word.

3 Procedure

3.1 Participants

General observations

The target group consists of at least 40 people with cognitive impairments who work in sheltered workshops. Cognitive impairments of various etiologies and varying manifestations are taken into account. In addition to the target group, there is an unimpaired control group matched in terms of age and gender. All subjects are German native speakers. Subjects are between 18 and 60 years old. The target group as well as the control group is defined more closely in terms of reading ability (two pretests are run) and neuropsychological skills (e.g. psychomotor ability, verbal intelligence, attention and memory span). Since the presented study is currently in progress, only preliminary information on participants and their results can be described at this point.

Personal details

Besides the eye-tracking examination, both participants of the target group as well as participants of the control group complete a survey on their form and severity of impairment, their educational level, therapies (e.g. speech therapy) and amount of media consumption as well as a neuropsychological test battery and two reading tests. A total of 42 participants with an average age of 23 years (21males, 21 females) of the target group have so far participated in the experiment. The average media consumption, which is defined by the amount of time the participant spends reading in minutes each day, was 45 minutes with a high standard deviation of 42. In comparison, the 40 participants of the control group are on average 29 years old. In the control group, 25 unimpaired males and 15 unimpaired females participated; their average media consumption was calculated to be 180 minutes (SD = 110).

Neuropsychological overview

Table 1 presents an overview of the average results (mean and standard deviation) for both groups concerning the neuropsychological assessment. Psychomotor ability (PA) as well as speed of processing and mental flexibility (MF) were measured with the Trail making test (TMT-A & TMT-B, originally part of the Army Individual Test Battery, 1944), working memory (WM), word fluency (WF) and verbal intelligence (VI) were also measured using parts of a standardised test battery, while no qualified test was used for visual control (VC) and data were collected for informal screening purposes only. Established tests on visual search and visual attention (e.g. Brickenkamp 2002: d2 test) were expected to be too challenging for the cognitively impaired target group as many participants suffer from bad eyesight. However, in order to rule out the possibility that the participants reading difficulties are due to limitations of visual control, a greatly simplified version of a visual search task was integrated into the neuropsychological test battery (see below). For the TMT-A and TMT-B, participants were asked to connect numbers and letters in ascending order. In Table 1, the time required to solve the task (TMT-A being only numbers and TMT-B being alternating numbers and letters) is reported. For working memory, participants were asked to repeat a given order of digits in ascending complexity – backwards and forwards. In Table 1 the mean number of repeated digits is reported. For word fluency, participants were asked to name as many words in a given topic as possible (semantic, lexical, mixed semantic). The mean number of words across the topics is given in Table 1. For verbal intelligence the "Mehrfachwortschatztest", (Lehrl 2005) was used. Participants were asked to find one existing word within a word selection of five non-words per line. The number of found words, out of 37, is reported in Table 1. Lastly, for visual control, participants were asked to cross off a certain type of t-shirt on a page of pictures of clothing. Table 1 shows the required time to cross off all 14 t-shirts in seconds. Results of the neuropsychological assessment confirm the challenges cognitively impaired individuals encounter. In every single investigated aspect, the target group performs significantly worse than the control group (Mann-Whitney-U-Test: $p = .000$ for PA, MF, WM, WF, and VI). The number of crossed off items in the visual search task seems to be an exception. In that case the target group only performed significantly slower than the control group (p for number of crossed off items = .129). It is to be mentioned, that there is a wide variance within the target

group data (see standard deviation (SD)) though, which confirms the heterogeneity of the target group and their individual cognitive abilities.

	PA	MF	WM	WF	VI	VC
Target group	59.26 (SD 26.49)	111.80 (SD 34.68)	6.57 (SD 3.51)	9.54 (SD 2.48)	8.30 (SD 4.17)	40.83 (SD 14.56)
Control group	23.35 (SD 9.19)	46.63 (SD 12.43)	16.35 (SD 3.05)	18.20 (SD 2.97)	30.0 (SD 3.17)	17.53 (SD 5.90)

Table 1: Neuropsychological overview

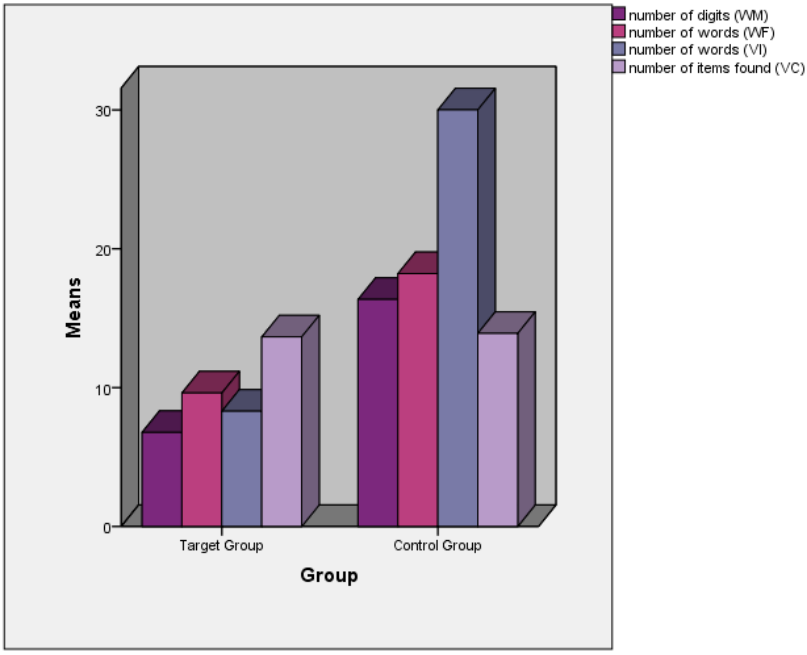

Figure 1: Neuropsychological overview; group difference

Abbreviations
PA = Psychomotor ability
MF = Mental flexibility
WM = Working memory
VI = Verbal intelligence
WF = Word fluency
VC = Visual control

Reading skills overview

Table 2 sums up the results achieved in the reading pretests for the control and the target group. The SLRT-II (Moll/Landerl 2010), a German reading and spelling test for children from first grade to adulthood, was completed in parts (leaving out the writing assessment). Participants were asked to read out loud as many words (W) and non-words (NW) as possible from a word list in one minute. The procedure allows precise conclusions about the two components of reading: reading a word by sight (words) and using grapheme-phoneme-correspondence rules (non-words). In Table 2, the number of correctly read words is shown for each task. Again, the target group's results differ significantly from the control group's results (Mann-Whitney-U-Test: $p = .000$ in all reading subtests) and the standard deviation is higher within the target group. Also, the difference between the words and non-words read in one minute is smaller for the target group, indicating that participants here do not identify words by sight as much as unimpaired people do. Further analysis of that reading behavior could be a first step towards proving the hypotheses. The SLS 2-9 (Wimmer/Mayringer 2014) was completed by every participant. The SLS 2-9 is a screening tool for school children from grades two to nine and evaluates basal reading comprehension skills. Participants are given three minutes to rate as many sentences as possible in terms of their proposition (true or false statement). See Table 2 for the average amount of correctly rated sentences for both groups. Participants of the target group who were not able to rate more than 5 sentences correctly within the given three minutes were not asked to participate in the eye-tracking experiment because it was expected that the slow reading speed would lead to major difficulties during that task. Participants of the target group rated an average of 32 sentences in three minutes, while unimpaired participants rated an average of 76 sentences correctly in the same amount of time. See Table 1 for more details. A reading quotient consisting of results from all reading pretests is calculated by the number of words read correctly plus the number of non-words read correctly and the number of sentences rated correctly divided by three. See Figure 1 and Figure 2 for an overview of reading abilities. Surprisingly, no significant correlation was found between the amount of media consumption and the reading quotient – neither in the target group ($r_s = .090$, $p = .591$), nor in the control group ($r_s = .260$ $p = .105$). This might be due to the fact that participants struggled to self-evaluate their reading behavior and might have overstated their amount of time spent

reading per day. All neuropsychological subtests are tested for correlations with the reading quotient. We find significant correlations in the target group for reading quotient and PA (r_s = -.421, p = .008), WM (r_s = .566, p = .000), VI (r_s = .683, p = .000) and VC (time needed to cross off the items (r_s = -.378, p = .019) but not number of correctly crossed off items (r_s = .072, p = .668)) – indicating an influence of psychomotor ability, working memory capacity, verbal intelligence and speed of visual processing on the reading ability of target group participants. In a further analysis causal effects will have to be investigated. In the control group we find significant correlations between the reading quotient and results of MF (r_s = -.324, p = .047) and WF (r_s = .336, p = .034) only.

	SLRT+II (words)	SLRT-II (non-words)	SLS 2-9 (sentences)	Reading Quotient
Target group	41.78 (SD 26.90)	23.02 (SD 17.81)	32.37 (SD 15.06)	33.96 (SD 18.22)
Control group	121.27 (SD 13.53)	78.23 (14.06)	76.55 (SD 9.08)	92.01 (SD 9.79)

Table 2: Reading skills overview (means and standard deviation)

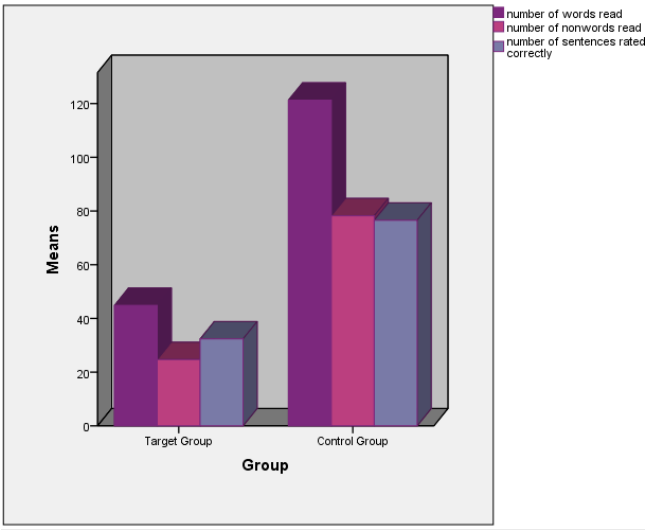

Figure 2: Reading subtests; group difference

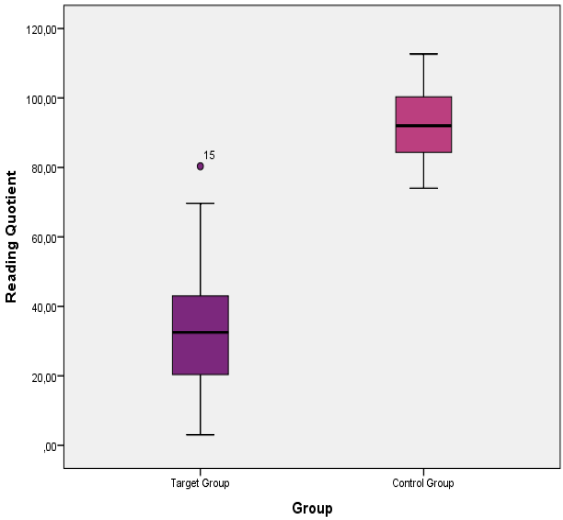

Figure 3: Reading quotient; group difference

3.2 Methods and materials

An SMI eye-tracker is used to record eye-movements during reading at a rate of 250 Hz. Stimulus sentences are presented on a BenQ 21.5" LCD monitor with a 50Hz refresh rate. Participants are positioned at a viewing distance of 60–65cm. No head or chin rest are used in pursuance of sustaining the most natural situation possible for the participants. Sentences are presented in Calibri (font size 14) on a light grey background (using PowerPoint). Eye-tracking-data is collected to analyze gaze behavior on word and sentence levels for both target and control group. The stimulus material consists of sentences containing one target word each. To investigate the word length and the frequency effect, target words are specifically prepared in terms of length and frequency. Four paradigms are designed: eight words were selected as short (3–4 letters) and frequent (>1.2 log10 lemma frequency in dlexDb, Heister et al. 2011), eight words were selected as short and infrequent (<0.1 log10 lemma frequency), eight words were selected as long (7–9 letters) and frequent and another eight words were selected as long and infrequent. All target words are capitalised nouns, embedded in linguistically paralleled sentences. Every target word is preceded by an adjective (average

length = 6.2 letters, average frequency = 2.34) and followed by a verb (average length = 5.12 letters, average frequency = 2,57). Sentences are five to eight words long and target words are positioned at the third position of the sentence. All sentences and word targets are rated by another unimpaired control group (25 university students) in terms of abstractness and familiarity of the target words and in terms of naturalness and comprehensibility of the whole sentences. There are no significant differences within the stimulus material concerning these factors. To examine the effect of repetition, half of the infrequent target words are repeated in two more sentences each. All presented target sentences are followed by a comprehension question directed at the target word. Besides the analysis of the eye-tracking data, the answer accuracy to those questions will allow conclusions about reading comprehension for the word targets in correlation with the independent variables. In addition to the main study, there will be one follow-up test to evaluate the long-term learning effect for those infrequent target words, eight to ten weeks after the first examination. Besides collecting eye-movement data, a behavioral task is carried out to include people with cognitive impairments who are not able to read sufficiently enough to participate in the eye-tracking examination (see above). Illiterate participants and poor readers will be presented an auditory version of the target words and sentences and will be asked to rate them regarding comprehensibility on the sentence level and familiarity on the word level.

3.3 Analysis

The eye-tracking data will be analyzed with regard to the research questions discussed above. Following Tiffin-Richards/Schroeder (2015), who investigated the word length and frequency effect in children's eye movements in a similar way, a minimum of four standard eye movement measures will be calculated: single fixation duration (cases where only one single fixation is made on a target word), first fixation duration (all single and first of multiple fixations on a target word), gaze duration (all fixations on a target word before the first saccade leaves a target) and total viewing time (all fixations on a target). On the sentence level, it will be analyzed whether the target word caused regressions. Linear mixed models will then be used to analyze the eye-movement data for each dependent measure (frequency, length,

number of repetitions). In a second step, the effect sizes will be analyzed and compared to those in unimpaired adults and children. It will be attempted to determine which effect the target group benefits from most. Also, there will be calculations on correlations between the neuropsychological data, the personal data and the reading abilities of the target group and the control group. In addition, the behavioral data from the rating task will be taken into consideration when discussing the effects of frequency and length.

4 Challenges

Fortunately, a mobile eye-tracking device could be used for the current project, which allows the examination to be carried out directly at the target group's familiar workplace. This way, the situation was as natural as possible for the participants, which is beneficial to the ecological validity of the experiment as well as to ethical considerations. Nevertheless, when working with participants from the Easy Language target group, there are some challenges that should be considered when conducting research projects. These primarily concern physical requirements that affect the calibration of the eye-tracking system. People with cognitive impairments seem to suffer from increased eye deformity, nystagmus and/or squint which impede the calibration process and possibly leads to a loss of quality in the eye-tracking data (cf. Deilen/Schiffl this volume). In the current experiment, almost a third of the surveyed target group participants cannot be or can only be partially evaluated. Furthermore, participants of the target group may struggle to restrain their head and body movement, which again is crucial to the quality of eye-tracking data. Also, due to deficits in memory and attention span, participants of the target group could find it difficult to remember and follow the experiment instructions throughout the whole experiment. Overall, it seems important not to overload the participants in terms of the experiment's duration (keep it short instead) and instructions (keep it simple). Organising participation might also be challenging with target group participants, as many people with cognitive impairments have legal guardians and their written agreement must be considered as well as the participant's own agreement.

5 Perspectives

The outcomes of the present study may help further develop the existing guidelines for German Easy Language – in terms of lexis – by giving them an empirical foundation. Furthermore, results can be a complement to understanding the target group of Easy Language more closely and make intralingual translation more suitable for their needs. Preliminary analysis of the questionnaires regarding media consumption confirm the hypothesised smaller degree of reading experience in the target group. The evaluation of the eye-tracking data will show the consequences of these findings with regard to reading comprehension and eye-movement measures.

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Works cited

Army Individual Test Battery. *Manual of Directions and Scoring*. Washington, DC: War Department, 1944. Adjutant General's Office.

Bredel, Ursula, and Maaß, Christiane. *Ratgeber Leichte Sprache: Die wichtigsten Regeln und Empfehlungen für die Praxis*. *Sprache im Blick*. Berlin: Dudenverlag; Bibliographisches Institut GmbH, 2016. Print.

Brickenkamp, Rolf. *Test d2 – Aufmerksamkeits-Belastungs-Test.* 9. überarbeitete und neu normierte Auflage. Hogrefe Verlag, 2002. Print.

Coltheart, Max; Rastle, Kathleen; Perry, Conrad; Langdon, Robyn, and Johannes Ziegler. "DRC: a dual route cascaded model of visual word recognition and reading aloud". Psychological Review 108 (2001): 204–256. Print.

Heister, Julian; Würzner, Kay-Michael; Bubenzer, Johannes; Pohl, Edmund; Hanneforth, Thomas; Geyken, Alexander, and Reinhold Kliegl. "dlexDB – eine lexikalische Datenbank für die psychologische und linguistische Forschung". *Psychologische Rundschau* 62.1 (2011): 10–20. Print.

Just, Marcel Adam, and Patricia A. Carpenter. "A theory of reading: From eye fixations to comprehension". *Psychological Review* 87 (1980): 329–354. <DOI: 10.1037/0033-295X.87.4.329>.

Kamienkowski, Juan; Carbajal, Julia; M., Bianchi, Bruno; Sigman, Mariano, and Diego E. Shalom. "Cumulative Repetition Effects Across Multiple Readings of a Word: Evidence From Eye Movements". *Discourse Processes* 55.3 (2018): 256–271. <DOI: 10.1080/0163853X.2016.1234872>.

Kliegl, Reinhold; Grabner, Ellen; Rolfs, Martin, and Ralf Engbert. "Length, frequency, and predictability effects of words on eye movements in reading". European Journal of Cognitive Psychology 16(2004): 262–284. <DOI: 10.1080/09541440340000213>.

Lehrl, Siegfried. *Mehrfachwahl-Wortschatz-Intelligenztest MWT-B.* 5. Unveränderte Auflage. Spitta Verlag: Balingen, 2005. Print.

Moll, Kristina, and Karin Landerl. *SLRT-II: Lese- und Rechtschreibtest; Weiterentwicklung des Salzburger Lese- und Rechtschreibtests (SLRT)*. Hogrefe Verlag, 2010. Print.

Netzwerk Leichte Sprache. *Leichte Sprache. Ein Ratgeber*. Herausgegeben vom Bundesamt für Arbeit und Soziales. Paderborn, 2009/2013. Print.

Norris, Dennis. "Models of visual word recognition". *Trends in Cognitive Sciences* 17.10 (2013): 517–524. <DOI: 10.1016/j.tics.2013.08.003>.

Raney, Gary, E., and Keith Rayner. "Word Frequency Effects and Eye Movements during Two Readings of a Text". *Canadian Journal of Experimental Psychology 49.2.*(1995): 151–172. Print.

Share, L. David. "Phonological recoding and self-teaching: sine quanon of reading acquisition". *Cognition* 55 (1995): 151–282. Print.

Tiffin-Richards, Simon P., and Sascha Schroeder. "Word length and frequency effects on children's eye movements during silent reading". *Vision research* 113 (2015): 33–43. <DOI: 10.1016/j.visres.2015.05.008>.

Wimmer, Heinz, and Heinz Mayringer. *SLS-29: Salzburger Lese-Screening für die Schulstufen 2–9*. Hogrefe Verlag, 2014. Print.

Silvana Deilen

Visual Segmentation of Compounds in Easy Language: Eye Movement Studies on the Effects of Visual, Morphological and Semantic Factors on the Processing of German Noun-Noun Compounds

1 Introduction

The present paper broaches the concept of intralingual translation which is defined as "an interpretation of verbal signs by means of other signs of the same language" (Jakobson 1959: 233). Target groups of Easy Language only have the ability to comprehend standard and specialised texts if such texts are translated into Easy Language. Increasing an individual's access to information is facilitated by systematically reducing linguistic complexity and information density, and by providing additional explanations. Translating texts into Easy Language with the aim of communicative integration can, therefore, be regarded as intralingual translation (cf. Bredel/Maaß 2016). This paper deals with how segmenting compounds can be used to reduce linguistic complexity.

German is well-known for its propensity for noun compounds. In contrast to other languages, such as English, German compounds are always concatenated, i.e. the individual morphemes are written as a single word without spaces (*Sonntagnachmittagspaziergang* (*Sonn+tag+nach+mittag+spazier+gang*) ['*Sunday afternoon stroll*']). As these long and complex words, in which morpheme boundaries are not marked, might cause problems for the target groups of Easy Language, it is generally agreed that in Easy Language compounds are to be optically segmented into their constituent morphemes to facilitate lexical access and comprehension. However, compounds are still not structured consistently; instead it rather seems that different translation agencies follow different principles when it comes to the use of optical signs. The advantage of visual segmentation of compounds is accounted for by results of prior studies (e.g. Inhoff et al. 2000; Placke 2001) that have shown that the processing of German compounds is facilitated if constituent word boundaries are marked. However,

other studies on the processing of compounds (e.g. Pfeiffer 2002; Geilfuß-Wolfgang 2007) have also revealed that separating constituents enforces morphological decomposition, which means that prior to being processed as a whole, the compound is first decomposed into its constituent units (cf. Pfeiffer 2002; Geilfuß-Wolfgang 2007).

The first sets of rules and regulations for Easy Language recommend separating complex words with a hyphen (cf. BMAS 2013: 26; Inclusion Europe 2009: 23; BITV 2.0 2011: 4). However, using the hyphen as an optical structuring sign has several linguistic and educational disadvantages. Not only does the use of the hyphen in compounds contradict German orthography, but the upper-case character after the hyphen also encourages the reader to process the separated morphemes as individual nouns which, in many cases, initiates unintended interpretations. Hence the use of a hyphen triggers false learning impulses, which is incompatible with the learning function of Easy Language. Moreover, it contradicts one of the main principles of Easy Language, which is to "avoid using incorrect German" (Maaß 2015: 81).

To resolve the problems arising from the use of the hyphen as a structuring sign, the German Research Center for Easy Language suggests structuring compounds with a hyphenation point called mediopoint (*Winter·jacke* ['*winter jacket*']). One of the main advantages of using the mediopoint as a structuring sign is that it is smaller and therefore less obvious than the hyphen. Due to the lower-case character after the mediopoint the compound is not "completely destroyed" (Bredel/Maaß 2016: 269) but resembles the standard version much more so than the compound segmented with the hyphen does.

Another main advantage is that the mediopoint is not included in German standard diacritical signs and, in contrast to the hyphen, is consequently not yet used in other contexts. Thus, it is expected to be much more acceptable than an orthographically incorrect hyphen.

In contrast to the sets of rules and regulations mentioned above, however, Bredel and Maaß (2017) state that a general implementation of the rule is not effective, hence restricting the use of the mediopoint by listing several requirements that need to be fulfilled when the mediopoint is used (cf. Bredel/Maaß 2017: 221ff). Notwithstanding, Bredel and Maaß (2017) point out that these requirements, as well as the advantages attributed to the mediopoint, are so far purely theoretical and still need to be verified through extensive empirical research. Only once the theoretical advantages of the medi-

opoint are supported by empirical evidence, will it be possible to challenge the current practice of segmenting compounds with a hyphen.

The empirical research efforts into cognitive processing of compounds in Easy Language indicate that, to date, segmentation facilitates processing and that the mediopoint is better suited at assisting people in accessing compounds than the hyphen (cf. Düver 2015; Wellmann 2018). The present study aims to investigate whether the theoretical advantages and empirical evidence in favour of the mediopoint can be supported with eye-tracking data from representatives of another target group of Easy Language. The research, consisting of four experiments, thereby focuses on two major research gaps: Since prior research on compounds has mainly dealt with the question of how compounds with two morphemes are processed[1], this study tests the number of morphemes as a second independent variable.

According to Bredel and Maaß (2017) there are many cases in which the use of the mediopoint must be weighed up on a case-by-case basis, for example in compounds, whose constituents are not directly linked to their constituent representations (*Löwenzahn* [‘*dandelion*’]). For these so-called opaque compounds, empirical studies are necessary to determine whether segmentation benefits or hinders comprehension (cf. Bredel/Maaß 2017: 225). Therefore, the two other experiments of the project investigate whether the facilitating effect of segmentation is dependent on compounds’ semantic transparency.

As many researchers (e.g. Placke 2001; Peschel 2002; Dunbar 2005; Schlücker 2012) have criticised that experiments in which compounds are presented without context are not ecologically valid, the target words in this study were not only presented in isolation but also embedded in simple declarative sentences. Ultimately, this study sets out to highlight that it is possible to evaluate whether the context provides important cues for lexical access to and comprehension of compounds.

2 Research questions and hypotheses

The present study seeks to answer the question of how visual segmentation and number of morphemes affect processing of German noun-noun com-

1 German compounds with three or four morphemes have only been addressed in one study (Inhoff et al. 2000).

pounds. The theoretical background and the results of prior studies on the processing of compounds lead to the following hypotheses:

1. Insertion of visual structuring signs facilitates processing of compounds.
2. Compounds structured with a mediopoint are processed faster than compounds either separated with a hyphen or not optically structured at all.
3. The more morphemes the compound consists of, the greater the facilitating effect of the mediopoint.

Furthermore, the present study seeks to determine how processing of visually segmented German noun-noun compounds is affected by semantic transparency. Despite contradictory evidence regarding the relation between decomposition and semantic transparency it is hypothesised that opaque compounds are lexicalised to the extent that they are stored in the mental lexicon as a unit and therefore processed in the same way as monomorphemic words (cf. Sandra 1990; Zwitserlood 1994). Furthermore, it is assumed that this activated whole-word representation is not linked to the individual constituents of the compound and that segmenting opaque compounds will therefore hinder, rather than facilitate, comprehension:

4. The use of visual structuring signs (mediopoint/hyphen) hinders processing of opaque compounds.

Nonetheless, it is expected that even in these cases compounds structured with a mediopoint (*Löwen·zahn*) are still processed faster than compounds separated with a hyphen (*Löwen-Zahn*). The reason being that the upper-case character after the hyphen increases the likelihood that the reader processes the isolated lexemes independently rather than as a unit:

5. Opaque compounds structured with a mediopoint are processed faster than compounds structured with a hyphen, but slower than compounds that are not structured at all.

3 Method

Since there is still an enormous lack of basic research when it comes to processing differently segmented compounds, especially compounds structured with a mediopoint, this study was not only conducted with representatives of the target groups of Easy Language but also with neurologically unimpaired speakers.

The target group chosen for the study were pupils with prelingual hearing impairments or deafness. According to Bredel, Lang, and Maaß (2016) it is beneficial to include this target group in empirical investigations of the postulated rules because prelingual deaf and hard-of-hearing pupils are usually not cognitively impaired like the other target groups. However, as pupils with prelingual hearing impairments or deafness in most cases have a severe reading impairment, research can benefit from an isolated occurrence of reception problems which, according to Bredel, Lang and Maaß (2016), is favourable for validating the rules of Easy Language. In Germany, approximately 10,614 deaf and hard-of-hearing children are educated in special schools. Moreover, there are approximately 6,790 deaf and hard-of-hearing children attending integrated schools (cf. Federal Statistical Office 2018).

Several studies have shown that on average deaf and hard-of-hearing pupils read at about a fourth-grade level at the time of their graduation (10th grade) (e.g. Chamberlain/Mayberry 2000; Krammer 2001; Holzinger 2006; Hennies 2019). However, it must be taken into consideration that deaf and hard-of-hearing pupils are a heterogenous group with varying degrees of hearing loss and reading proficiency as well as different kinds of hearing aids and implants.

Thus, prior to the experiments of the study, several background assessments were conducted. To ensure that the reading competencies of the subjects were comparable or to divide subjects into different subgroups, it was necessary to measure the reading speed of each subject. Measuring reading speed not only provided a baseline against which to compare the data collected in the four experiments, but it also allowed an examination as to whether there is a correlation between reading proficiency and degree of hearing loss, as for instance suggested by Hennies (2009). The reading test used in this study was the Salzburg Reading Screening for Grades 2 to 9 (Mayringer/Wimmer, 2014/2016). Furthermore, a psycholinguistic test battery was implemented to

measure intelligence and cognitive ability of both neurologically unimpaired and hearing impaired participants. The tests were taken from the Wechsler Adult Intelligence Scale (WAIS).

Prior to implementing the experiments, a rating was conducted in which unimpaired students rated the familiarity of a larger pool of complex and monomorphemic words, including the selected items, on a scale of one (very low) to seven (very high). In addition, students were also asked to rate both the abstractness of the items as well as the naturalness and comprehensibility of the sentences. None of the students participated in the eye-tracking study.

3.1 Materials

In all four experiments, the items (German noun-noun compounds) were either written in a standard format, i.e. without any visual structuring signs (*Apfelbaum* [*'apple tree'*], or in one of two formats in which constituent word boundaries were signalled by visual cues, i.e. via the insertion of a hyphen or a mediopoint between constituent words (*Apfel-Baum*, *Apfel·baum*).

Experiment 1 and 2

The first two experiments consisted of two independent variables: visual segmentation and number of morphemes, composed of three levels respectively (see Table 1). For each condition, 9 items were selected. As a result, the experiments required 27 different compounds. In addition to frequency, familiarity and degree of abstractness, the number of syllables was also controlled.

In the first experiment on the word level, subjects also read 43 monomorphemic words and compounds with a varying number of syllables as distractors. The experiments on the word level were designed as word-picture-matching tests. After reading the item, the subjects were presented with three pictures and, subsequently, asked to match the compound to the appropriate picture. In addition to the pictures, they also saw a question mark in the bottom right-hand corner which they could choose for unknown compounds.

In the first experiment on the sentence level, the same items and distractors were embedded in meaningful sentences. The sentence length was con-

trolled with no sentence containing more than 85 characters. Furthermore, the compound occupied neither sentence beginning nor sentence ending positions. To increase the probability of a pretarget-to-target fixation sequence, items were preceded by a word with at least four characters. In addition to that, a poststimulus distractor task was used to ensure that the subject would not only fixate but also processes the item. For the poststimulus distractor task it was necessary to include a set of nonsense filler sentences in the stimulus set. The distractor task was a binary choice question that appeared after the sentence, prompting the subject to clarify whether the sentence they had just read made sense or not. As all sentences containing a compound were plausible, the subject was only expected to select "no" for the nonsense filler sentences.

As subjects in processing studies should never read more than one version of the same item, the 81 items and sentences, respectively, were divided into three separate presentation lists with one subject only reading items from one of the possible lists. Subjects therefore read 27 items plus 43 distractors in each experiment (proportion items/distractors = 40/60). Each list contained an equal number of items from each cell of the experimental design, as shown in Table 1. The items were presented in random order.

	List 1 (Subject 1)	List 2 (Subject 2)	List 3 (Subject 3)
2 Morphemes (3 syllables)	x Apfelbaum	· Apfel·baum	- Apfel-Baum
	- Tank-Stelle	x Tankstelle	· Tank·stelle
	· Zahn·bürste	- Zahn-Bürste	x Zahnbürste
3 Morphemes (4 syllables)	· Nacht·tisch·lampe	- Nacht-Tisch-Lampe	x Nachttisch lampe
	x Spielzeugauto	· Spiel·zeug·auto	- Spiel-Zeug-Auto
	- Fahr-Rad-Reifen	x Fahrradreifen	· Fahr·rad·reifen
4 Morphemes (7 syllables)	- Straßen-Bahn-Halte-Stelle	x Straßenbahn haltestelle	· Straßen·bahn·halte·stelle
	· Fuß·ball·national·mannschaft	- Fuß-Ball-National-Mannschaft	x Fußballnational mannschaft
	x Kraftfahrzeug mechaniker	· Kraft·fahr·zeug·mechaniker	- Kraft-Fahr-Zeug-Mechaniker

Table 1: Experimental design and sample lists for the first experiment on word level and sentence level. Each cell contains a sample item for the corresponding condition.

Experiment 3 and 4

The second experiment on the word level and the sentence level also consisted of two independent variables: visual segmentation and semantic transparency. The first independent variable was composed of three levels and the second independent variable was composed of two levels (see Table 2).

For each condition, 9 items were selected. As a result, the experiments required 18 different compounds. All items were made up of two morphemes and three syllables. In addition to the selected items, subjects also read 28 monomorphemic words and compounds with a varying number of syllables as distractors.

In the second experiment on the sentence level the same items and distractors were embedded in sentences with the design of this experiment being identical to the design of the first experiment on the sentence level.

The 54 items, and sentences respectively, were again divided into three separate lists (Table 2) with the result being that each subject read 18 items plus 28 distractors in each experiment (proportion items/distractors = 40/60):

	List 1 (Subject 1)	**List 2 (Subject 2)**	**List 3 (Subject 3)**
Transparent compounds (3 syllables)	x Briefkasten	· Brief·kasten	- Brief-Kasten
	- Müll-Tonne	x Mülltonne	· Müll·tonne
	· Hand·tasche	- Hand-Tasche	x Handtasche
Opaque compounds (3 syllables)	· Ohr·feige	- Ohr-Feige	x Ohrfeige
	x Löwenzahn	· Löwen·zahn	- Löwen-Zahn
	- Schnee-Besen	x Schneebesen	· Schnee·besen

Table 2: Experimental design and sample lists for the second experiment on word level and sentence level. Each cell contains a sample item for the corresponding condition.

To avoid spillover effects resulting from reading the same item first on the word level, and shortly afterwards on the sentence level, the four experiments were arranged as shown (see Figure 1).

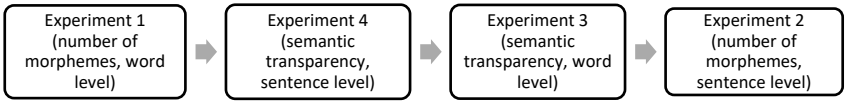

Figure 1: Order of the experiments

3.2 Participants

The study was conducted with 48 neurologically unimpaired speakers as well as with 19 deaf and hard-of-hearing children. All neurologically unimpaired participants were native German speakers between the ages of 18 and 45.

The 19 pupils were aged 13- to 17-years (7^{th} to 10^{th} grade). They were all educated in a special school for deaf and hard-of-hearing children. A total of 14 pupils wore hearing aids and one pupil had a cochlear implant. The four pupils without any hearing aids suffered from severe auditory processing disorder, a disorder in the central nervous system that leads to language and reading disabilities.

Prior to data collection, written parental consent and information about children's degree of hearing loss were obtained. While the pupils only conducted two experiments per day, the adult participants conducted all four experiments on the same day.

3.3 Apparatus

Eye movements were recorded with an SMI Eye Tracker at a sampling rate of 250 Hz. Viewing was binocular, but due to better accuracy results only the signal for the left eye was used for analyses. Items were presented at a viewing distance of 60 cm.

3.4 Procedure

Each of the four experiments was preceded by a five-point calibration of the eye-tracking system. For this purpose, participants had to focus on each of the five fixation points as they were displayed sequentially on the monitor. Calibration was followed by a validation to verify the accuracy of the fixation positions. After successful validation each experiment started with a test trial consisting of six to eight items.

3.5 Analyses

Insight into cognitive processing of compounds is gained by analysing subjects' gaze behaviour. As it is assumed that the time the subject spends fixating on a word equals the time the word is being processed (a phenomenon known as

"eye-mind assumption", cf. Just/Carpenter 1980: 330), fixations are used as an indicator of subjects' focus of attention. The following reading time variables are measured and computed for analyses:

- first fixation duration
- first pass gaze duration
- number of fixations
- regression path duration
- total reading time
- intraword and interword saccades

The measured data are analysed with linear mixed-effects models (LMM) using the package *lme4* (Bates et al. 2019) in the statistical environment R (R Core Team 2018). Due to the heterogeneity of the target group, linear mixed-effects models are particularly useful for understanding the data of this study, as they allow the researcher to explicitly consider variables such as "participant" as random effects. Moreover, linear mixed-effects models allow simultaneous inclusion of predictors connected to the items (e.g. frequency, number of morphemes) and predictors connected to the subjects (e.g. reading literacy, level of hearing loss).

4 First results

The initial results presented in this section only refer to the analysis of the conducted reading test as well as the mistakes that were made when matching the compound to the picture.

The results of the reading test confirmed the heterogeneous reading proficiency of the target group. A total of eight participants had a "very poor" (Mayringer/Wimmer 2014/2016: 21) reading quotient (68 or less), with four of them having a reading quotient which was below the lowest reading quotient listed in the standard norm table (< 62). Of the 19 participants, three participants had a reading quotient labelled as "low" (ibid.) and four participants a reading quotient labelled as "below average" (ibid.). Initial analysis revealed no significant correlation between reading proficiency and degree of hearing loss. Moreover, there was no significant difference between the reading quotients of

the individual classes, meaning that tenth graders did not score higher than, for instance, seventh graders.

As expected, initial analysis of the test battery confirmed significant differences between the hearing impaired and unimpaired participants ($r = .773$, $p < 0.001$). In addition, initial analysis yielded a significant correlation between pupils' reading quotient and total test battery score ($r = .494$, $p = .016$). As in the case of the reading test, there was also no significant correlation between total test battery score and degree of hearing loss. Since analyses showed that some pupils with high degree of hearing loss had a better reading and test score than some less hearing-impaired pupils, classifying participants based on their degree of hearing loss would not be appropriate. It is also important to point out that pupils suffering from severe auditory processing disorder did not score higher than pupils with profound or severe hearing loss. Hence, there is no need to exclude them from further analyses.

Initial analysis of the word-picture-matching tests showed that when combining the first and the third experiment, the 19 representatives of the target group made slightly fewer mistakes if compounds were separated with a mediopoint than if they were separated with a hyphen or not separated at all. However, the differences were not significant. For the first experiment, analysis showed that the facilitating effect of the mediopoint increased with the number of morphemes. While in bimorphemic compounds (*Apfelbaum* [*'apple tree'*]), slightly more mistakes were made when the compound was segmented with a mediopoint than with a hyphen or not segmented at all, the data indicated a reverse trend for compounds with three morphemes (*Spielzeugauto* [*'toy car'*]*)*, with more mistakes being made for compounds segmented with a hyphen. For compounds with four morphemes (*Straßenbahnhaltestelle* [*'tram station'*]), unsegmented words yielded the highest error rates, with no difference being found for compounds segmented with hyphen or mediopoint respectively.

Analyses of opaque compounds showed that participants made the most mistakes if compounds were separated with a hyphen, with almost no difference being found for unsegmented compounds and compounds separated with a mediopoint. However, none of the above-mentioned effects were significant.

The neurologically unimpaired participants made significantly fewer mistakes than the hearing-impaired participants ($r = .219$, $p < 0.001$). As they

matched almost all compounds to the correct picture, conducting an analysis of the almost non-existing differences between compounds segmented with hyphen and compounds segmented with mediopoint is consequently redundant. However, it is worth mentioning that those compounds that yielded the highest error rates among hearing impaired participants – namely unsegmented compounds with four morphemes – yielded the lowest error rate among neurologically unimpaired participants, with no mistakes being made at all.

5 Discussion

Initial analyses of the conducted pre-tests confirmed that the subjects form a heterogeneous group when it comes to reading quotient and test battery score. However, as in the case of linear-mixed-effects models participants' heterogeneity can be included as a random effect, it should ultimately be regarded as being advantageous to the study as opposed to being disadvantageous. The heterogeneity of participants is also recognised as being beneficial in allowing researchers to individually analyse hearing-impaired pupils with different reading skills, thus producing more sophisticated results.

Analyses of the word-picture-matching tests indicated that compounds structured with a hyphen led to slightly more mistakes; this was especially the case for opaque compounds. Furthermore, there was no evidence that segmenting opaque compounds with a mediopoint facilitated lexical access. This may imply that segmentation is not necessary for comprehension of bimorphemic opaque compounds, but – at least in the case of the hyphen – it is rather misleading.

The upcoming analysis of the main data, namely the eye movements, will reveal whether these first results can be empirically supported with eye-tracking data.

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Works cited

Bates, Douglas; Maechler, Martin; Bolker, Ben; Walker, Steven; Haubo Bojesen Christensen, Rune; Singmann, Henrik; Dai, Bin; Scheipl, Fabian; Grothendiek, Gabor; Green, Peter, and John Fox. 2019. *Lme4: Linear Mixed-Effects Models using 'Eigen' and S4*. Version: 1.1–21. Web. 15 May 2019. <https://cran.r-project.org/web/packages/lme4/index.html>.

BITV 2.0. 2011. *Barrierefreie-Informationstechnik-Verordnung, Anlage 2, Teil 2*. Web. 25 October 2018. <https://www.gesetze-im-internet.de/bitv_2_0/BJNR184300011.html>.

Bock, Bettina M. "*Leichte Sprache*" *– Kein Regelwerk. Sprachwissenschaftliche Ergebnisse und Praxisempfehlungen aus dem LeiSA-Projekt.* Universität Leipzig, 2018. Print.

Bredel, Ursula; Lang, Katrin, and Christiane Maaß. "Zur empirischen Überprüfbarkeit von Leichte-Sprache-Regeln am Beispiel der Negation". Ed. Nathalie Mälzer. *Barrierefreie Kommunikation – Perspektiven aus Theorie und Praxis*. Berlin: Frank & Timme, 2016. 95–115. Print.

Bredel, Ursula, and Christiane Maaß. *Leichte Sprache. Theoretische Grundlagen. Orientierung für die Praxis (Sprache im Blick)*. Berlin: Dudenverlag, 2016. Print.

Bredel, Ursula, and Christiane Maaß. "Wortverstehen durch Wortgliederung – Bindestrich und Mediopunkt in Leichter Sprache". Eds. Bettina Bock, Ulla Fix, and Daisy Lange. *"Leichte Sprache" im Spiegel theoretischer und angewandter Forschung*. Berlin: Frank & Timme, 2017. 211–228. Print.

Chamberlain, Charlene, and Rachel Mayberry. "Theorizing About the Relationship Between American Sign Language and Reading". Eds. Charlene Chamberlain, Jill Morford, and Rachel Mayberry. *Language Acquisition by Eye.* Mahwah: Lawrence Erlbaum Association, 2000. 211–259. Print.

Dohmes, Petra; Zwitserlood, Pienie, and Jens Bölte. "The impact of semantic transparency of morphologically complex words on picture naming". *Brain and Language* 90.1–3(2004): 203–212. Print.

Dunbar, George. "The Goldilocks scenario: Is noun-noun compounding compositional?". Eds. Edouard Machery, Markus Werning, and Gerhard Schurz. *The Compositionality of Meaning and Content. Volume II: Applications to Linguistics, Psychology and Neuroscience*. Frankfurt etc.: Ontos Verlag, 2005. 217–228. Print.

Düver, Julia. *Empirische Untersuchung zu Formulierungen in Leichter Sprache. Grammatikalität und Akzeptabilität von Adverbialbestimmungen und Komposita*. Kiel: University of Kiel unpublished BA thesis, 2015. Print.

Federal Statistical Office (Statistisches Bundesamt [Destatis]). *Bildung und Kultur. Allgemeinbildende Schulen. Fachserie 11 Reihe 1.* Wiesbaden: Statistisches Bundesamt, 2018. Print.

Geilfuß-Wolfgang, Jochen. *Worttrennung am Zeilenende. Über die deutschen Worttrennungsregeln, ihr Erlernen in der Grundschule und das Lesen getrennter Wörter*. Tübingen: Niemeyer, 2007. Print.

Hennies, Johannes. *Lesekompetenz gehörloser und schwerhöriger SchülerInnen: Ein Beitrag zur empirischen Bildungsforschung in der Hörgeschädigtenpädagogik*. Berlin: Humboldt University of Berlin dissertation, 2009. Print.

Hennies, Johannes. "Prälinguale Hörbehinderung und Schriftsprachkompetenz". Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation*. Berlin: Frank & Timme, 2019. 201–220. Print.

Holzinger, Daniel. 2006. *Chancen Hörgeschädigter auf eine erfolgreiche schulische Entwicklung.* Web. 14 May 2019. <http://www.barmherzige-brueder.at/dl/mNnrJKJLolonJqx4KJK/Barmherzige_Brueder___Cheers-Studie.pdf>.

Inclusion Europe. 2009. *Informationen für alle. Europäische Regeln, wie man Informationen leicht lesbar und verständlich macht.* Web. 10 May 2019. <http://easy-to-read.eu/wp-content/uploads/2014/12/DE_Information_for_all.pdf>.

Inhoff, Albrecht Werner; Radach, Ralph, and Dieter Heller. "Complex Compounds in German: Interword Spaces Facilitate Segmentation but Hinder Assignment of Meaning". *Journal of Memory and Meaning* 42.1(2000): 23–50. Print.

Jakobson, Roman. "On linguistic aspects of translation". Ed. Reuben Brower. *On Translation*. Cambridge: Harvard University Press, 1959. 232–239. Print.

Just, Marcel A., and Patricia A. Carpenter. "A Theory of Reading: From Eye Fixations to Comprehension". *Psychological Review* 87.4(1980): 329–354. Print.

Krammer, Klaudia. 2001. *Schriftsprachkompetenz gehörloser Erwachsener. Veröffentlichungen des Forschungszentrums für Gebärdensprache und Hörgeschädigtenkommunikation der Universität Klagenfurt, Band 3.* Web. 14 May 2019. <https://www.aau.at/wp-content/uploads/2017/11/zgh-veroeffentlichung-bd-03.pdf>.

Maaß, Christiane. *Leichte Sprache. Das Regelbuch*. Münster: Lit-Verlag, 2015. Print.

Mayringer, Heinz, and Heinz Wimmer. *SLS 2–9. Salzburger Lese-Screening für die Schulstufen 2–9.* Hogrefe: Bern, 2014/2016. Print.

Monsell, Stephen. "Repetition and the Lexicon". Ed. Andrew W. Ellis. *Progress in the Psychology of Language Volume Two.* London: LEA, 1985. 147–195. Print.

Netzwerk Leichte Sprache. *Leichte Sprache. Ein Ratgeber*. Paderborn: Bundesministerium für Arbeit und Soziales, 2009/2013.

Peschel, Corinna. *Zum Zusammenhang von Wortneubildung und Textkonstitution*. Tübingen: Niemeyer, 2002. Print.

Pfeiffer, Markus. *Lesen von Komposita*. Aachen: RWTH Aachen University MA thesis, 2002. Print.

Placke, Lars. *Das Lesen von Komposita. Blickbewegungsstudien zum Einfluss visueller, orthographischer und lexikalischer Faktoren auf die Verarbeitung komplexer deutscher und englischer Wörter*. Aachen: Shaker, 2001. Print.

R Core Team. 2018. *A Language and Environment for Statistical Computing. R Foundation for Statistical Computing, Vienna*. Web. 15 May 2019. <https://www.R-project.org>.

Sandra, Dominiek. "On the Representation and Processing of Compound Words: Automatic Access to Constituent Morphemes Does Not Occur". *The Quarterly Journal of Experimental Psychology* 42A.3 (1990): 529–567. Print.

Schlücker, Barbara. "Die Deutsche Kompositionsfreudigkeit". Eds. Livio Gaeta, and Barbara Schlücker. *Das Deutsche als kompositionsfreudige Sprache. Strukturelle Eigenschaften und systembezogene Aspekte*. Berlin, New York: De Gruyter, 2012. 1–25. Print.

Wellmann, Katharina. *Medio·punkt mit Binde-Strich? Über das Leseverständnis getrennt geschriebener Komposita in der Leichten Sprache*. Germersheim: Johannes Gutenberg University Mainz unpublished MA thesis, 2018. Print.

Zwitserlood, Pienie. "The Role of Semantic Transparency in the Processing and Representation of Dutch Compounds". *Language and Cognitive Processes* 9.3 (1994): 341–368. Print.

Johanna Sommer

A Study of Negation in German Easy Language – Does Typographic Marking of Negation Words Cause Differences in Processing Negation?

1 Easy Language in German – what and why?

Easy Language is a variety of German that is mainly conceptualised for written modality. It aims to reduce the complexity of standard written German on all linguistic levels for use by people with communication impairments. After the concept was developed through practical application, linguists developed linguistically-based rules for this kind of text translation over the last years. The two most important works for German are *Leichte Sprache. Das Regelbuch* by Christiane Maaß (2015) and *Leichte Sprache. Theoretische Grundlagen – Orientierung für die Praxis* by Ursula Bredel and Christiane Maaß (2016). Increasingly, interpreters also become interested in Easy Language as a means of participation for people who are communicationally disadvantaged in society. Easy Language is designed for a diverse target group. Readers with cognitive disabilities, functional illiteracy, aphasia, and other communicative restrictions will benefit from text material in Easy Language. Therefore, professional translators translate texts from standard German into Easy Language. That is why Easy Language can be regarded as a form of intralingual translation (Jakobson 1959). On the semantic level, verbal content that is not factual in the present reception situation, fictional, or not expected, is difficult to process (Bredel/Maaß 2016). In German, past tense, future tense, past perfect, subjunctive and perfect subjunctive express these scenarios. Therefore, authors should decompose and add these structures with the help of further explications. Specifically, negation should be avoided (Maaß 2015: 126). Nevertheless, not all affirmative structures can represent the meaning of negated content (cf. Mayo et al. 2004) and an explicit counterpart often does not exist (Eisenberg 2013: 222). Moreover, negation is not always more difficult to process than affirmation (Nieuwland/Kuperberg 2008). That is why Easy Language recommendations

do not formulate a prohibition of negation on the whole. Rather, Maaß (2015) and Bredel and Maaß (2016: 460ff) differentiate between avoidable negation and inevitable negation. Negation should be avoided as soon as an affirmative alternative represents a direct opposite to a negated concept. If this is not the case, sentence negation with *nicht* ('not') should be preferred over phrasal negation with *kein* ('no'), as the latter is often missed. Another argument is that authors should not place too much grammatical information on one information carrier. Two pieces of grammatical information lie on negations with *kein* ('no'), whereas just one piece of grammatical information lies on the negation word *nicht* ('not') (Maaß 2015: 77). Furthermore, to emphasise their structure and meaning, negation words should be printed in bold typeface. So far, the theoretically based rules mostly lack empirical evidence for processing effectiveness, readability and comprehensibility (cf. Bock 2017 for first results). For instance, it is not proven whether sentence negation with *nicht* ('not') are easier to understand than negations with *kein* ('no'). Moreover, the typographical emphasis with bold typeface has not yet been reported as being an effective tool to reducing processing costs of semantically complex content. The present experimental study will contribute to closing this gap by measuring behavioral and EEG data. EEG is an effective tool to investigate the time course of sound, word, sentence and discourse processing. By means of event related potential (ERP) measures, processing costs for complex stimuli, such as negation, can be observed. The aim is to examine whether the guidelines for Easy Language are efficient enough to reduce processing costs for sentences containing negation. Therefore, behavioral data and ERP-measurements are collected. In the following section, the underlying findings on the processing of negation will be described followed by an explanation of the experimental study with its research questions and hypotheses. Firstly, behavioral results of a semantic probe task (experiment 1) will be reported and secondly, an outlook on an ERP study with a truth value evaluation task (experiment 2) will be given.

2 Negation and its processing costs – why it is useful to transform negation?

Negation is a complex semantic phenomenon. It appears on all linguistic levels and serves different functions. Negation disproves assumptions, changes the truth-value of a proposition and expresses the non-existence of objects and circumstances (cf. Glück/Rödel 2016, Köller 2016, Wöllstein 2016, Eisenberg 2013, Blühdorn 2012, Zifonun et al. 1997, Zifonun 1977). In theoretical works on negation, sentential negation with *nicht* ('not') is discussed most often (Scherr 2014: 79). This form of negation can serve to disprove a whole sentence or to set a focus on single constituents within a sentence. Depending on the position within the middle field, the negation scope can sometimes contain single constituents. The constituents on the right-hand side of the negation word are negated. Negation expressing the nonexistence of objects or circumstances without a specific focus is realised by the negation article *kein* ('no') (Wöllstein 2016: 924). *Nicht* ('not') and *kein* ('no') cannot appear in the subject position.

Behavioral studies seem to prove the higher processing costs of sentences that contain negation compared to affirmative sentences. This results in longer reading and reaction times as well as higher error rates in matching tasks (cf. Orenes/Santamaría 2014, Orenes et al. 2014, Kaup 2001, McDonald/Just 1989, Fischler et al. 1983). Also, eye-tracking studies confirm longer fixation times in processing negation and counterfactual scenarios (Ferguson et al. 2008). Yet, the authors argue that sentences that semantically fit into a negated world context can be easily integrated by the readers. MacDonald and Just (1989) found that negation has a suppressing effect on negated concepts on a conceptual level. The use of verbs that express the presence or absence of objects or facts had a decisive effect on the processing of negation, which is due to activation of the concepts (Kaup 2001).

ERP-studies on negation contain various outcomes, resulting from differing research goals e.g. representation of negated concepts (Kaup et al. 2006, Kaup et al. 2007, Lüdtke/Kaup 2006, Mayo et al. 2004), time-course of negation processing (Lüdtke et al. 2008) and negation within varying contexts (Nieuwland/Kuperberg 2008). Fischler et al. (1983) used negation structures in order to investigate whether truth value violations lead to higher processing costs than a semantic mismatch between subjects and objects. The four condi-

tions of the study were the following sentence constructions: true affirmative (TA: A robin is a bird), false affirmative (FA: A robin is a tool), true negative (TN: A car is not a bird) and false negative (FN: A car is not a vehicle). They measured the accuracy and response latencies to a truth evaluation task of the sentences. The ERPs 250–450 ms are measured after the sentence final object as dependent variable for semantically incongruent verbal content, leading to higher negativity for incongruent stimuli. The results of the study revealed significant main effects of sentence structure and truth value and a significant interaction between the two conditions: true affirmatives were detected faster and more correctly than false affirmatives, false negatives were detected faster and more correctly than true negatives. The N400, which is an increased negative voltage deflection observed in centro-parietal scalp regions between 250 ms and 550 ms after the presentation of a stimulus (for a review on the N400 component cf. Kutas/Federmeier 2011), was found in negative sentences and in false sentences. The interesting finding was that false sentences elicited enlarged negativity only in affirmative structures, whereas in the negative condition the true sentences elicited enlarged negativity. That means that, in the processing time window around 400 ms after the object onset, the semantic relationship between subject and object plays a more important role in sentence processing than the actual truth value of a sentence (Fischler et al. 1983: 406). In line with this finding, Kaup and Lüdtke (2008) formulated the Two Step Simulation Hypothesis (TSSH) stating that firstly, negation is represented as the state of affairs that is being negated. Secondly, this state is being conceptually rejected. Nieuwland and Kuperberg (2008) argue against the TSSH as they only found processing differences between affirmative and negative sentences directly after a critical target noun. Other than that, no differences in processing plausible negated concepts and affirmative concepts were observed. The authors argue for an automatic integration of negated sentences on a pragmatic level. Whenever negated propositions appear in pragmatically licensing contexts, no increased processing costs are observed. However, many other studies state a general processing hierarchy in favour of true affirmative sentences compared to true negated sentences and false affirmative sentences (cf. Scappini et al. 2015, Ferguson et al. 2008, Kaup et al. 2006).

With regard to typographic emphasis, Lotze et al. (2011) conducted an ERP study investigating the orthographic change of entire words from lowercase to uppercase at the end of a sentence. They found a significantly more positive

voltage shift in frontal scalp regions after 200 ms (P200) of a typographically emphasised word, which was interpreted as increased visual processing. The emphasis of the stimuli led to a significant attenuation of the N400 component when the words were unexpected; but not to a semantic illusion. This implies that the physical change of print enhances the meaning-integration of words because of the visual focus on the highlighted word. The authors conclude a bidirectional sentence processing: bottom-up form-based information has a significant influence on meaning integration. Therefore, typographic marking can serve as an effective means of emphasis. Londsdale (2014) summarises the potential of bold print in a review article: "Nonetheless, bold can be very effective to emphasise one piece of information over another […] Because bold type draws attention, this variant is best used for specific situations that require emphasis. So, for example, it can be used to distinguish words (e.g. 'not', 'NB') or headlines, rather than whole sentences" (Londsdale 2014: 36). Furthermore, in a Judgement of Learning task Roberts (2016) showed that bold keywords influenced text perception and judgement of learning but overall did not lead to significantly better results in text comprehension. Nevertheless, no specific linguistic structures were tested in that study. That is why in the context of the higher processing costs emerging from negation and the proved advantage of typographic emphasis, the Easy Language recommendation for negation seems plausible. However, psycholinguistic evidence for processing advantages of bold printed negation words has not yet been published. This is therefore the subject of the present study.

3 The present study (experiment 1)

Research questions and hypotheses

A self-paced reading experiment (Jegerski 2014) with a semantic probe task (cf. McDonald/Just 1989) was conducted in order to investigate whether the typographic marking of negation words leads to processing advantages for sentences with emphasised negation words. The following research questions and hypotheses were formulated:

(1.1) Do negated sentences with emphasised negation words lead to shorter reading times, shorter reaction times (RTs) and higher accuracy rates (compared to unmarked conditions) after a semantic probe task?

According to Lotze et al. (2011), typographic emphasis can evoke a focus on negation words. This could lead to longer reading times for uppercase sentences. In their study, case change at the end of a sentence did not lead to faster RTs of plausibility judgement. Nevertheless, it has not been investigated whether this is the case when typographic emphasis appears earlier in a sentence. The effect of bold type-faced words on reading times and RTs also has to be explored. Across typographic conditions, the RTs after affirmation should be shorter than RTs after negated concepts (McDonald/Just 1989).

(1.2) Is the reading advantage dependent on the sentence structure (with adverb / sentence negation versus without adverb / phrasal negation)?

Since more grammatical information is transported by *kein* ('no') compared to *nicht* ('not'), processing advantages, if found at all, could be higher for phrasal negation than for sentence negation. This could statistically result in an interaction of sentence type and typography. However, a direct comparison between negation forms has not been obtained so far.

Participants

The experimental group (n = 29) consisted of right-handed adults (mean age = 24 years (19–37 years)) with German as their mother tongue. They did not have any language or communication disorders, psychiatric or neurological illnesses.

Material

A 2 (polarity: affirmative, negative) x 2 (sentence type: with / without adverb) x 3 (typography: bold print, upper case, normal print of articles / negation words) – design resulted in a set of 84 target sentences with 7 target sentences per condition. All sentence structures contained the three typographical conditions in equal ratios (F = bold case, G = uppercase, N = unmarked condition). The sentences consisted of parallelised SPO structures with high fre-

quency verbs and nouns. The mean length of sentences is 7 syllables and the mean frequency of content words is 1.91 logLemma (SD = 0.34).

1a. The woman is reading no book. (negative, without adverb)
(NO → NOF, NOG, NON)
1b. The woman is not reading the book. (negative, with adverb)
(NM → NMF, NMG, NMN)
1c. The woman is reading a book. (affirmative, without adverb)
(AO → AOF, AOG, AON)
1d. The woman is now reading the book. (affirmative, with adverb)
(AM → AMF, AMG, AMN)

Furthermore, probe words were selected. Half of the target sentences were related to the probe words, while half of the sentences were unrelated to the probe words. The probe words were matched with the content words of the target sentences in terms of length and frequency (logLemma frequency 1.59 (dlexdb.de), SD = 0.59). Additionally, 186 filler sentences were presented, resulting in an item set of 252 sentences per participant. The sentences were randomised in four lists that were distributed equally across the participants.

Procedure

After personal data (age, gender, educational level) and neuropsychological data for verbal IQ, verbal fluency, and working memory such as the Trail-Making-Test (cf. Tombaugh 2004) were collected, the participants read all sentences self-paced with the words appearing in the middle of the screen. After the sentences, a probe word appeared for a maximum time span of 4000 ms. The participants had to detect as fast as possible whether the probe words were semantically congruent to the sentence before or not. The reading times of the sentences from the button press of the first word until the button press of the last word and the RTs to the probe task were measured as well as accuracy rates of the task.

Analysis

After data cleaning of outliers and log-transformation of the data for each condition, a repeated measurement ANOVA for the reading times and RT was

conducted across all items. Main effects of polarity, sentence type and typography were calculated as well as interactions.

Results

Accuracy rates. A three-factor interaction revealed a polarity x sentence type x typography – interaction: Affirmative sentences with adverbs in bold case (AMF) were answered more accurately (95.1%) than normal and uppercase (AMN & AMG 93.6%) conditions. Affirmative sentences without adverbs in uppercase (AOG) were answered more accurately (94.6%) than normal and uppercase (AOF & AON 92.1%) conditions. Negative sentences with sentence negation *(nicht* / 'not'*)* were responded to more accurately in the normal (NMN 89.2%) and bold case (NMF 88.7%) condition compared to the uppercase condition (NMG 87.2%), whereas in phrasal negation (*kein* / 'no'*)*, the bold case condition was responded to more accurately (NOF 88.7%) than the uppercase (NOG 87.2%) and normal condition (NON 78.8%).

Reading Times. Reading times were analyzed separately for sentence type conditions, because the sentences with adverbs and sentence negation contained one more word per sentence. The fastest reading time for affirmation without adverb / phrasal negation was found in NOF (M = 2196.82 ms, SD = 961.94), the slowest reading time was found in AOG (M = 2333.04 ms, SD = 1010.16). The fastest reading times for affirmation with adverb / sentence negation were found in NMN (M = 2712.74 ms, SD = 1172.44), the slowest reading time was found in NMG (M = 2954.23, SD = 1358.11). Sentence type and typography interacted with each other ($F(1,0.261) = 6.177$, $p<0.05$): Affirmation with adverb / sentence negation revealed longer reading times in the uppercase condition than bold case and normal conditions, whereas affirmation without adverb / phrasal negation revealed longer reading times for uppercase and normal conditions compared to the bold case condition. Pairwise comparisons revealed significant differences between NMN<NMG ($T(193) = -3.213$, $p<0.01$), NOF<NOG ($T(193) = -2.349$, $p<0.05$), NON>NOF ($T(193) = 2.261$, $p<0.05$).

Reaction times. Reaction times were analyzed across both sentence types. The fastest reaction time was found in AMF (M = 818.32 ms, SD = 284.84) the slowest reaction time was found in NON (M = 903.202ms, SD = 35.15). RTs revealed a main effect of polarity ($F(1,1.36) = 9.669$, $p = <0.01$), with affirmative sentences being answered significantly faster than sentences containing

negation. Furthermore, sentence type revealed a main effect ($F(1,0.568) = 4.165$, $p<0.05$): Sentences without an adverb / phrasal negation were responded to faster than sentences with adverbs / sentence negation. Pairwise comparisons revealed significant differences between NOF<NMF ($T(160) = -2.455$, $p<0.05$) and NOG<NON ($T(151) = -2,494$, $p<0.05$).

Interpretation

The results partly confirmed the formulated hypotheses: Accuracy rates and RTs showed better results for affirmative sentences than for negative sentences, whereas the reading times did not reveal a main effect of polarity. This was expected and displays a replication of former behavioral studies with negation (e.g. Kaup 2001, McDonald/Just 1989). Furthermore, higher accuracy rates could be found for sentence negation than for phrasal negation. This could confirm hypotheses stating a more salient interpretation of sentences transporting less information on one information carrier. A systematic advantage of typographic marking (uppercase or bold typeface) compared to unmarked sentences could not be found. Rather, it was confirmed that sentences containing words in uppercase lead to longer reading times compared to sentences with bold printed words. Uppercase words possibly appeared unexpectedly and therefore led to longer fixation times (Lotze et al. 2011, Jegerski 2014). At the same time, the reading time advantage for sentences with bold type-faced words was more salient in sentences without adverbs / phrasal negation than in affirmation with adverbs / sentence negation, where bold and normal conditions did not differ from each other. This could indicate that the advantages created by using bold print could be especially effective in sentences with more semantic information on one information carrier (Bredel/Maaß 2016). However, the advantage that was found for bold typeface in the reading times did not result in shorter RTs of the probe task. Here, the uppercase condition partly showed advantages that contradicted the findings of Lotze et al. (2011). It is questionable whether faster button presses stand for a general reading advantage (in this case caused by bold type-faced words), as the reading times did not correlate with the reaction times.

Against expectations, affirmation without an adverb and phrasal negation led to faster RTs than sentence negation and affirmation with an adverb, which on the one hand contradicts the mentioned hypothesis at first glance. On the other hand, it has to be taken into account that the adverb in the affirmative

condition represented one more content word in a sentence that needed to be processed (Just/Carpenter 1980; McDonald/Just 1989) and therefore could have led to longer reaction times. In general, it is important to note that these results represent very marginal effects and that significant differences between conditions were only found between few conditions. No clear-cut final conclusions can be drawn from that study. Finally, two aspects have to be noted: Firstly, in the affirmative conditions, the uppercase condition is not a natural stress position, when additively presented, which could have influenced the reading times even more. Secondly, whole sentence reading times were compared but no critical regions. This will be the subject of further studies employing EEG. Nevertheless, the aim of this pre-study was to find tendencies regarding the question whether typographic changes, especially of bold typeface, do have an effect on sentence processing, and especially when the sentences contained negation. The typographic effects on the critical regions therefore will be detected in the EEG study that is outlined in the following section.

4 Perspectives (experiment 2)

Research questions and hypotheses

As a second experiment, a truth-evaluation experiment (Fischler et al. 1983) with ERP measurements is planned and the following research questions have been formulated:

> (2.1) Do negated sentences with emphasised negation words lead to shorter RTs and higher accuracy rates (compared to unmarked conditions) after a truth evaluation task?

Lotze et al. (2011) did not find typography effects at the end of sentences on RTs of plausibility ratings. It has not been investigated whether typographic emphasis *earlier* in a sentence leads to faster RTs of a truth evaluation task. According to Fischler et al. (1983), RTs and accuracy rates were mainly modulated by the congruency between subject and object with longest RTs for true negative sentences. It is questionable whether the meaning integration effects

found by Lotze et al. (2011) will result in improved RTs to a truth evaluation task.

(2.2) Can direct processing differences between affirmative and negative sentences be measured?

According to Lüdtke et al. (2008), sentences with constituent negation with *kein* ('no') could evoke significantly more positive deflections in ERPs between 50 ms and 350 ms after the negation word than the affirmative counterpart *ein* ('a'). Since there has not been any replication of this result, the hypothesis needs to be validated.

(2.3) Does typographic emphasis of negation words lead to more prominent deflections in the N1-P2 complex of negation word processing?

This was found by Lotze et al. (2011) and could be replicated.

(2.4) Does typographic emphasis of negation words lead to more prominent deflections in the P200-time window (cf. Lotze et al. 2011) of negated target word processing?

(2.5) Does typographic emphasis of negation words lead to more prominent deflections in the N400 time-window of negated target word processing?

The effect of typographic emphasis has not been investigated for meaning integration of words following a typographically emphasised word. Therefore, no specific hypotheses can be formulated.

Material

The stimuli of the second experiment are partly based on Fischler et al. (1983) and are translated into German and adapted in terms of length and frequency. The material includes short SPO sentences, matching objects to their categories (e.g. A robin is no vehicle). Half of the material is consistent with world knowledge (e.g. A robin is a bird), half of the material is inconsistent with world knowledge (e.g. A robin is a vehicle). Furthermore, half of the sentences

are negated, e.g. "A robin is no vehicle" for the true condition and "A robin is no bird" for the false condition whereas half of the stimuli are affirmative, e.g. "A robin is a bird" for the true condition and "A robin is a vehicle" for the false condition. The second half of the item set consists of SPO sentences similar to the first experiment (e.g. The woman is reading no book). The set is supplemented by a false condition (e.g. The woman is reading no sock). So, the semantic relatedness between the verb and the object is manipulated. As in the first experiment, one third of all the stimuli contains bold-printed negation words (F), one third contains uppercase negation words (U) and one third of the stimuli does not have any typographic manipulations (N). This leads to a 2 (truth value: true, false) x 2 (polarity: affirmative, negative) x 3 (typography: bold print, upper case, normal print of articles / negation words)-design with a set of 2x360 target sentences including 30 target sentences per condition.

2a. A robin is a bird. / The woman is reading a book.
(TA → TAF, TAU, TAN)
2b. A robin is no vehicle. / The woman is reading no book.
(TN → TNF, TNU, TNN)
2c. A robin is a vehicle. / The woman is reading a sock.
(FA → FAF, FAU, FAN)
2d. A robin is no vehicle. / The woman is reading no sock.
(FN → FNF, FNU, FNN)

Procedure

The participants (n> 20) read the target sentences in Rapid Serial Visual Presentation (RSVP, cf. Foster 1970) and are asked to detect the truth value of the sentences as fast as possible. ERPs associated with the negation word and with the objects following the negation words are collected and analyzed. The EEG is recorded from 25 electrodes with the reference electrode at FCz position, the ground electrode at AFz and re-referencing via the mastoid electrodes. Vertical eye movements and blinks are monitored by means of two electrodes underneath and above the right eye. Horizontal eye movements are monitored by means of two electrodes at the outer canthus of each eye (cf. Lotze et al. 2011).

Analysis

For the truth evaluation task, the RTs and accuracy rates are analyzed for each condition. The results are tested for differences between the conditions and for interactions. The ERPs of the time windows 50–150 ms post negation word, 150–250 ms post negation word, 50–150 ms post target object, 150–250 ms post target object, 300–500 ms post target object (cf. Lotze et al. 2011) and 500–800 ms post target object (cf. Fischler et al. 1983) are observed in terms of voltage amplitude and latency. Therefore, the three factors of polarity, truth value and typographic condition are analyzed separately and tested for differences and interactions.

5 Conclusion

The present study provides insights into sentence processing changes that are evoked by typographic emphasis. Specifically, it was tested whether the emphasis of negation words by means of bold typeface or uppercase lead to improved behavioral results in a probe task. Furthermore, it was investigated whether processing differences between different forms of negation can be found. In general, typographic emphasis affected reading times; a compelling advantage in terms of higher accuracy rates or faster RTs could not be found, though. Moreover, no clear conclusions can be drawn in terms of processing differences of negation forms. Therefore, the planned EEG study shall reveal more detailed insights to processing stages at critical positions and the effect of typographic emphasis. The insights from these two experiments can be a useful contribution to intralingual translation processes. Furthermore, the results can shed light on the character of negation processing, which can lead to more detailed regulations concerning negation in the Easy Language framework.

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Works cited

Blühdorn, Hardarik. *Negation im Deutschen. Syntax, Informationsstruktur, Semantik. Studien zur Deutschen Sprache*, 48. Tübingen: Narr, 2012. Print.

Bock, Bettina M. "Das Passiv- und Negationsverbot 'Leichter Sprache' auf dem Prüfstand. Empirische Ergebnisse aus Verstehenstest und Korpusuntersuchung". *Sprachreport* 33 (2017): 20–28. Print.

Bredel, Ursula, and Christiane Maaß. *Leichte Sprache. Theoretische Grundlagen für die Praxis.* Berlin: Dudenverlag, 2016. Print.

Eisenberg, Peter. *Grundrisse der Deutschen Grammatik 2. Der Satz*. 4th edition. Stuttgart: Metzler, 2013. Print.

Ferguson, Heather J.; Sanford, Anthony J., and Hartmut Leuthold. "Eye-movements and ERPs reveal the time course of processing negation and remitting counterfactual worlds". *Brain Research* (2008): 113–125. Print.

Fischler, Ira; Bloom, Paul A.; Childers, Donald G.; Roucos, Salim E., and Nathan W. Perry Jr. "Brain potentials related to stages of sentence verification". *Psychophysiology* 20 (1983): 400–409. Print.

Foster, Kenneth I. "Visual perception of rapidly presented word sequences of varying complexity". *Perception & Psychophysics* (8) 4 (1970): 215–221. Print.

Glück, Helmut, and Michael Rödel. *Metzler Lexikon der Sprache*. 5th edition. Stuttgart: Metzler, 2016. Print.

Jakobson, Roman. "On Linguistic Aspects of Translation". Ed. R. A. Brower. *On Translation* (1959): 232–239. Reprinted in Lawrence Venuti (ed.) (2000). The Translation Studies Reader, London and New York, Routledge, 113–118.

Jegerski, J. "Self-paced reading". Eds. J. Jegerski, and B. VanPatten, *Research methods in second language psycholinguistics.* New York: Routledge, 2014. 20–49. Print.

Just, Marcel A., and Patricia A. Carpenter. "A theory of reading: From eye fixations to comprehension". *Psychological Review* 87(4) (1980): 329–354. Print.

Kaup Barbara, and Jana Lüdtke. "Accessing discourse referents introduced in negated phrases: Evidence for accommodation?" *Constraints in Discourse* 172 (2008): 159–178. Print.

Kaup Barbara; Lüdtke Jana, and Rolf A. Zwaan. "The experiential view of language comprehension: How is negation represented?" Eds. F. Schmalhofer, and C. A. Perfetti. *Higher level language processes in the brain. Inference and comprehension processes* (2007): 255–288. Print.

Kaup, Barbara. "Negation and its impact on the accessibility of text information". *Memory and Cognition* (29) 7 (2001): 960–967. Print.

Kaup, Barbara; Lüdtke, Jana, and Rolf A. Zwaan. "Processing negated sentences with contradictory predicates: Is a door that is not open mentally closed?" *Journal of Pragmatics* 38 (2006): 1033–1050. Print.

Köller, Wilhelm. *Formen und Funktionen der Negation. Untersuchungen zu den Erscheinungsweisen einer Sprachuniversalie.* Berlin: de Gruyter, 2016. Print.

Kutas, Marta, and Kara D. Federmeier. "Thirty years and counting: Finding meaning in the N400 component of the event related brain potential (ERP)". *Annual Review of Psychology* 62 (2011): 621–647. Print.

Londsdale, Maria dos Santos. "Typographic Features of Text: Outcomes from Research and Practice". *Visible Language* 48 (3) (2014): 29–67. Print.

Lotze, Netaya; Tune, Sarah; Schlesewsky, Matthias, and Ina Bornkessel-Schlesewsky. "Meaningful physical changes mediate lexical–semantic integration: Top-down and form-based bottom-up information sources interact in the N400". *Neuropsychologia* 49 (2011): 3572–3582. Print.

Lüdtke, Jana, and Barbara Kaup. "Context effects when reading negative and affirmative sentences". Ed. Ron Sun. *Proceedings of the 28th Annual Conference of the Cognitive Science Society* (2006): 1735–1740. Print.

Lüdtke, Jana; Friedrich, Claudia K.; de Filippis, Monica, and Barbara Kaup. "Event-related Potential Correlates of Negation in a Sentence–Picture Verification Paradigm". *Journal of Cognitive Neuroscience* (20) 8 (2008): 1355–1370.

Maaß, Christiane. *Leichte Sprache. Das Regelbuch*. Münster: Lit,2015. Print.

MacDonald, Maryellen C., and Marcel A. Just. "Changes in activation levels with negation". *Journal of Experimental Psychology: Learning, Memory, and Cognition* (15) 4 (1989): 633–64. Print.

Mayo, Ruth; Schul, Yaacov, and Eugene Burnstein. "'I am not guilty' vs 'I am innocent': Successful negation may depend on the schema used for its encoding". *Journal of Experimental Social Psychology* 40 (2004): 433–449. Print.

Nieuwland, Mante S., and Gina R. Kuperberg. "When the truth is not too hard to handle: An event-related potential study on the pragmatics of negation". *Psychological Science* (2008): 1213–1218. Print.

Orenes, Isabel, and Carlos Santamaría. "Visual content of words delays negation". *Acta Psychologica* 153 (2014): 107–112. Print.

Orenes, Isabel; Beltán, David, and Carlos Santamaría. "How negation is understood: Evidence from the visual world paradigm". *Journal of Memory and Language* 74 (2014): 36–45. Print.

Roberts, Andrew (2016). Effects of Bold Key Terms on Judgments of Learning and Reading Comprehension. Web. <http://hdl.handle.net/10415/5125>.

Scappini, Maria; Delfitto, Denis; Marzi, Carlo A., and Francesco Vespignani. "On the non-incremental processing of negation: A pragmatically licensed sentence – picture verification study with Italian (dyslexic) adults". *Nouveaux cahiers de linguistique francaise* 32 (2015): 45–58. Print.

Scherr, Elisabeth. "Negation im Deutschen. Syntax, Informationsstruktur, Semantik". *Zeitschrift für Rezensionen zur germanistischen Sprachwissenschaft* 6 (1–2) (2014): 79–83. Print.

Tombaugh, Tom N. "Trail Making Test A and B: Normative data stratified by age and education". *Archives of Clinical Neuropsychology* (19) 2 (2004): 203–214. Print.

Wöllstein, Angelika. *Duden. Die Grammatik*. 9th edition. Berlin: Duden, 2016. Print.

ZIFONUN, GISELA, HOFFMANN, LUDGER, and BRUNO STRECKER. *Grammatik der deutschen Sprache 3*. Berlin/New York: Mouton de Gruyter, 1997. Print.
ZIFONUN, GISELA. "Bereiche der Negation". In: ANGELIKA BALLWEG-SCHRAMM, and ANDREAS LÖTSCHER. *Semantische Studien* (1977): 9–55. Print.

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Using Eye-Tracking to Evaluate Language Processing in the Easy Language Target Group

1 Introduction

Easy Language is a controlled variety of the German language that aims at maximising the accessibility of communication for people with special communication needs. Even though Easy Language was originally developed by and for people with cognitive impairments, today the target groups of Easy Language comprise several heterogeneous groups with low literacy skills. Their need for comprehensive, easily perceivable, and accessible texts written in Easy Language is mainly due to cognitive or psychological impairments, visual or hearing impairments, learning difficulties, dementia-type illnesses, aphasia, illiteracy, or migration, i.e. living in Germany without sufficient language skills for everyday life (for a detailed overview of the different target groups and their specific communication barriers cf. Bredel/Maaß 2016; Rink 2020; Hansen-Schirra/Maaß this volume). While the above-mentioned heterogeneous groups constitute the primary target group of Easy Language, there is also a secondary target group of Easy Language. This secondary target group comprises people who have the necessary skills to read and understand texts written in standard language, but, for a range of reasons, choose to read texts in Easy Language. Commonly cited reasons are: a) because there is no standard alternative available, b) the text in Easy Language is not as time-consuming as the more complex standard version, or c) because they lack the specialised knowledge to understand texts written in specialised language (for example administrative texts) (cf. Bredel/Maaß 2016). However, as these skilled readers are usually not dependent on Easy Language for communicative integration, this paper only focuses on the primary target groups of Easy Language.

Easy Language addresses the communicative needs of the above-mentioned primary target groups as it is systematically reduced in linguistic complexity and uses certain additive strategies such as explications and exemplifications to

compensate for the recipients' language and knowledge deficits (cf. Bredel/Maaß 2016). The German Research Centre for Easy Language in Hildesheim is renowned for its contributions to developing a theoretical linguistic foundation for the concept of Easy Language; however, most of the postulated rules and regulations still need to be examined and supported by means of empirical evidence. The investigation of the empirical validity of the postulated rules for Easy Language has been addressed in only a handful of studies so far. Studies conducted by Bock (2017; 2018) and Pappert/Bock (2019), for example, used a lexical decision task and a test for the reception of grammar to empirically investigate the efficiency of the postulated rules for the target groups. These studies used psychological and socio-pedagogical approaches. Alternatively, four studies using a cognitive-scientific approach are currently being conducted by the research group "Simply complex – Easy Language", which applies neuroscientific methods such as EEG, eye-tracking, and fMRI to both investigate the effectiveness of the postulated rules for Easy Language and contribute to the evidence-based development of these rules. Even though it is desirable to directly investigate the empirical validity of the rules for Easy Language with the target groups of Easy Language, conducting EEG or fMRI studies with sensory or cognitively impaired people is, so far, not feasible in practice, which is mainly due to ethical reasons and the need for informed consent. Conducting multimodal, neuroscientific experiments with the target group of Easy Language has to date, consequently, only been realised in eye-tracking studies (e.g. Gutermuth 2020).

In the following paper, we present and discuss several aspects that need to be considered when conducting eye-tracking experiments with the target group of Easy Language. Furthermore, we aim to provide some helpful suggestions for future studies that will likely be conducted over the next years.

This article is structured as follows: in Section 2, we highlight some important considerations for the planning phase of an experiment. In Section 3, we present and discuss some challenges that might occur during the data collection process. Lastly, in Section 4, we provide some final remarks and conclude with a brief outlook on potential avenues for future research.

2 Experimental design: planning the experiment

Although using eye-tracking technology with the Easy Language target groups offers many benefits and valuable insights into cognitive processes, there are some aspects that should be considered when conducting experiments with participants from these diverse groups. Depending on the type and level of the participant's impairment, certain preconditions that affect not only data collection itself but also the design of the experiment should be taken into account when implementing an eye-tracking experiment.

As cognitively impaired people are the main target group of Easy Language, the first challenges in conducting experiments may concern ethical questions. Not only cognitively impaired people, but many members of the heterogeneous target group can be considered more vulnerable than the average participant (e.g. university students or other unimpaired controls). Highly comparable to children or patients (e.g. in health studies) as an experimental group, the target group of Easy Language – be they people with cognitive impairments, learning difficulties, hearing impairments, aphasia or dementia-type illnesses – should be considered especially worthy of protection, as they may experience disadvantages and inequality due to their impairment. Also, members of the target group may often not necessarily be able to communicate their desires and needs sufficiently or comprehend given information as easily as unimpaired adults. It is therefore paramount to carefully consider their special needs and adjust the experimental procedure to their requirements. This can apply to the location or duration of data collection but also the informing procedures regarding measures of personal data protection and experimental design. From an ethical point of view, it is highly important that full comprehension of all information given can be assured. Therefore, in case of participants with intellectual disabilities for example, it can be necessary to not only get consent from the participant him- or herself but also from the participant's legal guardians – if applicable. All forms regarding the information process should be supplied in Easy Language, not only written documents but also oral explanations. The researcher should make special efforts to clarify all steps of the experiment beforehand. If conducting an experiment with underage participants (for example with students with prelingual hearing impairments or deafness), the fact that not only the participants' consent, but also his or her parents' consent is required should be kept in mind. This can cause extra effort

compared to experiments with unimpaired adults and possibly delay data collection as all forms of consent have to be collected from the legal guardians or parents. Furthermore, the opportunity of opting out of the experiment at any time, which is naturally also offered to participants of the control group, might be used more frequently by impaired participants. This could possibly result in an unusually high number of drop outs, leading to a shortage of participants and, therefore, overall smaller experimental groups.

Concerning the experimental set up, the duration of the experiment must be carefully considered. It may be appropriate to significantly shorten the experiment or to split data collection sessions, i.e. collecting data at different timepoints and thereby shortening each evaluation. In any case, mentally and/or physically overstraining the participants must be avoided. As the target group will likely be very heterogeneous this is a very dependent criterion, which might differ from participant to participant. The experiment should be designed in a way that allows participants to take breaks whenever necessary.

If the above-mentioned questions have been handled with the necessary precision, potential participants are accurately informed and they, as well as their legal guardians or parents, agreed to the participation, first steps towards data collection can be taken. The arrangement of appointments with cognitively impaired participants can be challenging, as they often do not have a full overview of their schedule. Thus, dates for appointments might not be completely reliable.

3 Data collection

Even if all precautions have been taken into consideration, challenges might still occur during data collection. Eye-tracking is a non-invasive procedure where the main task for the participant consists of looking at stimuli presented on a screen. Nevertheless, some cooperation is indispensable. It is crucial to the experiment's success that the participant remains still in front of the eye-tracker, reducing all head and body movements during data collection. Usually this is is discussed while instructing the participant prior to the experiment. Due to deficits in memory or executive control, individuals with impairments might face difficulties following those instructions or struggle to limit their

movement for the entire duration of the experiment. When presented with questions, they might forget about the circumstances of the situation and turn towards the researcher to answer or they might move their face closer to the screen to see better. Instructions should therefore be kept simple but concise and take into account the discussed eventualities. Using a chin rest could prevent the participants from moving to much but might also lead to a very unnatural situation. While unimpaired participants might be able to easily compensate for the experimental situation, the reading behavior of the target group could possibly be influenced by uncomfortableness and nervousness beyond control. It is therefore conducive to arrange the experimental situation for the target group as naturally as possible. Both advantages and disadvantages should be taken into consideration when planning the session.

Not only the instructions should be kept rather simple when working with cognitively impaired participants. The task itself should also not involve any complicated sequences like pressing buttons or choosing pictures, as many of the participants might not be used to using a computer and might not be capable of remembering the different steps (Gutermuth 2020). A nationwide study (Bosse/Hasenbrink 2016) surveying the living conditions of people with intellectual disabilities in Germany found that said group is less likely to own computers, laptops, tablets and smartphones compared to the general public. Rather than effects of age, the authors draw a connection to the group's living environment – usually in community group homes with little technical equipment. A practice session before starting the experimental session is advisable and can help promote the participants full comprehension of instructions and technical set up. Other target groups of Easy Language like people with hearing impairments, senior citizens, second language learners or patients with an isolated speech disorder will probably allow for more complex setups but might face other difficulties (e.g. due to sensory impairments).

Lastly, every eye-tracking experiment starts with the calibration of the eye-tracker. This is necessary to generate accurate and reliable eye-tracking data. During calibration, the eye-tracker measures certain geometrical characteristics of the participant's eyes, such as pupil location in relation to cornea and fovea, to calculate the exact gaze point. The calibration process can be complicated by thick glasses and contact lenses, eye deformity or other physical parameters. The researcher should be aware of that while choosing possible par-

ticipants for the experiment. Physical impairments affecting the eyes, like squinting or nystagmus, seem to occur more often in people with cognitive impairments. A cross-sectional survey in the Netherlands (Splunder et al. 2006) discovered a higher prevalence for visual impairments not only in Down Syndrome patients but in all subgroups with cognitive impairments. Similarly, Warburg (2001) reviewed 28 studies from seven countries on the prevalence of visual impairments in adults with intellectual disabilities, suggesting not only that visual impairment and blindness is common within intellectually disabled people but also that the prevalence for visual deficits rises dramatically with the severity of the cognitive impairment and with age. Rink (2019) draws attention to the fact that often enough the presence of multiple impairments, leading to individual "barrier profiles" in participants of the target group, is not considered when trying to reduce communication barriers. Of course, other recipients of Easy Language as possible experimental target groups can also face similar difficulties – many times senior citizens need reading aids that might disturb the calibration process.

A problematic calibration, due to above-mentioned aspects, leads to bad validation of the eye-tracking data, which eventually makes it impossible to analyse it reliably. During data analysis it is necessary to adapt to those circumstances by adapting common approaches for data cleansing and looking at individual trials for each participant to evaluate as many trials as possible.

In their paper, Csakvari and Gyori (2015) discuss similar limitations to applying eye-tracking techniques to people with intellectual disabilities. Conducting four studies, the authors aimed to evaluate specific features of the visual scanning process that might be influenced by individual characteristics of the target group in visual attention, oculomotor processes and ophthalmological status. Results indicated a significantly complicated calibration (measures of calibration time and calibration difficulty rated by the experimenter) and more data loss compared to neurotypical participants. A study by Doyle, Saunders & Little (2016) reported greater accommodative deficits in young people with Down Syndrome that specifically lead to poor visual acuity. People with Down Syndrome, one of the largest subgroups of cognitively impaired individuals, therefore might face certain difficulties not only during reading in general but especially in screen perception that also influence the success of eye-tracking experiments.

To date, there seems to be no general solution for these problems of calibration and data collection in impaired participants, which makes it indispensable for the researcher to determine individual solutions depending on the concrete data.

All these criteria – reliability of appointments, difficulties in following and adhering to instructions as well as physical factors – can possibly lead to data loss and should be considered when conducting the experiment.

Furthermore, the experimenter will possibly be confronted with other limitations when conducting an experiment with Easy Language target groups. Many standardised procedures for reading evaluation or neuropsychological assessment can become problematic and require adaptation to the individual capabilities of the experimental group. For example, using multiple choice questionnaires for weak readers or asking them to read and rate long paragraphs or texts will be difficult (for further discussion cf. Bredel/Lang/Maaß 2016.). People with hearing impairments or deafness, on the other hand, will not be able to perform a test on working memory with auditory presented stimuli. In conclusion, certain methods will have to be adapted for certain target groups' needs (cf. Gutermuth 2020).

4 Conclusion

In this paper, we considered key challenges and problems related to conducting eye-tracking experiments with the target groups of Easy Language. In particular, we outlined the types of issues researchers should be aware of when planning eye-tracking experiments with sensory or cognitively impaired participants. Furthermore, we gave some important advice and suggestions that researches could implement in their experiments. Finally, we want to emphasise that conducting eye-tracking experiments with impaired participants cannot, and should not, be compared to conducting the same experiment with unimpaired participants. Consequently, the outcome cannot be expected to be of the same quality. Therefore, we recommend that researchers make provisions for higher data loss when conducting studies of this nature. Furthermore, they should be prepared to conduct their experiment in a more unconventional way and should design their study accordingly. This for example means that they should not stick to rigid plans and methods no matter what, but should

be willing to accept different settings and adapt to the participant's needs. In terms of data analysis, they should also keep in mind that some of the criteria (for example regarding data cleansing) do not apply to the same extent as for unimpaired participants and therefore need to be adjusted to the individual participant. Consequently, data cleansing might not be as criteria-led as it usually is but should be conducted in a more liberal way. However, we also want to emphasise that the above-mentioned challenges and problems depend highly on the specific target group chosen for the study. As the different target groups have specific communication barriers, conducting studies with, for example, people with learning difficulties or aphasia will probably lead to other challenges than conducting studies with cognitively impaired participants. Since many of these challenges might arise unexpectedly, researchers should always be prepared to deal with unexpected situations.

Not only the heterogeneity of the diverse target groups in general, but also the heterogeneity within the individual subgroups of impairments makes it nearly impossible to achieve a valid generalisation. Still, this article aims to provide a first collection of aspects to consider.

Even though conducting eye-tracking experiments with the target groups yields some major challenges for both participants and researchers, we still want to encourage researchers to take on these challenges, as the results – despite perhaps not being as accurate as desired in empirical research – still make an important contribution to the development of Easy Language. On a final note, we would like to raise awareness of the fact that these empirical contributions can help to further reduce barriers and further improve communicative accessibility and social integration.

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Works cited

Bredel, Ursula; Lang, Katrin, and Christiane Maaß. "Zur empirischen Überprüfbarkeit von Leichte-Sprache-Regeln am Beispiel der Negation." Ed. Nathalie Mälzer. *Barrierefreie Kommunikation – Perspektiven aus Theorie und Praxis*. Berlin: Frank & Timme, 2016. 95–116. Print.

Bock, Bettina M. "Das Passiv- und Negationsverbot auf dem Prüfstand – Empirische Ergebnisse aus Verstehenstest und Korpusuntersuchung." *Sprachreport* 33 (2017): 20–28. Print.

Bock, Bettina M. "*Leichte Sprache*" *– Kein Regelwerk. Sprachwissenschaftliche Ergebnisse und Praxisempfehlungen aus dem LeiSA-Projekt*. Universität Leipzig, 2018. Print.

Bosse, Ingo, and Uwe Hasebrink. *Mediennutzung von Menschen mit Behinderungen – Forschungsbericht.* Eds. Aktion Mensch e.V. and die medienanstalten. TU Dortmund; Hans-Bredow-Institut. Bonn, 2016. Print.

Bredel, Ursula, and Christiane Maaß. *Leichte Sprache. Theoretische Grundlagen. Orientierung für die Praxis (Sprache im Blick)*. Berlin: Dudenverlag, 2016. Print.

Csakvari, Judit, and Miklos Gyori. "Applicability of standard eye-tracking technique in people with intellectual disability: methodological conclusions from a series of studies." *Studies in health technology and informatics 217* (2015): 63–70. Print.

Doyle, Lesley; Saunders, Kathryn J., and Julie-Anne Little. "Trying to see, failing to focus: near visual impairment in Down syndrome." *Scientific reports* 6.20444 (2016). Print.

Gutermuth, Silke. *Leichte Sprache für alle? Eine zielgruppenorientierte Rezeptionsstudie zu Leichter und Einfacher Sprache*. Berlin: Frank & Timme, 2020. Print.

Pappert, Sandra, and Bettina M. Bock. "Easy-to-read German put to the test: Do adults with intellectual disability or functional illiteracy benefit from compound segmentation?" *Reading and Writing 33.5* (2019): 1–27. Print.

Rink, Isabel. "Kommunikationsbarrieren." Eds. Christiane Maaß, and Isabel Rink. *Handbuch Barrierefreie Kommunikation.* Berlin: Frank & Timme, 2019. 29–66. Print.

Rink, Isabel. 2020. *Rechtskommunikation und Barrierefreiheit: Zur Übersetzung juristischer Informations- und Interaktionstexte in Leichte Sprache.* Berlin: Frank & Timme, 2020. Print.

Splunder, Jacques van; Stilma, Jan S.; Bernsen, Roos M.D., and Heleen M. Evenhuis. "Prevalence of visual impairment in adults with intellectual disabilities in the Netherlands: crosssectional study." *Eye* 20 (2006): 1004–1010. Print.

Warburg, Mette. "Visual impairment in adult people with intellectual disability: Literature review." *Journal of Intellectual Disability Research* 45 (2001): 424–438. Print.

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