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Image und Kompetenz von Fachübersetzern.
Eine empirische Erhebung zu den Erwartungen von Auftraggebern

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Abstract Translators of specialized communication need to meet challenging requirements. Nevertheless, according to a survey by the German Federal Association of Interpreters and Translators (BDÜ), many freelance technical translators are not able to make an adequate living. One reason for this dilemma might be the noticeable discrepancy between the translator competences required by clients and the competences that translators actually develop during their academic studies. The purpose of this paper is to shed light on the requirements clients place on freelance translators, especially in the field of Technical Documentation. Prior research in Translation Studies and Technical Documentation postulates that subject area competence is one of the most important client requirements. Hence the paper focuses on translators' subject area competence which is defined by Kelly (2005) as a sufficient degree of knowledge of their subject area allowing them to solve translation problems. For the present paper, an online survey of potential clients was conducted. The aim was to verify if clients consider subject area competence as especially important for freelance technical translators. The results show that for the surveyed persons subject area competence is the most important translators' competence, which leads into a discussion of the opportunities for freelance translators to make an adequate living and the implications for translator education at universities.

Keywords freelance translators, employability, translator competences, expertise, subject area competence, translator education, technical documentation

1 Einleitung

An Fachübersetzer werden hohe Ansprüche gestellt: Oft hängt von einer korrekten Übersetzung die Bedienbarkeit eines Produktes ab, in vielen Fällen sogar Leib und Leben des Bedieners oder Nutzers, beispielsweise in der Medizintechnik oder im Maschinen- und Anlagenbau. In der aktuellen übersetzungswissenschaftlichen Literatur herrscht Konsens darüber, dass Übersetzen als Expertentätigkeit einzustufen ist (vgl. Englund Dimitrova 2005, Risku 1998, 2016) und Fachübersetzer heutzutage über vielfältige Kompetenzen verfügen müssen, um diese oftmals hochkomplexen Aufgaben bewältigen zu können und ihrer Verantwortung gerecht zu werden (vgl. Risku 2016). Diese Kompetenzen entwickeln Fachübersetzer zum Teil in ihrer Ausbildung, zum Teil erst nach Abschluss der universitären Ausbildung. Im Zuge der Bologna-Reform ist die „Employability" als eines der Ziele der universitären Übersetzerausbildung in das Zentrum der Aufmerksamkeit gerückt, wobei „Employability" in diesem Beitrag als Fähigkeit, auf dem freien Markt ein adäquates Einkommen zu erzielen, definiert wird.[1] Unter einem adäquaten Einkommen wird hier ein mit anderen freien Berufen mit einer ähn-

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[1]   Ein hoher Anteil der Absolventen übersetzungswissenschaftlicher Studiengänge ist im späteren Beruf als Fachübersetzer tätig, die meisten davon im Bereich Technik (vgl. Risku 2016; Schmitt/Gerstmeyer/Müller 2016; vgl. dazu auch Brence 2007 zur Situation auf dem österreichischen Arbeitsmarkt). Die überwiegende Mehrheit der Fachübersetzer wiederum arbeitet freiberuflich (vgl. BDÜ 2012: 54). Es kann daher davon ausgegangen werden, dass Übersetzer in Deutschland zum überwiegenden Teil freiberufliche Fachübersetzer im Bereich Technik/Technische Dokumentation sind.

lichen Struktur hinsichtlich Akademikeranteil und Anteil der Selbstständigen vergleichbares Einkommen verstanden. Dazu zählen beispielsweise Architekten und Unternehmensberater.[2]

Trotz der hohen Verantwortung, die Fachübersetzer tragen, können viele von ihnen nicht von ihrem Einkommen leben bzw. erreichen kein adäquates Einkommen. Bei einem Vergleich der durchschnittlichen Einkünfte von Übersetzern und Dolmetschern mit denen der obengenannten ähnlich strukturierten Berufsgruppen fällt auf, dass selbstständige Übersetzer und Dolmetscher im Durchschnitt wesentlich geringere Einkünfte haben. So verdienten selbstständige Übersetzer und Dolmetscher mit überwiegenden Einkünften aus freiberuflicher Tätigkeit in Deutschland im Jahr 2012 durchschnittlich 21.158 Euro brutto, während selbstständige Architekten durchschnittlich 50.413 Euro brutto und selbstständige Unternehmensberater sogar durchschnittlich 57.128 Euro brutto verdienten (vgl. Statistisches Bundesamt 2016).[3] Weniger als selbstständige Übersetzer und Dolmetscher verdienten im Durchschnitt nur Künstler, selbstständige Lehrer, Heilpraktiker und freiberufliche Fotografen (vgl. Statistisches Bundesamt 2016), wobei diese Berufsgruppen sich hinsichtlich des Akademisierungsgrades und des Anteils an selbstständig Tätigen von Übersetzern und Dolmetschern unterscheiden. Beispielsweise ist der Anteil der Hochschulabsolventen bei den freien Künstlern und Heilpraktikern geringer als bei den selbstständigen Übersetzern und Dolmetschern (vgl. Brehm/Eggert/Oberlander 2012), Lehrer dagegen haben zwar einen ähnlich hohen Anteil an Hochschulabsolventen, der Anteil an Selbstständigen ist bei ihnen jedoch wesentlich geringer als bei Übersetzern und Dolmetschern (vgl. Brehm/Eggert/Oberlander 2012, Bundesagentur für Arbeit 2016). Die anderen großen akademischen Berufsgruppen, die Übersetzern hinsichtlich des Anteils der Selbstständigen ähneln, können ebenfalls nicht zum Vergleich herangezogen werden, da sie, anders als Übersetzer, das Staatsexamen (z. B. Rechtsanwälte) oder eine weitere Prüfung nach dem Hochschulabschluss (z. B. Steuerberater, Wirtschaftsprüfer) ablegen oder über eine Approbation verfügen müssen (z. B. Ärzte, Apotheker, Psychologische Psychotherapeuten). Von den strukturell vergleichbaren Berufsgruppen verdienen selbstständige Übersetzer und Dolmetscher daher mit Abstand am wenigsten. Das Dilemma der niedrigen Einkünfte trotz hohen Akademisierungsgrads und einer sehr verantwortungsvollen Tätigkeit wird auch durch eine Mitgliederbefragung des BDÜ aus dem Jahr 2011 deutlich: Demnach können 31 % der selbstständigen Übersetzer und Dolmetscher, die an der Umfrage teilgenommen haben, mit ihrer Tätigkeit nicht ihren Lebensunterhalt bestreiten, obwohl sie dies beabsichtigen (vgl. Hommerich/Reiß 2011).

Die Fähigkeit, auf dem freien Markt ein adäquates Einkommen zu erzielen, ist demnach derzeit bei Fachübersetzern vergleichsweise gering ausgeprägt. Die Gründe dafür sind sicherlich vielfältig und können im Rahmen dieses Beitrags nicht umfassend erörtert werden. Diskutiert werden soll, ob einer der Gründe eine möglicherweise vorhandene Diskrepanz zwischen den in der universitären Übersetzerausbildung vermittelten Kompetenzen und den von Auftraggebern gewünschten Kompetenzen ist. Dabei werden insbesondere die Rolle der Fach-

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[2]   Diese Berufsgruppen gehören laut der Bundesagentur für Arbeit zu den großen akademischen Berufsgruppen mit einem hohen Anteil an Selbstständigen (vgl. Bundesagentur für Arbeit 2016). Der Anteil der Übersetzer mit Hochschulabschluss an der Gesamtzahl an Übersetzern in Deutschland beträgt laut dem Institut für Freie Berufe über 50 % (vgl. Brehm/Eggert/Oberlander 2012).

[3]   Die Ergebnisse der Einkommensstatistik liegen normalerweise erst drei bis vier Jahre nach Ende des Veranlagungszeitraums vor (vgl. Statistisches Bundesamt 2016). Neuere Zahlen sind daher noch nicht verfügbar.

kompetenz[4] und das Image von Fachübersetzern untersucht. In diesem Beitrag soll deshalb zunächst beleuchtet werden, welches Bild Auftraggeber von Fachübersetzern haben, und ein Vergleich mit dem verwandten Berufsbild des Technischen Redakteurs gezogen werden. Im dritten Abschnitt wird die besondere Rolle der Fachkompetenz dargestellt. Im vierten Abschnitt werden die Ergebnisse einer Umfrage unter Auftraggebern von Übersetzungsprojekten vorgestellt, die die notwendigen Kompetenzen von Fachübersetzern aus der Sicht der Auftraggeber zeigen sollen. Ausgehend von den Ergebnissen dieser Umfragen werden im fünften Abschnitt die Möglichkeiten von Fachübersetzern, ihre Situation auf dem freien Markt zu verbessern, diskutiert.

2 Das Image von Fachübersetzern bei Auftraggebern

Einer der Gründe, warum Fachübersetzer Probleme haben, ein adäquates Einkommen zu erzielen, ist möglicherweise eine Diskrepanz zwischen den Vorstellungen, die verschiedene am Übersetzermarkt Beteiligte von den notwendigen Kompetenzen der Fachübersetzer haben. Zu diesen Beteiligten gehören u. a. die Hochschulen als Ausbildungsstätten von Fachübersetzern, die Auftraggeber von Fachübersetzungen und die Fachübersetzer selbst.

Keiner dieser Beteiligten kann allein die notwendigen Kompetenzen von Fachübersetzern bestimmen, aber alle drei beurteilen sie. Ausgeprägte Unterschiede zwischen den Vorstellungen dieser Beteiligten können möglicherweise negative Auswirkungen auf die berufliche Situation von Fachübersetzern haben, beispielsweise falls die Vorstellungen der Hochschulen als Ausbildungsstätten von Fachübersetzern fundamental von den Vorstellungen der Auftraggeber abweichen sollten. Die Inhalte der universitären Fachübersetzerausbildung dürfen daher nicht einseitig von der Ausbildungsseite definiert werden, sondern müssen unter Berücksichtigung der Anforderungen, die Auftraggeber an Fachübersetzer haben, formuliert werden. Damit ist nicht gemeint, dass diese Anforderungen alleiniges Kriterium bei der Erstellung von Curricula sein sollen, aber zumindest sollten letztere nicht an den realen Anforderungen an Fachübersetzer vorbei gestaltet werden.[5] Zur Bestimmung der in universitären Übersetzer-

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[4]   Unter Fachkompetenz wird hier das Sachwissen in einem Fachgebiet (beispielsweise Recht, Wirtschaft, Technik) verstanden. Dieses Sachwissen muss ausreichend sein, um Ausgangstexte verstehen und Übersetzungsprobleme anhand von Fachtexten lösen zu können (vgl. Kelly 2005: 32). In den meisten aktuellen Translationskompetenzmodellen ist die Fachkompetenz Bestandteil der translatorischen Kompetenz, jedoch in unterschiedlicher Ausprägung (vgl. beispielsweise PACTE 2003, Göpferich 2008, EMT expert group 2009).

[5]   Eine breitere Diskussion über die Frage, wie „marktkonform" die Übersetzerausbildung sein soll oder darf, würde den Rahmen dieses Beitrages sprengen. Allerdings sind durch die Bologna-Reform Rahmenbedingungen für die universitäre Übersetzerausbildung geschaffen worden, die nicht ignoriert werden können. Da nun einmal die „Employability", also die Berufsbefähigung, als eines der Ziele der Bologna-Reform in die neuen Bachelor- und Masterstudiengänge integriert werden muss, müssen sich meines Erachtens die Curricula zumindest soweit an den Bedürfnissen des Marktes orientieren, dass die Absolventen die Möglichkeit haben, mit den Kompetenzen, die sie im Studium aufgebaut haben, langfristig ein adäquates Einkommen zu erzielen. Als Modell für das Selbstverständnis einer solchen die „Employability" integrierenden universitären Übersetzerausbildung könnten das Architektur-, Medizin- oder Ingenieurstudium dienen, die eindeutig auf die Vorbereitung auf ein berufliches Tätigkeitsfeld ausgerichtet sind und deren Absolventen in Deutschland ein sehr hohes Ansehen genießen.

ausbildungen aufzubauenden Kompetenzen reichen die Anforderungen von Auftraggebern als alleinige Basis nicht aus, da sich diese Anforderungen immer nur auf die aktuellen Gegebenheiten auf dem Markt beziehen können und der gesellschaftliche Auftrag der Universitäten unabhängig von konjunkturellen Entwicklungen erfüllt werden sollte. Die Entwicklung bestimmter Berufsbilder und der damit verbundenen Anforderungen an die Hochschulabsolventen sind aufgrund des wirtschaftlichen Strukturwandels jedoch nicht vorhersehbar, sodass eine ausschließlich auf die aktuellen Anforderungen ausgerichtete Übersetzerausbildung nicht sinnvoll ist (vgl. Schaeper/Wolter 2008).

Mit einer alleinigen Ausrichtung auf die aktuellen Anforderungen der Auftraggeber wäre die universitäre Übersetzerausbildung auch deshalb unterdeterminiert, weil zur „Employability" neben der Vorbereitung auf ein berufliches Tätigkeitsfeld auch die Fähigkeit gehört, die Bedingungen des eigenen Berufsfeldes und des Arbeitsmarktes kritisch zu hinterfragen und aktiv zu gestalten (vgl. Schaeper/Wolter 2008, vgl. auch González/Wagenaar 2003). Dies kann nur dann gelingen, wenn während der Übersetzerausbildung jenseits der Wünsche der Auftraggeber die Möglichkeit zur Auseinandersetzung mit möglichst vielen Perspektiven und Facetten der translatorischen Kompetenz gegeben wird und nicht das gesamte Curriculum nach Nützlichkeitserwägungen gestaltet wird. Dennoch bleibt festzuhalten, dass die Vorbereitung auf ein berufliches Tätigkeitsfeld ein wichtiges Ziel akademischer Bildung ist (vgl. Schaeper/Wolter 2008, Renkl/Gruber/Mandl 1996). Die Anforderungen von Auftraggebern an die Kompetenzen von Fachübersetzern sind eine wichtige Komponente dieser Vorbereitung auf ein berufliches Tätigkeitsfeld und sollten daher eine nicht zu vernachlässigende Rolle bei der Ausgestaltung der universitären Übersetzerausbildung spielen.

Bei einer Untersuchung der „Employability" von Fachübersetzern unter dem Gesichtspunkt der Anforderungen von Auftraggebern muss außerdem zwischen verschiedenen Auftraggebertypen unterschieden werden: Zum einen gibt es die Hersteller oder Händler der Produkte, auf die sich die Ausgangstexte für Übersetzungsdienstleistungen beziehen und die als Endkunden (nicht Adressaten) der Übersetzungsdienstleistungen von Fachübersetzern fungieren. Diese könnten als „Auftraggeber 1. Ordnung" bezeichnet werden. Zum anderen agieren als Auftraggeber von Fachübersetzern aber auch Kollegen und Übersetzungsagenturen, die die Abwicklung größerer Übersetzungsprojekte für Auftraggeber 1. Ordnung übernehmen. Diese könnte man als „Auftraggeber 2. Ordnung" bezeichnen. Fachübersetzer können entweder direkt für Auftraggeber 1. Ordnung oder aber für Auftraggeber 2. Ordnung tätig werden. Die Anforderungen, die Auftraggeber 1. Ordnung an Fachübersetzer stellen, können sich von den Anforderungen der Auftraggeber 2. Ordnung unterscheiden. So weist Abdallah (2012: 33) darauf hin, dass für Auftraggeber 2. Ordnung häufig „Geschwindigkeit, Flexibilität und niedrige Preise" die einzig relevanten Kriterien für Übersetzungsqualität zu sein scheinen und es regelmäßig zu Differenzen zwischen Fachübersetzern und Auftraggebern 2. Ordnung wegen Fragen der Übersetzungsqualität kommt.[6] Die Ausführungen in diesem Beitrag beziehen sich nur auf die Anforderungen von Auftraggebern 1. Ordnung.

Neben der Diskrepanz zwischen den Vorstellungen, die verschiedene am Übersetzermarkt Beteiligte von den notwendigen Kompetenzen der Fachübersetzer haben, kann auch

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[6]   Das bedeutet nicht, dass Auftraggebern 2. Ordnung prinzipiell unterstellt werden kann, dass sie nur nach den Kriterien „schnell und billig" handeln, und Auftraggeber 1. Ordnung nur auf die Qualität achten. Dennoch kann auf dem Übersetzermarkt bei Auftraggebern 2. Ordnung diese Tendenz beobachtet werden (vgl. Abdallah 2012 und Austermühl/Mirwald 2010).

das Image eines Berufsbildes einer der Gründe dafür sein, warum eine „Employability" im Sinne eines langfristigen adäquaten Einkommens nicht erreicht wird, da sich in diesem Image die Vorstellungen der Auftraggeber, über welche Kompetenzen Fachübersetzer im Allgemeinen verfügen, widerspiegeln.[7] Ein Blick auf das Image des Fachübersetzers bei Auftraggebern ist daher für die Diskussion über die Berufsfähigkeit von Fachübersetzern interessant. Zunächst einmal kann festgestellt werden, dass Fachübersetzer in der Übersetzungswissenschaft ein positives Image haben: Fachübersetzen wird in der übersetzungsdidaktischen und -wissenschaftlichen Literatur seit Langem unter dem Blickwinkel der Expertentätigkeit betrachtet (vgl. beispielsweise EMT expert group 2009, Englund Dimitrova 2005, Holz-Mänttäri 1984, Risku 1998). Auch die Komplexität der Aufgaben von Fachübersetzern spricht in der übersetzungswissenschaftlichen Literatur für ein positives Image (vgl. Mertin 2006, Risku 2016).

Das Image von Fachübersetzern bei Auftraggebern hängt von vielen Faktoren ab, von denen hier nur die Aspekte der Expertentätigkeit und der Fachkompetenz betrachtet werden sollen. Da ein großer Teil der Fachübersetzer im Bereich der Übersetzung Technischer Dokumentation tätig ist und das Berufsbild des Fachübersetzers sehr große Ähnlichkeit mit dem des Technischen Redakteurs aufweist (vgl. Austermühl 2001, Göpferich 2002, Risku 2016, Schrijver/van Vaerenbergh 2008), ist ein Vergleich zum Image von Technischen Redakteuren in diesem Zusammenhang interessant. Schmitt (1999: 25 ff.) sieht das „Technical Writing" sogar als Spezialfall des Fachübersetzens und Göpferich (2002: 184) plädiert dafür, die Ausbildung Technischer Redakteure in übersetzungswissenschaftliche Studiengänge zu integrieren.

Zunächst kann festgestellt werden, dass angestellte Übersetzer laut einer Umfrage der tekom e. V. (Gesellschaft für technische Kommunikation) aus dem Jahr 2009 im Durchschnitt ein geringeres Einkommen als angestellte Technische Redakteure erhalten (vgl. Oehmig 2010).[8] Wenn man das Einkommen als Indikator für die Anerkennung durch den Arbeitgeber bzw. Auftraggeber nimmt, so ist dieser Unterschied ein Indiz dafür, dass Technische Redakteure ein besseres Image als Fachübersetzer haben. Ein weiteres Indiz für das schlechtere Image von Fachübersetzern im Vergleich zu Technischen Redakteuren findet sich in der internationalen Norm zur Gestaltung von Gebrauchsanleitungen DIN EN 82079-1:2012, in der auch die Anforderungen an Fachübersetzer definiert werden.[9] Diese Norm stellt für die Ausgestaltung Technischer Dokumentationen und damit für einen Großteil der Auftraggeber von Übersetzungsdienstleistungen die maßgebliche Referenz dar. Es kann daher geschlossen werden, dass die in dieser Norm aufgeführten Anforderungen an Fachübersetzer und Technische Redakteure Auftraggebern als Orientierung dienen und das Image von Fachübersetzern und Technischen Redakteuren widerspiegeln.

Die Anforderungen an Fachübersetzer und an Technische Redakteure sind in dieser Norm sehr unterschiedlich. Für die Verfasser der DIN-Norm reichen für Übersetzer „grundlegende Kommunikationskompetenzen" aus, während für Technische Redakteure *„fortgeschrittene Kompetenzen"* vorgesehen sind (DIN EN 82079-1, Abschnitt 4.2 und 4.8.3.3). Auch wird bei

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7   Vgl. Ahmann (2012) zur Abgrenzung des Begriffes „Image".

8   Da Technische Redakteure mehrheitlich angestellt arbeiten, kann im Hinblick auf das Einkommen kein Vergleich mit selbstständigen Fachübersetzern gezogen werden (vgl. tekom 2016).

9   Die DIN EN 82079-1 definiert die Anforderungen an Fachübersetzer ausschließlich aus der Perspektive der Technischen Dokumentation, sodass sie nicht als objektive Darstellung verstanden werden kann. Dennoch ist der Blick, den Technische Redakteure und damit ein bedeutender Teil der Auftraggeber von Übersetzern auf diese haben, aufschlussreich.

Fachübersetzern keine besondere Erfahrung vorausgesetzt, während bei den Anforderungen an Technische Redakteure von „erfahrenen Schreibern oder Spezialisten" die Rede ist (DIN EN 82079-1). Im Hinblick auf den Status, den Auftraggeber Fachübersetzern und Technischen Redakteuren zuschreiben, kann ebenfalls ein Unterschied festgestellt werden: Im Normenkommentar der tekom zur DIN EN 82079-1 kann bei den Ausführungen zu den oben genannten Abschnitten direkt verglichen werden, ob Auftraggeber Fachübersetzen als Expertätigkeit einstufen oder nicht. Für Technische Redakteure wird im Normenkommentar der tekom festgestellt, dass es sich um „Experten" handelt (vgl. Fritz 2013: 53), während Übersetzen nicht explizit als Expertätigkeit bezeichnet wird (vgl. Fritz 2013: 55). Fachübersetzer werden also in einem der maßgeblichen Referenzdokumente für Auftraggeber nicht als Experten eingestuft.[10] Diese Unterschiede in den Anforderungen an Fachübersetzer und Technische Redakteure und in der Einschätzung der jeweiligen Tätigkeit deuten darauf hin, dass Fachübersetzer bei Auftraggebern aus dem Bereich der Technischen Dokumentation ein schlechteres Image haben als Technische Redakteure, obwohl die Berufsbilder sich sehr stark ähneln (vgl. dazu auch Schmitt 1999: 22).

Einer der für das schlechtere Image von Fachübersetzern gegenüber Technischen Redakteuren verantwortlichen Faktoren könnte eine Diskrepanz zwischen den von Auftraggebern gewünschten und den tatsächlich vorhandenen Kompetenzen von Fachübersetzern sein. Laut Austermühl (2001) und Schmitt (1999) ist die Fachkompetenz von Fachübersetzern eine der translatorischen Subkompetenzen, bei der es eine Diskrepanz zwischen Anforderungen aus der Berufswelt und tatsächlich vorhandenen Kompetenzen gibt. So stellt Austermühl (2001: 247) fest, dass der Aufbau der Fachkompetenz zwar durchaus Bestandteil der universitären Übersetzerausbildung ist, die Umsetzung in die Praxis jedoch häufig nicht systematisch erfolgt und oftmals nicht am tatsächlichen Bedarf ausgerichtet ist. Auch Schmitt (1999: 37) bemängelt, dass die Themen, die in Fachübersetzungsübungen behandelt werden, oft nicht nach dem tatsächlichen Bedarf ausgewählt werden, sondern den Möglichkeiten oder Vorlieben des jeweiligen Dozierenden geschuldet sind, und betont die Wichtigkeit des Fachwissens (vgl. Wilss 2007: 112 ff.). Ein Indiz dafür, dass die (mangelnde) Fachkompetenz ein wesentlicher Faktor für das negative Image von Fachübersetzern gegenüber Technischen Redakteuren ist, ist die Tatsache, dass Technische Redakteure zum großen Teil ausgebildete Ingenieure oder Techniker sind (vgl. tekom 2016), denen möglicherweise eine höhere Fachkompetenz zugesprochen wird.

Eine höhere Fachkompetenz lässt sich für Fachübersetzer nur durch eine Spezialisierung und damit Verengung des Fachgebietes erreichen (vgl. Wilss 2007). Wenn eine höhere Fachkompetenz und damit eine Spezialisierung auf ein engeres Fachgebiet tatsächlich einer der Faktoren ist, durch den sich die Situation von Fachübersetzern auf dem freien Markt verbessern lässt, so müsste sich eine höhere Spezialisierung auch in einem höheren Einkommen niederschlagen. Diese Vermutung wird durch die Mitgliederbefragung bestätigt, die Hommerich/Reiß im Jahr 2011 im Auftrag des BDÜ durchgeführt haben. In diesem internen Papier wird festgestellt, dass diejenigen Übersetzer, die ein adäquates Einkommen erzielen, signifikant häufiger Spezialisten sind, insbesondere in den Bereichen Informationstechnologie, Medizin und Pharmazie sowie Naturwissenschaften (vgl. Hommerich/Reiß 2011).[11] Eine höhere Fach-

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[10] Vgl. dazu auch Ahmann (2012), Austermühl/Mirwald (2010).

[11] Laut der BDÜ-Mitgliederbefragung sind Verbandsmitglieder, die mit ihrer Tätigkeit ihren Lebensunterhalt finanzieren wollen, dies aber nicht können, „häufiger weiblich, haben häufiger eine Ausbildung in

kompetenz und Spezialisierung von Fachübersetzern erhöht demnach die Wahrscheinlichkeit, ein höheres Einkommen zu erzielen.

Wenn in der universitären Übersetzerausbildung, wie von Austermühl (2001) und Schmitt (1999) beschrieben, die Fachkompetenz nur unsystematisch und unzureichend ausgebildet wird, die Auftraggeber jedoch Fachkompetenz als sehr wichtig einstufen, dann würde sich daraus eine hohe Diskrepanz zwischen den Anforderungen von Auftraggebern und der tatsächlich vorhandenen Fachkompetenz ergeben, welche einer der Gründe für das negative Image von Fachübersetzern bei Auftraggebern und für die schlechte Einkommenssituation von Fachübersetzern sein könnte. Um diese Vermutung zu überprüfen, müsste daher untersucht werden, ob Auftraggeber die Fachkompetenz von Fachübersetzern tatsächlich für eine zentrale und wünschenswerte Kompetenz halten. Dazu wird im nächsten Abschnitt zunächst der Forschungsstand dargestellt. Es folgt danach im vierten Abschnitt die Präsentation einer empirischen Umfragestudie.

3 Was Auftraggeber sich von Fachübersetzern wünschen

In einer Online-Umfrage vom Februar 2012 wurden von Britta Görs 75 Technische Redakteure nach ihren Erwartungen an Fachübersetzer befragt (vgl. Görs 2012). Über 90 % der Befragten waren der Meinung, „dass eine Übersetzung ausgewiesene Fachkenntnisse des Übersetzers voraussetzt" (Görs 2012). Die Wichtigkeit von Fachkenntnissen der Übersetzer wird auch in einer aktuellen Studie der tekom e. V. zum Thema „Einkauf von Übersetzungsdienstleistungen" betont (vgl. Straub 2012). Dort wurde u. a. gefragt, welche Erwartungen Unternehmen an die Qualität von Übersetzungen haben. An der Umfrage beteiligten sich 222 Verantwortliche aus der Technischen Dokumentation und aus dem Einkauf.[12] Für die Einstufung der Qualitätskriterien wurde das sogenannte „Kano-Modell der Kundenzufriedenheit" verwendet (Kano et al. 1984). Dabei werden Basisanforderungen, Leistungsanforderungen und Begeisterungsanforderungen unterschieden.[13] Für die Betrachtungen zu Anforderungen an Fachübersetzer sind insbesondere die Leistungsanforderungen interessant, da sie die von den Auftraggebern *erwarteten* Leistungskomponenten beinhalten und in der tekom-Studie einer durchschnittli-

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einem anderen Beruf, sind häufiger Sprachlehrer, sind häufiger Berufseinsteiger (weniger als 5 Jahre Berufserfahrung), sind häufiger Einzelkämpfer (keine Partner und/oder Mitarbeiter), sind seltener in ein Kollegen-Netzwerk eingebunden, sind häufiger Generalisten bzw. Spezialisten mit einer Spezialisierung im Bereich ‚Kultur, Erziehung, Bildung'" (Hommerich/Reiß 2011: 54). Weiterhin führen Hommerich/Reiß (2011: 55) aus, dass BDÜ-Mitglieder, die ihren Lebensunterhalt durch ihre Tätigkeit als Dolmetscher oder Übersetzer finanzieren können, häufiger Spezialisten sind.

[12] Es handelt sich somit bei den Befragten um Auftraggeber 1. Ordnung.

[13] Bruhn (2016) definiert diese drei Kategorien des Kano-Modells der Kundenzufriedenheit folgendermaßen: „Basisanforderungen sind *Muss-Kriterien* einer Dienstleistung, deren Nichterfüllung zu einer negativen Qualitätswahrnehmung bei den Kunden führt. […] Im Gegensatz zu den Basisanforderungen, die von den Kunden als selbstverständlich angenommen und deshalb nicht explizit verlangt werden, werden Leistungsanforderungen von den Kunden deutlich artikuliert. Man spricht auch von *Soll-Kriterien* einer Dienstleistung. […] Unter Begeisterungsanforderungen werden jene Leistungskriterien gefasst, deren Erfüllung zu einer überproportional hohen Wahrnehmung der Dienstleistungsqualität führen. […] Diese sogenannten *Kann-Kriterien* einer Dienstleistung werden von den Kunden nicht explizit formuliert und auch nicht erwartet." (Bruhn 2016: 36; Hervorhebungen im Original).

chen bis guten Qualität zugeordnet werden (vgl. Straub 2012). Eine durchschnittliche bis gute Qualität ist das Minimum, das ein Fachübersetzer als Experte erreichen sollte.[14] Leistungsanforderungen werden in der Regel vom Kunden explizit verlangt, sind messbar und erhöhen die Zufriedenheit des Kunden proportional zu ihrem Erfüllungsgrad (vgl. Kano et al. 1984; vgl. auch Bruhn 2016, Hölzing 2008). Tabelle 1 zeigt die verschiedenen Qualitätskriterien für Übersetzungen und die Einstufung durch Kunden in der tekom-Studie.

Tab. 1: Einstufung verschiedener Kriterien der Übersetzung und des Übersetzungsprozesses nach dem Kano-Modell der Kundenzufriedenheit (entnommen aus: Straub 2012: 17)

	nicht bedeutsam	**Basis-anforderung**	**Leistungs-anforderung**	**Begeis-terungs-anforderung**
Übersetzung durch geprüften Übersetzer, nicht Muttersprachler	22,2 %	37,9 %	34,8 %	5,1 %
Orthographische Richtigkeit bis zu 95 %	5,4 %	46,0 %	34,7 %	13,9 %
Vollständigkeit der Übersetzung bis zu 95 %	8,0 %	46,0 %	32,0 %	14,0 %
Grammatikalische Richtigkeit bis zu 95 %	5,5 %	42,5 %	38,0 %	14,0 %
Selbstcheck durch Übersetzer	5,2 %	28,8 %	46,2 %	19,8 %
Finales Formatieren	21,7 %	15,6 %	38,2 %	24,5 %
Lokalisierung von Einheiten	8,5 %	22,3 %	42,7 %	26,5 %
Beachtung eines Style-Guides	6,9 %	19,9 %	46,3 %	26,9 %
Korrekte Wortstruktur	0 %	23,1 %	49,5 %	27,4 %
Revision: Inhaltsabgleich Ziel-/Quelltext	8,0 %	17,0 %	45,8 %	29,2 %
Stil: Muttersprachliche Ausdrucksweise	4,2 %	19,5 %	44,2 %	32,1 %
Verwendung von Fachsprache/ Fachterminologie	0 %	18,1 %	45,1 %	36,7 %

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[14] Experten zeichnen sich dadurch aus, dass sie in ihrer Domäne dauerhaft überdurchschnittliche Leistungen zeigen (vgl. Gruber/Mandl 1996). Wenn Fachübersetzer als Experten eingestuft werden, sollten sie daher in der Lage sein, dauerhaft sehr gute Qualität zu erreichen.

Fachexpertise des Übersetzers	5,6 %	15,3 %	41,4 %	37,7 %
Orthographische Richtigkeit bis zu 100 %	2,3 %	13,1 %	46,5 %	38,0 %
Grammatikalische Richtigkeit bis zu 100 %	1,9 %	13,0 %	47,0 %	38,1 %
Übersetzung durch geprüften Übersetzer, der Muttersprachler ist	4,2 %	15,3 %	41,9 %	38,6 %
Terminologie-Konsistenz	0 %	11,1 %	49,5 %	39,4 %
Korrekte Terminologie	0 %	14,5 %	43,9 %	41,6 %
Review durch einen Fachexperten	8,4 %	9,3 %	39,5 %	42,8 %
Vollständigkeit der Übersetzung zu 100 %	0,5 %	16,4 %	40,2 %	43,0 %
Finales Proofreading durch Muttersprachler	9,9 %	11,7 %	30,0 %	48,4 %

Die Prozentzahlen geben an, wie viele der Befragten die einzelnen Kriterien den Kategorien „nicht bedeutsam", „Basisanforderung", „Leistungsanforderung" und „Begeisterungsanforderung" zuordnen. Die Farben geben dabei an, welcher Kategorie das jeweilige Kriterium von den Befragten mehrheitlich zugeordnet wurde (hellgrau = Basisanforderung; mittelgrau = Leistungsanforderung; schwarz = Begeisterungsanforderung). Zu den Leistungsanforderungen an Übersetzungen bzw. an Übersetzer gehören laut der tekom-Studie neben sprachlichen Anforderungen (z. B. „orthographische Korrektheit", „grammatikalische Korrektheit", „muttersprachliche Ausdrucksweise", „Beachtung eines Style-Guides") und Maßnahmen zur Qualitätssicherung (z. B. „Selbstcheck durch Übersetzer", „Inhaltsabgleich Ziel-/Quelltext", „finales Formatieren") auch verschiedene Anforderungen, die sich auf die Fachkompetenz des Übersetzers bzw. die Übersetzung beziehen, nämlich „Verwendung von Fachterminologie", „Fachexpertise des Übersetzers", „Terminologiekonsistenz" und „korrekte Terminologie". Insbesondere Terminologiekonsistenz und korrekte Terminologie befinden sich hier an der Grenze zu den Begeisterungsanforderungen, die in der tekom-Studie Übersetzungen in guter bis sehr guter Qualität zugeordnet werden.

   Da es sich bei den Leistungsanforderungen um von den Kunden erwartete Anforderungen handelt, kann man daraus schließen, dass Kunden von Fachübersetzern, die in der Lage sind, Übersetzungen mindestens in durchschnittlicher bis guter Qualität zu liefern, die für die Erfüllung dieser Anforderungen notwendigen Kompetenzen erwarten. Die Fachkompetenz wird daher sowohl von den von Görs (2012) befragten Technischen Redakteuren als auch von den Befragten der tekom-Studie (Straub 2012) als wichtige Kompetenz für Fachübersetzer gesehen.

4 Online-Umfrage zu Anforderungen von Auftraggebern an Fachübersetzer

Um die Anforderungen von Auftraggebern an Fachübersetzer im Bereich Technische Dokumentation besser einschätzen zu können und den Stellenwert, den Auftraggeber der Fachkompetenz von Fachübersetzern beimessen, zu überprüfen, wurden im Oktober 2012 in einer nicht repräsentativen Online-Umfrage Auftraggeber aus unterschiedlichen Branchen befragt. Ziel der Umfrage war es, möglichst viele Auftraggeber 1. Ordnung aus unterschiedlichen Bereichen anzusprechen, um ein breites Spektrum zu erfassen, da Übersetzungsaufträge aus sehr unterschiedlichen Abteilungen von Unternehmen vergeben werden können.

4.1 Methode

In der Umfrage wurden die Teilnehmer anhand einer offenen (Frage 1) und drei geschlossener Fragen mit vorgegebenen Antwortmöglichkeiten (Frage 2 bis 4) zu ihrer Branche und Position sowie zu den ihrer Meinung nach erforderlichen Kenntnissen und Qualifikationen von Fachübersetzern befragt. Die Umfrage sollte explorativen Charakter haben und war bewusst sehr kurz gehalten, um potenzielle Teilnehmer nicht durch einen langen Fragebogen abzuschrecken. Sie wurde im Oktober 2012 im Sozialen Netzwerk Xing in den Gruppen „Solar", „Fördertechnik & Lagertechnik", „Maschinen- und Anlagenbau", „Technische Dokumentation" und „Medizintechnik" gestartet, da in diesen Gruppen eine hohe Zahl an Auftraggebern 1. Ordnung im Bereich Technische Dokumentation vermutet wurde.[15] Die genaue Zahl der potenziellen Probanden ist wegen der schwankenden Mitgliederzahl in den Gruppen nicht eindeutig feststellbar, liegt jedoch wahrscheinlich bei mehreren Hundert. Aus diesem Grund kann die Rücklaufquote des Fragebogens nicht berechnet werden. Die Umfrage wurde ausschließlich in deutschsprachigen Gruppen veröffentlicht, da sie sich auf den deutschsprachigen Raum beziehen sollte. Trotz des bewusst sehr niedrigschwelligen Zugangs (Online-Zugriffsmöglichkeit, Kürze und Einfachheit des Fragebogens) und der hohen Zahl an potenziellen Teilnehmern nahmen nur 28 Auftraggeber aus dem deutschsprachigen Raum teil, sodass die Ergebnisse der Umfrage nicht repräsentativ sind und aus ihnen keine generellen Schlüsse gezogen werden können, sondern höchstens ein Trend abgelesen werden kann. Die Ergebnisse wurden deskriptiv-quantitativ mithilfe der Software SPSS ausgewertet. Drei Mitglieder der Gruppe „Technische Dokumentation" gaben an, nicht an der Umfrage teilnehmen zu wollen, da sie ihre Wünsche an die Kenntnisse und Qualifikationen von Fachübersetzern lieber als Fließtext formulieren wollten. Diese drei Einzelstatements ergänzen die Ergebnisse zu Frage 3 in Abschnitt 4.2.

4.2 Ergebnisse

Bei der ersten Frage des Online-Fragebogens („In welcher Branche sind Sie tätig?") konnten die Befragten ohne Vorgaben angeben, zu welcher Branche ihr Unternehmen gehört. 20 Teilnehmer beantworteten diese Frage. Trotz der niedrigen Zahl der Befragten konnte ein breites Spektrum an Branchen erfasst werden, sodass zumindest in diesem Punkt eines der Ziele der Umfrage erreicht wurde, auch wenn die Umfrage insgesamt nicht repräsentativ ist. Genannt

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[15] Die Umfrage wurde mit dem Tool „Umfrage Online" erstellt und war vom 4.10.2012 bis 30.10.2012 im sozialen Netzwerk Xing zugänglich.

wurden die Branchen Maschinenbau (5x), Übersetzungsdienstleistungen (2x), Metallverarbeitung/metallverarbeitende Industrie (2x), Dentalindustrie (2x), Technische Dokumentation (2x)[16], Beratung (1x), Abgastechnik (1x), Verbände (1x), Dienstleistung (1x), Software (1x), Maschinenhandel (1x) sowie Anlagenbau (1x). Da nur zwei der Befragten angeben, dass sie im Bereich Übersetzungsdienstleistungen tätig seien, kann davon ausgegangen werden, dass es sich bei den übrigen Befragten um Auftraggeber 1. Ordnung handelt.

Bei der zweiten Frage („In welcher Position sind Sie in Ihrem Unternehmen tätig?") wurde den Befragten eine Liste mit 8 Items vorgelegt. Die Befragten konnten zwischen den Antworten „Einkauf", „Marketing/Vertrieb/Export", „Geschäftsführung", „Technische Dokumentation/Technische Redaktion"[17], „Forschung/Entwicklung/Projektmanagement", „Übersetzung/Softwarelokalisierung", „Selbstständig" (z. B. selbstständige Technische Redakteure) und „Andere" wählen. Ein Befragter beantwortete diese Frage nicht. Von den 27 Befragten, die geantwortet haben, gab über die Hälfte an, in der Technischen Dokumentation/Technischen Redaktion (10 Teilnehmer) oder im Marketing/Vertrieb/Export (6 Teilnehmer) tätig zu sein, der Rest nannte als Position Selbstständig (6 Teilnehmer), Geschäftsführung (2 Teilnehmer), Übersetzung/Softwarelokalisierung (1 Teilnehmer) bzw. Andere (2 Teilnehmer).

Keiner der Befragten kommt aus dem Bereich Einkauf, obwohl erfahrungsgemäß viele Übersetzungsaufträge über die Einkaufsabteilungen von Unternehmen abgewickelt werden (vgl. Straub 2012). Ebenso ist keiner der Befragten im Bereich Forschung/Entwicklung/Projektmanagement tätig. Ein Grund dafür könnte die Zusammensetzung der ausgewählten Xing-Gruppen sein, da sich diese mit inhaltlichen Themen der jeweiligen Branchen beschäftigen und daher möglicherweise nur wenige Mitglieder aus dem Einkaufsbereich bzw. dem Projektmanagement kommen.

Bei der dritten Frage wurde den Befragten eine Liste mit Kenntnissen von Fachübersetzern gezeigt, deren Wichtigkeit sie von sehr wichtig (1) bis gar nicht wichtig (4) beurteilen sollten (vgl. Abb. 2). Neben der für diesen Beitrag relevanten Frage nach der Wichtigkeit von Fachkenntnissen beispielsweise im Vergleich zu Sprachkompetenz, interkultureller Kompetenz, Berufspraxis und Kenntnissen im Projektmanagement und der Technischen Redaktion wurde nach weiteren Kenntnissen gefragt, deren Beherrschung für Auftraggeber bedeutsam sein könnte, wie beispielsweise Kenntnisse im Terminologiemanagement oder die Beherrschung von Translation-Memory-Systemen und anderen Tools. Diese Frage wurde von insgesamt 23 Befragten beantwortet.

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[16] Es dürfte sich dabei um selbstständige Dienstleister für Technische Dokumentation handeln.

[17] Bei dieser Frage handelt es sich um unternehmensinterne Abteilungen für Technische Dokumentation.

Tab. 2: Relevanz verschiedener Kenntnisse von Fachübersetzern (Auswertung der Frage 3: Wie wichtig finden Sie die folgenden Kenntnisse für Fachübersetzer?)

	sehr wichtig (1)	wichtig (2)	weniger wichtig (3)	gar nicht wichtig (4)	Mittel-wert Ø	SD	VK	n
Hohe Sprach-kompetenz (mut-tersprachliches Niveau)	71,43 %	28,57 %	–	–	1,29	0,46	35,65	n=21
Fachkenntnisse	80,95 %	19,05 %	–	–	1,19	0,4	33,61	n=21
Translation Memo-ry Systeme (z. B. Trados, Across …)	55,00 %	20,00 %	20,00 %	5,00 %	1,75	0,96	54,85	n=20
Terminologie-management	57,14 %	38,10 %	4,76 %	–	1,48	0,60	40,54	n=21
Interkulturelle Kompetenz	19,05 %	47,62 %	19,05 %	14,29 %	2,29	0,95	41,48	n=21
Technische Redaktion	15,00 %	50,00 %	30,00 %	5,00 %	2,25	0,78	34,66	n=20
DTP-Programme	11,76 %	23,53 %	47,06 %	17,68 %	2,71	0,91	33,57	n=17
Maschinelle Übersetzung	5,55 %	16,66 %	22,22 %	55,55 %	3,28	0,95	28,96	n=18
Office-Programme (Word, Excel, PowerPoint)	42,86 %	33,33 %	23,08 %	–	1,81	0,81	44,75	n=21
Projektmanagement	28,57 %	42,86 %	23,81 %	4,76 %	2,05	0,86	41,95	n=21
Berufspraxis	33,33 %	52,38 %	9,52 %	4,76 %	1,86	0,79	42,47	n=21

Nach dem Mittelwert der Relevanz geordnet ergibt sich für die verschiedenen Teilkompeten-zen folgende Reihenfolge:
1. Fachkenntnisse (1,19)
2. Sprachkompetenz (1,29)
3. Terminologiemanagement (1,48)
4. Translation-Memory-Systeme (1,75)
5. Office-Programme (1,81)
6. Berufspraxis (1,86)
7. Projektmanagement (2,05)
8. Technische Redaktion (2,25)
9. Interkulturelle Kompetenz (2,29)
10. DTP-Programme (2,71)
11. Maschinelle Übersetzung (3,28)

Für die Befragten rangieren Fachkenntnisse des Übersetzers mit einem Mittelwert von 1,19 noch vor der Sprachkompetenz (1,29), gleich darauf folgen Kenntnisse in Terminologiemanagement (1,48) und erst danach Kenntnisse in Translation-Memory-Systemen (1,75) und Office-Programmen (1,81). Die Standardabweichung beträgt für die Fachkenntnisse 0,4 (Variationskoeffizient 33,61 %) und ist damit etwas niedriger als bei der Sprachkompetenz (Standardabweichung 0,46 und Variationskoeffizient 35,65 %). Es kann daher davon ausgegangen werden, dass die Fachkompetenz von Fachübersetzern auch für die Teilnehmer dieser Umfrage von sehr hoher Bedeutung ist, wodurch die Ergebnisse von Görs (2012) und Straub (2012) bestätigt werden, auch wenn die Zahl der Antworten nur gering ist und demnach kein Anspruch auf Allgemeingültigkeit erhoben werden kann.

Ein ähnlich hoher Stellenwert wird der Fachkompetenz auch in zwei der drei Einzelstatements zugesprochen. Neben der hohen Bedeutung von Fachkenntnissen wird in den drei Einzelstatements die Wichtigkeit einer hohen Flexibilität, Zuverlässigkeit und eines hohen Qualitätsbewusstseins der Fachübersetzer sowie guter Kenntnisse der Abläufe in der Technischen Redaktion betont, also insgesamt auf einen professionellen Umgang mit den Auftraggebern Wert gelegt. Diese Einzelstatements ergänzen damit die Ergebnisse der Umfragen von Görs (2012) und der tekom (Straub 2012) (vgl. Abschnitt 3) sowie der Auswertung der Frage 3 der im vorliegenden Beitrag präsentierten Umfrage, in denen sich die Fachkompetenz als eine der zentralen Kompetenzen von Fachübersetzern herauskristallisiert hat, die von Auftraggebern gewünscht wird.

Bemerkenswert ist in diesem Zusammenhang, dass auch die beiden Befragten aus der Branche „Übersetzungsdienstleistungen", die als Auftraggeber 2. Ordnung eingestuft wurden, die Fachkompetenz von Fachübersetzern als „sehr wichtig" bewerten und ihr eine ebenso hohe Bedeutung beimessen wie der Beherrschung von Translation-Memory-Systemen, die zu einer höheren Produktivität und damit zu einer Zeit- und Geldersparnis beitragen können. Überraschend ist, dass die Berufspraxis insgesamt lediglich den sechsten Platz einnimmt. Möglicherweise haben einige der Befragten die Erfahrung gemacht, dass auch eine lange Erfahrung des Fachübersetzers nicht gleichbedeutend mit einer hohen Qualität der angefertigten Übersetzungen ist.

Bei der vierten Frage ging es darum, welche Qualifikationen sich die Befragten von Fachübersetzern wünschen („Welche Ausbildung sollten Ihrer Meinung nach Fachübersetzer haben?"). Dabei wurde ihnen eine Liste mit 7 Items vorgelegt. Zur Wahl standen:

* „B. A. Übersetzen (mit Prüfung im Sachfach, z. B. Technik, Jura, Medizin)"
* „M. A./Diplom Übersetzen (mit Prüfung im Sachfach, z. B. Technik, Jura, Medizin)"
* „B. Sc./B. Ing. (z. B. Maschinenbau, Elektrotechnik, Informatik) + Sprachkenntnisse"
* „M. Sc./M. Ing./Diplom (z. B. Maschinenbau, Elektrotechnik, Informatik) + Sprachkenntnisse"
* „Hochschulabschluss (B. A. oder M. A.) in einem kombinierten Studiengang (z. B. 50 % Fachübersetzen/50 % Ingenieurwissenschaften)"
* „anderer Abschluss, z. B. FremdsprachenkorrespondentIn, IHK-Prüfung[18], kaufmännische oder technische Ausbildung"
* „Abschluss ist nicht wichtig"

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[18]   Von den deutschen Industrie- und Handelskammern angebotene Prüfung zum Geprüften Übersetzer.

Kombinierte Studiengänge aus Übersetzungswissenschaft und einem intensiven Studium im Sachfach (50 %/50 %) sind bisher in Deutschland sehr selten.[19] Im Hinblick auf die große Bedeutung, die die Befragten der Fachkompetenz von Fachübersetzern beimessen, ist es interessant herauszufinden, ob sie solche kombinierten Studiengänge für Fachübersetzer gegenüber reinen übersetzungswissenschaftlichen oder ingenieurwissenschaftlichen Studiengängen bevorzugen. Ebenso ist es interessant zu erfahren, ob die Befragten für Fachübersetzer überhaupt einen akademischen Abschluss bevorzugen oder ob ihnen eine andere Qualifikation, beispielsweise in Form einer IHK-Prüfung, ausreicht. Diese Frage wurde von 20 Befragten beantwortet (vgl. Abb. 1).

Abb. 1: Gewünschte Qualifikation von Fachübersetzern

Frage 4: Welche Ausbildung sollten Ihrer Meinung nach Fachübersetzer haben? (n=20)

B.A. Übersetzen: 10%
Abschluss egal: 35%
M.A./Dipl. Übers.: 20%
B.Sc./B.Ing.: 5%
M.Sc./M.Ing./ Dipl. Ing.: 5%
Kombistudiengang: 20%
and. Abschluss: 5%
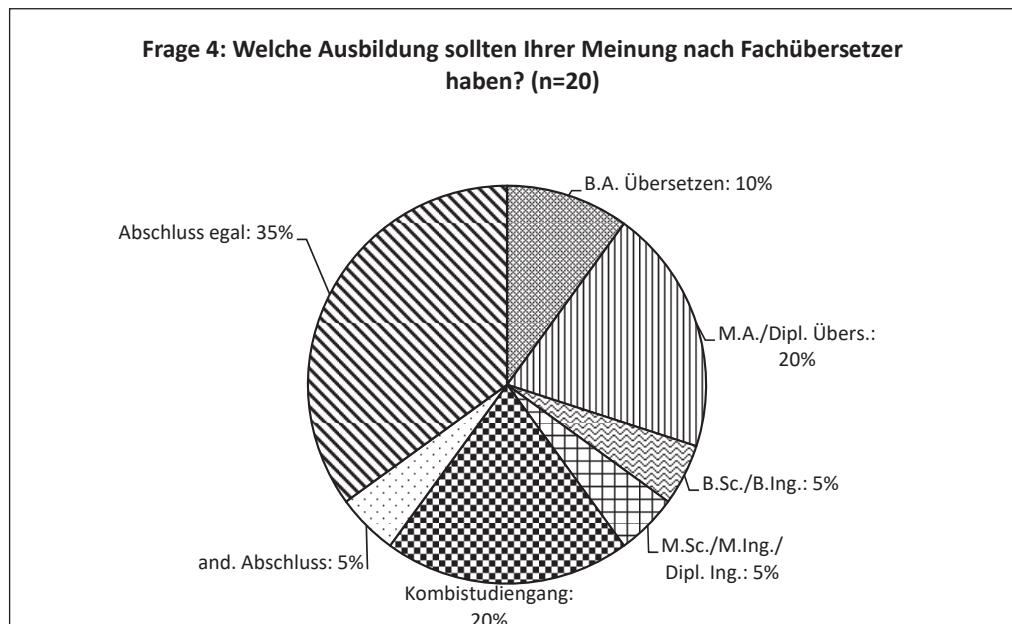
Die Antworten der Befragten auf diese Frage ergeben kein einheitliches Bild. 35 % (bzw. 7) der Teilnehmer gaben an, dass ihnen ein formaler Abschluss nicht wichtig sei. Nur 1 Teilnehmer (5 %) meinte, dass auch eine nichtakademische Ausbildung, z. B. als Fremdsprachenkorrespondentin, als Qualifikation für einen Fachübersetzer ausreiche. Immerhin 60 % (12) der Befragten legten Wert auf einen universitären Abschluss, wobei keine der angebotenen Varianten eindeutig bevorzugt wurde. Jeweils 20 % (4) der Befragten entschieden sich dabei für einen M. A./Diplom in einem übersetzungsbezogenen Studiengang oder für einen B. A./M. A. in einem kombinierten Studiengang aus Übersetzungs- und Ingenieurwissenschaften. 10 % (2) stimmten für einen B. A. in einem übersetzungsbezogenen Studiengang und jeweils 5 % (1) bevorzugten Quereinsteiger mit einem B. Sc./B. Ing. oder M. Sc./M. Ing./Diplom in einem Sachfach mit entsprechenden Sprachkenntnissen. Das heißt, dass 50 % der Befragten auf eine übersetzungswissenschaftliche Ausbildung der Fachübersetzer Wert legen. Durch den insbe-

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19   Beispielsweise gibt es an der Universität Heidelberg die Möglichkeit, einen B. A. in „Translation Studies for Information Technologies" zu erwerben.

sondere bei dieser Frage sehr geringen Umfang der Stichprobe können die Antworten jedoch nur exemplarisch gewertet werden.

Die Ergebnisse der Fragen 3 und 4 scheinen sich zu widersprechen: Trotz der hohen Bedeutung, die sie der Fachkompetenz für Fachübersetzer beimessen, ist die Hälfte der Befragten der Meinung, dass Fachübersetzer (nur) eine übersetzungswissenschaftliche Ausbildung benötigen. Nur 2 der 20 Befragten bevorzugen Quereinsteiger aus anderen Fächern mit zusätzlichen Sprachkenntnissen. Auch ein kombinierter Studiengang aus Übersetzungswissenschaft und Ingenieurwissenschaften wird nicht eindeutig präferiert, stößt aber mit 20 % Zustimmung auf Interesse. Möglicherweise lassen sich diese Ergebnisse so interpretieren, dass den Befragten eine fundierte übersetzungswissenschaftliche Ausbildung der Fachübersetzer wichtig ist, jedoch innerhalb dieser Studiengänge starkes Gewicht auf die Fachkompetenz gelegt werden sollte. Bemerkenswert ist auch der relativ hohe Anteil (35 %) derjenigen Befragten, für die ein formaler Abschluss für Fachübersetzer überhaupt keine Bedeutung hat.

5 Employability und Fachkompetenz

Ausgangspunkt für diesen Beitrag war die Feststellung, dass viele Fachübersetzer nicht in der Lage sind, auf dem freien Markt langfristig ein adäquates Einkommen zu erzielen, und dass somit die „Employability" dieser Berufsgruppe relativ gering ist. Im Vergleich zu anderen ähnlich strukturierten Berufsgruppen erzielen sie im Durchschnitt ein wesentlich geringeres Einkommen, ebenso verhält es sich im Vergleich mit Technischen Redakteuren, die sich zwar von Fachübersetzern hinsichtlich Akademisierungsgrad und Anteil an Selbstständigen unterscheiden, jedoch ein sehr ähnliches Berufsbild aufweisen. Anhand der unterschiedlichen Anforderungen an Fachübersetzer und an Technische Redakteure in der internationalen Norm DIN EN 82079-1 und dem entsprechenden Normenkommentar (Fritz 2013) kann außerdem vermutet werden, dass Technische Redakteure über ein positiveres Image verfügen und von Auftraggebern eher als Experten eingeschätzt werden als Fachübersetzer. Dieses Ergebnis überrascht nicht, da in vielen Fällen Technische Redakteure die Auftraggeber von Übersetzungsdienstleistern sind, die möglicherweise ihre eigenen Kompetenzen höher einschätzen als die von Fachübersetzern.

Laut Schmitt (1999) ist die Fachkompetenz eine zentrale Anforderung von Auftraggebern an Fachübersetzer. Um diese Vermutung zu überprüfen, sollte getestet werden, ob Auftraggeber der Fachkompetenz von Fachübersetzern tatsächlich eine hohe Bedeutung zumessen. Dazu wurde die vorliegende, nicht repräsentative Online-Umfrage durchgeführt. Zwar ist die Stichprobe dieser Umfrage nur sehr gering, die Tendenz der Antworten stützt jedoch die Hypothese: Auch bei den Teilnehmern dieser Umfrage rangieren die erwarteten Fachkenntnisse von Fachübersetzern an erster Stelle.

Wenn man die Tendenzen der drei Umfragen (Görs 2012, Straub 2012 und die vorliegende Online-Umfrage) zu den Erwartungen von Auftraggebern im Bereich technische Dokumentation an Fachübersetzer betrachtet, so kann man feststellen, dass viele dieser befragten Auftraggeber sich offensichtlich Fachübersetzer mit ausgeprägten Fachkenntnissen und einer übersetzungswissenschaftlichen Ausbildung wünschen. Daneben erwarten sie ein hohes Maß an sprachlicher Kompetenz, solide Kenntnisse in Terminologiearbeit, einen professionellen Umgang mit dem Kunden sowie ein hohes Qualitäts- und Verantwortungsbewusstsein. In allen drei Umfragen erklären die befragten Auftraggeber deutlich, dass für sie die Fachkompetenz des Fachübersetzers eine zentrale Rolle spielt.

Eine höhere Fachkompetenz könnte daher möglicherweise zu einer Verbesserung des Images von Fachübersetzern und somit auch zu einer Verbesserung ihrer Arbeitssituation beitragen. Wilss erklärt dazu:

> Das Fachwissen ist die Instanz, die darüber entscheidet, wie und mit welchem Effizienzgrad ein Fachübersetzer einen bestimmten (domainspezifischen) Übersetzungsauftrag in Angriff nimmt und zum Abschluss bringt. […] Je mehr (domainspezifisches) Wissen der Übersetzer im Laufe seines Berufslebens ansammelt, desto souveräner wird das dialektische, gleichzeitig rückbezügliche Spiel (vorausweisend zum Zieltext), desto sicherer wird er auch im Auftreten seinem Arbeitgeber/Kunden gegenüber und kann ihm vielleicht auch eher klarmachen, dass es nicht damit getan ist, dass er übersetzt, ‚was da steht'. (Wilss 2007: 117)

Ausgewiesenes Fachwissen des Fachübersetzers kann also dazu beitragen, die Position gegenüber dem Auftraggeber zu stärken. Möglicherweise führt eine höhere Fachkompetenz langfristig auch dazu, dass Fachübersetzer von Auftraggebern genauso als Experten wie Technische Redakteure eingestuft werden.

Eine Möglichkeit, auf dem stark umkämpften und fragmentierten Übersetzermarkt ein adäquates Auskommen zu erreichen, könnte also zum einen höhere Fachkompetenz und damit einhergehend eine stärkere Spezialisierung von Fachübersetzern sein,[20] zum anderen eine deutlichere Positionierung von Fachübersetzern als Fachexperten in der Lebenswelt der Auftraggeber (vgl. Oehmig 2012, Durban 2010, Schwarz 2013). Die universitären Ausbildungsstätten können Fachübersetzer dabei unterstützen, indem der Aufbau einer praxisrelevanten Fachkompetenz nicht dem Zufall überlassen wird, sondern systematisch auf die Entwicklungen der übersetzungsrelevanten Branchen abgestimmt wird. Des Weiteren könnten die universitären Ausbildungsstätten stärker als bisher auf die Fachkompetenz als grundlegende Kompetenz von Fachübersetzern hinweisen (beispielsweise in ihrem Informationsmaterial) und so darauf hinwirken, dass sich mehr Studierende mit einem großen Interesse an technischen Zusammenhängen für ein übersetzungswissenschaftliches Studium entscheiden (vgl. Ahmann 2012). Auch die übrigen Anforderungen der Auftraggeber an Fachübersetzer, wie hohe Sprachkompetenz sowie Kenntnisse in Terminologiemanagement und Translation-Memory-Systemen, sollten weiterhin bei den Überlegungen zu universitären Curricula einbezogen werden. Eine starke Spezialisierung von Fachübersetzern, eine systematische und tiefe Behandlung der Sachfächer in der Ausbildung, ein möglichst hoher Anteil technikinteressierter Studierender sowie ein Bewusstsein für die weiteren Anforderungen von Auftraggebern an Fachübersetzer können hoffentlich dazu beitragen, dass Fachübersetzer langfristig von Auftraggebern als Experten wahrgenommen und entsprechend honoriert werden.

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[20]   Die Möglichkeiten zur Spezialisierung hängen von den Arbeitssprachen ab. Bei seltenen Arbeitssprachen ist eine starke Spezialisierung häufig nicht möglich.

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Targeted writing instruction for professional translators: How does it affect the translators' translation products and decision-making processes?

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Abstract This paper reports on an exploratory study into the effects of targeted writing instruction on the translation products and decision-making processes of professional translators. A pretest–posttest experimental design was used, in which five professional translators were trained in writing instructive texts in their L1 (Dutch). In the pretest and posttest, the translators were asked to translate into Dutch a Spanish user manual of a household appliance. The transfer of the writing-instruction information to the translation task was examined by means of product and process analyses. The analyses suggest that overall the professionals took into account many elements from the writing instruction in the translation process. However, the types and number of writing-instruction elements that they used in their translation products differed considerably among the professionals, as did the quality of their translation products. The writing instruction nonetheless seems to improve the professionals' genre knowledge and their target-audience awareness. Moreover, it seems to lead to fewer style- and genre-related translation errors and appears to deepen reflection. Targeted writing instruction could therefore be interesting to include in in-service training for professional translators or for other language specialists, especially to familiarize them with new text genres.

Keywords writing instruction, translation education, rich points, translation product, translation process, decision-making

1 Introduction

Should translators be able to write a text? This seemingly rhetorical question is a rather platitudinous way to start a paper. However, it is important to state the obvious in an age when the perception of the essence of the profession of translation is sometimes clouded by major technological advancements such as machine translation. Then again, is the question indeed a rhetorical question? Should translators actually be able to write texts? An affirmative answer seems plausible when one views translation as part of the superordinate category of text production (as argued by Dam-Jensen/Heine 2013) or, in the case of technical translation, as a subset of technical communication and, consequently, of specialized communication (as argued by Schubert 2012). Following this line of thought, translation and writing are not believed to be "watertight compartments, but poles on a continuum" (Schubert 2012: 125) and, as such, they may overlap not only in terms of professional activities but also with regard to their processes and the skills they build upon.

The belief in the necessity of writing skills for translators is shared by many translation scholars. Although most translation-competence models (e. g. Kelly 2005, Göpferich 2009, PACTE 2011) do not explicitly refer to writing skills, they (implicitly) include text-production competence in the target language (TL). Knowing how to write a text in the TL seems to be imperative given the final step in the process of translation, which can be roughly represented

as an iterative and recursive three-step sequence of source-text (ST) interpretation, transfer and target-text (TT) production. The competence of knowing how to write a text may also be useful for solving translation problems that can occur during the first two steps in the translation-process sequence: ST interpretation and transfer. Newmark (1988: 17) already expressed this belief nearly three decades ago by stating that "all translation problems finally resolve themselves into problems of how to write well in the target language". When translators encounter, for example, a ST segment that they do not fully understand, they can fall back on their writing skills to produce a TT segment that sounds natural in the TL and that is coherent with the content that comes before and after it in the TT even though this TT segment may not completely or accurately capture what the ST states. Research by Carl/Dragsted (2012) into parallel and sequential processing in translation has also recently provided limited empirical evidence that translation problems, defined as the re-reading of ST or TT passages, are mostly triggered by production problems instead of ST-interpretation problems.

Professional translators and representatives of the translation market also generally acknowledge the importance of writing skills, as the following examples demonstrate. In a survey conducted by the American Translators Association (ATA), many professional translators consider general and, to a lesser degree, technical writing skills the most highly ranked core skills that translators must master (ATA 2011 reported in Koby/Melby 2013). Fluent writing skills not only feature in job advertisements for translation-related positions today, as Bowker (2004) has shown, but are also believed to be fundamental for translators in the future (DGT 2011). The fact that translators cannot do without writing competence has become evident in the evolution of the translation profession, especially in the domain of technical communication. The European EN 15038 standard regarding translation service quality has pinpointed technical writing as one of the added-value services that can be offered by translation service providers. In addition, Gnecchi et al. (2008) have shown that the roles of translators and technical communicators are increasingly converging in the North American and European markets. In a follow-up survey, Gnecchi et al. (2011) confirmed these results, but also highlighted that, whereas the role of the translator in North America is expanding by incorporating activities previously carried out by technical writers, many European translators in fact migrate into the technical communication profession.

If we answer the question "Should translators be able to write texts?" affirmatively, the following question ensues: "*Are* translators able to write texts?" To our knowledge, there is little to no empirical evidence to suggest that translators are *not* able to write texts. This may not come as a surprise, since the EMT model of translation competence states that one of the learning objectives of translation training programmes should be that graduates know "how to compose a document in accordance with the conventions of the genre and rhetorical standards" and know "how to draft, rephrase, restructure, condense, and post-edit rapidly and well (in languages A and B)" (EMT expert group 2009: 6). This model serves as a guideline for MA programmes in translation. The question as to whether translators are able to write texts may, therefore, be unusual, since it calls into question the efficacy of the programmes that have educated today's professional translators and will train tomorrow's translators.

Nonetheless, the question as to whether translators are able to write texts seems pertinent for at least two reasons. First, there is a lack of writing instruction and/or training in some translation-studies programmes (Göpferich 2004). Although undergraduate-level translator training usually includes L2 writing instruction, deliberate practice in L1 writing is generally absent. Courses, in either L1 or L2 writing, are even more difficult to find in MA curricula.

Merkle (2010) tries to explain this phenomenon by referring to what Kelly (2005: 115) describes as a myth, that is, that translation students' language competence, and thus their writing competence, is generally taken for granted. Second, it is stated in a report issued by the Directorate-General of Translation of the European Commission (DGT 2011: 5), which summarizes the conclusions of a symposium on translator profile, that representatives of translation-studies programmes claim that their students' writing skills have deteriorated over the last ten years. Thus, if we consider the discrepancy between the learning objective related to writing competence and the educational means offered to acquire that competence, it might be possible that some translation graduates are not able to write texts successfully, let alone technical texts. If we go back to the previously discussed expansion of tasks demanded from technical translators, this inability might be disastrous for graduates aspiring to specialize in technical translation. Byrne points out that, to meet the quality standards required of technical translation today,

> a translator needs to be trained as a technical writer – someone who has been trained to understand issues such as usability, information design, instructional design and communication theory. Unfortunately, these are not typically things which are taught to translators because they were never really a part of their job (Byrne 2010: 25).

Risku (2004) has shown that translators who migrated to technical writing and/or usability indeed felt not adequately prepared for target-group analysis, content selection and writing in their own words.

Let us assume for the sake of argument and based on the reasoning above that the writing competence of recently graduated translators is not sufficient to meet the requirements of the translation market. In that case, the most logical step to take would be to incorporate (more) general and technical writing training into translation curricula. This is precisely what a fairly limited number of translator-training programmes have done in recent years: to name a few examples, the BA "Traduction et Rédaction" at the Université du Québec en Outaouais (Merkle 2010); the module "Technical writing for translators" in the MA "Translation Studies" at the University of Portsmouth[1]; the module "Français, redaction technique" in the MA "Translation Studies" at Institut Libre Marie Haps in Brussels[2]. But the question is: what will the writing instruction or training for translators lead to? It will most likely enhance the translators' writing competence, but how will it influence their translation performance? Will it positively influence the quality of their translation products? Will it change the manner in which translators organize their translation processes?

Few empirical studies have addressed the effect of writing instruction or training on translation performance. Schrijver et al. (2014, 2015) have shown that L1 genre-specific writing instruction led to a more critical stance towards ST coherence among BA-level translation students, as well as to an increased focus on and compliance with TL genre conventions. However, the students' transfer of the knowledge acquired during writing instruction to their translation contexts was partial, since the students applied this knowledge only at the macro-textual

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[1]   Source: Programme specification of the MA Translation Studies 2014 at the University of Portsmouth, 16. 01. 2015 <http://psd.docstore.port.ac.uk/C0680F.pdf>.

[2]   Source: Programme specification of MA in Translation at Institut Marie Haps, 16. 01. 2015 <http://www.vinci.be/fr-be/mariehaps/Pages/ListeCours.aspx?formation=Master%20en%20 traduction&cat=Long&lang=fr>.

(i. e., suprasentential) level of the TT. Moreover, the writing instruction did not undoubtedly prove to have a beneficial effect on the overall translation quality, although the number of genre-related translation errors decreased significantly. Since the students who participated in this study were still in the process of acquiring translation competence, Schrijver et al. (2015) suggest that working-memory capacity might have been insufficient to tackle the problems posed by the translation task and, at the same time, to relate all acquired writing knowledge to those problems and/or to use it for problem-solving. Integration of writing knowledge into the students' problem-solving behaviour appeared to be more problematic for the students at the micro-textual (i. e., subsentential) level than at macro-textual level. When confronted with non-chronological information structure at the macro-textual level, most students split up the problem-solving task by first translating the sentence and then changing the text order. However, students did not seem able to use the same strategy to solve similar problems at the micro-textual level, perhaps because they had to solve more issues simultaneously: linguistic issues (e. g. structure of the main and subordinate clauses, and choice of the right illocutionary indicator) as well as coherence issues.

If writing instruction has a beneficial effect on translation students' translation products and processes, how will it influence professional translators' performance? After all, translation education not only encompasses the undergraduate and graduate levels, but also concerns refresher courses or in-service training targeted at professional translators. The European EN 15038 standard (EN 15038 2006) emphasizes the importance of life-long learning for professional translators. If writing instruction indeed proves to have a positive effect on professional translators' translation products and processes, it might be an interesting idea to include writing instruction in professional translators' refresher courses or in-service training to optimize their performance or to help familiarize them with new text genres. It may also be of interest to language professionals who already have experience with specialized language but would like to optimize their writing performance for different audiences (e. g. laypeople instead of professionals) or within genres that they are less familiar with.

The present article will therefore follow the line of research initiated by Schrijver et al. (2014) and will present the results of an exploratory, quasi-experimental study of a similar design among professional translators. The term 'professional translator' has been used in different ways in translation research. It usually refers to people who earn their living translating, who form a relatively heterogeneous group given the differences in qualifications, as well as length, intensity and type of work experience. The heterogeneity of the group of professional translators is further increased because some group members have specialized in particular fields or domains (e. g. legal translation, technical translation), while other group members are generalists. The term 'professional translator' is also frequently used as a synonym for 'expert translator'. However, professional translators can be experts but they need not necessarily be characterized by "consistently superior performance" (Shreve 2002 in line with what has been expressed by Ericsson/Charness 1997). In fact, professional translators do not necessarily produce higher-quality translations than translation students, as a number of process studies (e. g. Jääskeläinen 1999) have shown. Hence, translation competence does not equal translation expertise, although it can evolve into expertise through deliberate long-term practice, informative feedback and non-routine tasks (Shreve 2002). To refer to professional translators who do not meet the criterion of expertise, Jääskeläinen (2010: 218) proposes the term *experienced professionals*.

In the present study, we use the following definition of *professional translators*: anyone who has a master's degree in translation and for whom translating is the main source of income. This definition allows us to explore the effect of writing instruction in those who meet the criteria of both translation qualifications and professional experience, but who are not necessarily experts. Since they have had formal translation training as well as professional experience (and thus a larger episodic memory to tap into, as pointed out by Shreve [2002: 157]), it is nonetheless likely that these participants have automatized certain translation processes (e. g. Jääskeläinen/Tirkkonen-Condit 1991), which the undergraduate translation students in the study by Schrijver et al. (2014, 2015) had not. Examples of such translation processes are ST interpretation and certain standard transfer operations such as avoiding false friends (Jääskeläinen 2010). Due to this presumed automaticity of certain processes, more cognitive resources might be available for the transfer and use of acquired writing knowledge in the translation process. In turn, this might lead to a more extensive use of writing-instruction information in the translation process. The degree of automaticity will be even higher among those professional translators who exhibit "consistently superior performance" in the translation of the text genre under investigation.

2 Research questions and methods

This exploratory study aims to formulate answers to the following two research questions:
1. What effect does writing instruction have on professional translators' translation products?
2. How does writing instruction influence professional translators' decision-making processes?

To answer these questions, we conducted a controlled intervention study, which involved a classic pretest–posttest quasi-experimental design. In this design, five professional translators received a two-and-a-half-hour instructional session, in which they were taught how to write and edit instructive texts in their L1 (Dutch).

2.1 Participants

Five professional translators participated in this exploratory study, 3 females and 2 males (average age = 36.4 years; *SD* = 9.86), who were contacted through the online registry of members of the Belgian Chamber of Translators and Interpreters[3] and through the primary author's network of professional contacts.

The participants were all native speakers of Dutch with master's degrees in translation. Two participants were bilingual and had graduated from translation-studies programmes in Flanders, with Dutch as the L1 in the programmes. They all had more than five years of experience as professional translators working from Spanish into Dutch (average = 9 years, 3 months; *SD* = 4 years, 9 months), four of them as freelance translators and one as an in-house translator at an insurance agency. The thematic domains and translation modalities they specialized in were diverse, but they all had in common that their experience with translating user manuals was limited. This can be explained by the lack of demand for translation of this text genre in the

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3   16. 01. 2015 <http://www.cbti-bkvt.org/en>.

language combination Spanish–Dutch. The two translators who did mention technical translation as their translation specialization elaborated that the text genres they translated did not include user manuals. All five professional translators rarely wrote texts in their professional activities or in their spare time, but the few text genres they occasionally wrote were not of an instructive nature. The participants had not had any formal writing education either. By selecting translators with limited experience in translating user manuals and no actual writing experience or education, we were able to examine whether writing instruction could be helpful to prepare professional translators for a new text genre.

2.2 Materials[4]

At the start of the experiment, the participants received a paper copy of the ST together with a written translation brief. The brief instructed the participants to translate the Spanish ST into Dutch in compliance with the quality requirements of user manuals in Dutch (e. g. text conventions, comprehensibility, readability, consistency) without providing any additional information on what the requirements entailed specifically.

The STs used in this experiment were two original Spanish user manuals of approximately 250 words, describing the uses of a fabric shaver and a turnspit oven respectively. The former was found on the Spanish company's website,[5] whereas the latter was selected from a corpus of original Spanish user manuals composed by Murcia Bielsa (1999). The STs had also been used in the study by Schrijver et al. (2014). In that study, translation students were asked to translate four Spanish user manuals, of which they considered the fabric shaver and turnspit oven STs the most difficult to translate. Moreover, no statistically significant difference could be found between these two STs in terms of the students' general satisfaction with the translation product or the number of translation errors made. This suggests that both STs have a high, yet similar, degree of complexity, which determined our decision to use them in the present study.

In the STs, a number of rich points, which the PACTE research group describes as "specific source-text segments that contain translation problems" (PACTE 2011: 37) were defined. The problems can be of a linguistic, textual and extra-linguistic nature, but can also be related to pragmatic factors, such as specific characteristics of the TT readers, ST intentionality and/ or specific requirements stipulated in the translation brief. The fourteen rich points selected in each of the STs used for this study were assumed to cause primarily text-production problems, created by textual problems as well as problems relating to the translation brief and/or TT reader. A panel of three experts in the field of technical writing and translation analyzed the selection of rich points and agreed that a literal translation of the rich points would yield lexically and syntactically acceptable TTs, but would go against text TL conventions, as well as TT readers' expectations and needs. In other words, the rich points required transediting (Stetting 1989, Schrijver/van Vaerenbergh/van Waes 2012) for the translation to comply with the translation-brief stipulations. The selected rich points were examples of instances in the

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4   All materials used in this study (e. g. source texts, detailed overview of rich points, questionnaires) can be consulted on www.writingpro.eu (search for Iris Schrijver).

5   This source text can be found on the following website: 01. 07. 2015 <http://www.solac.com/Solac/detalleProductos.do?menu=productos&page=detalleProductos&identificadorarea=c83269533d8ddd429071e59dd2ac4dc8&area=HOGAR&subarea=QUITAPELUSAS&item=f8e5f5214b650e43879a3ae5ce61ad1f&areaPadre=c83269533d8ddd429071e59dd2ac4dc8&idioma=es_ES>.

translation process when literal translation no longer suffices and writing competence seems to come into play. Consequently, they allowed us to investigate how writing instruction may influence translation performance.

The fourteen rich points were located below and above sentence level in various ST segments and concerned different textual features. They were categorized as follows: titles, information structure, illocutionary indicators and terminology. We will illustrate the rich-point types by discussing a number of examples.

2.2.1 Titles

Each ST contained two title-related rich points, since the titles in the STs represented two problems: (1) the titles were not formulated in a consistent manner, (2) not all of the titles were formulated from the user's point of view. For example: the fabric-shaver ST contained two content sections, entitled *Funcionamiento* ('Functioning') and *Mantener el quitapelusas* ('Maintaining the fabric shaver'). Steehouder (2008: 108) states that, given the selective and scanning manner in which users read instruction manuals, it is important to formulate titles in such a way that users can easily and swiftly retrieve the information that they are looking for, for example by using consistently formulated titles. Byrne (2010) recommends using verbs in headings or phrasing headings as questions to enforce the action-driven function of titles. Steehouder (2008: 110) states similar conventions for titles in Dutch user manuals: Titles ought to contain an action verb and an object in Dutch. If we take into consideration these criteria, possible translation solutions for the ST titles mentioned above are: *De ontpluizer gebruiken* ('To use the fabric shaver') and *De ontpluizer onderhouden* ('To maintain the fabric shaver').

2.2.2 Information structure

The STs contained several coherence problems, which were primarily caused by the non-chronological order in which information was given to the readers. Chronological information structure is fundamental in user manuals (Steehouder 2008: 108), especially given the reading habits of most users, who usually perform the instruction that they have read before moving on to the next instruction (Byrne 2012: 181). Therefore, Byrne (2012: 181) advises the translator to rearrange the order of individual steps in a set of instructions when the ST sequence is not logical or not chronological. This is, for instance, the case with the warning *No limpiar cuando el aparato esté todavía caliente* ('Do not clean the oven when it is still warm'). This warning should come before or at least at the beginning of the various instruction steps that provide information about cleaning the device. However, the warning is featured in the ST *after* all of the instructions. Each ST contained two rich points of this type.

The importance of chronological information order also has to be applied at and below sentence level (micro-textual level; two rich points in the ST). For example, the fabric-shaver ST features the following sentence: *Antes de insertar las pilas, debe asegurarse que el interruptor de funcionamiento del aparato está en posición de apagado* ('Before inserting the batteries, you must ensure that the operating switch of the device is in the off position'). The prepositional phrase starting with *antes de* indicates that the action described in the main clause should be carried out *before* inserting the batteries. It is preferable to switch these subordinate and main clauses around in the TT to give the information in the order in which the reader needs it (Göpferich 2010: 45).

2.2.3 Illocutionary indicators

Another problem that typically arises in the translation of instructive texts in general, and user manuals in particular, are the linguistic forms used to express the instructions. In Spanish, the most frequently used illocutionary indicators are the infinitive, the imperative, the verb *deber* ('must') in personal or impersonal form and the future tense in the passive voice (Gamero/ Öster 1999). However, the imperative is the preferable form in Dutch, followed by the infinitive and, only in certain circumstances, the passive voice, as stated by Steehouder (2008: 115 f.). Byrne (2012: 146) and Göpferich (2010: 48) agree that in instructive texts, it is preferable to speak directly to the users, by using direct, active language instead of passive sentences, which can be unnecessarily long and confusing. Following this line of thought, many of the Spanish illocutionary indicators in the STs had to be transedited by an imperative to yield acceptable Dutch TTs (in total seven rich points of this type).

2.2.4 Terminology

Steehouder (2008: 258) highlights the importance of using terminology that is understandable for and familiar to the users. In addition, Byrne (2012: 145) advises translators to use terminology consistently throughout the instructive TT to enforce its communicative function, because synonyms for the same concept may cause confusion. In the STs used in this study, terminology use was sometimes inconsistent and imprecise due to the use of synonyms or hypernyms (e. g. alternate use of *device* and *fabric shaver*). In light of the translation brief, the inconsistent terminology use (one rich point in the ST) had to be corrected in the Dutch TT.

2.3 Design and procedure

This study was organized as a within-subject design. In this section, we will briefly describe the design and procedure of the various experimental sessions.

2.3.1 Pretest

The participants took part individually in the pretest, which took place in the Antwerp Humanities Lab (AnHuLab) experiment room at the University of Antwerp. They were asked to translate the Spanish fabric shaver ST (250 words) into Dutch in MS Word and were given 60 minutes to do so. The participants were allowed to use the Internet and electronic (monolingual and bilingual) dictionaries. The researcher was not present in the experiment room where the participants produced their translations. She observed the translation process via screen recording on a computer in an adjacent observation room. During observation, she highlighted a number of interesting moments in the translation process (e. g. long pauses, revisions, translation of rich points), which she replayed and discussed with the participants after the translation task.

Process data of the translation task were collected using the keystroke-logging software Inputlog (Leijten/van Waes 2013). This collection method is unobtrusive and does not disturb or interfere in the cognitive problem-solving processes taking place during the translation process. Inputlog registers and stores all keystroke and mouse actions (in a Windows environment) during a particular task, as well as their distribution across time. This enabled us to

investigate how the TTs were created in real-time. Screen recording was used to complement the Inputlog data with visual input of the screen activity. The participants were also asked, immediately after having completed the translation task, to fill out a 7-point Likert-scale questionnaire, which measured their level of agreement or disagreement with five statements. These statements concerned the translators' satisfaction with their translation products, as well as difficulties related to ST interpretation, to TT formulation, to the assessment of TT requirements and to the translation task as a whole. The questionnaire also contained three open questions about how the translators had gone about the translation task, which quality requirements they had taken into account during the translation process and what their opinion was of the quality of ST content and formulation. Subsequently, a cued retrospective interview was conducted to obtain qualitative information about a number of interesting instances in the translation process, such as the translation of rich points. The replay of the screen recording served as stimulated recall for the participants' memories (similar to the method used and discussed by Hansen 2006). During the retrospective interview, the researcher alternated between questions about particular rich points and questions about other issues. This was done in an attempt not to direct the participants' attention to the rich points. We acknowledge that retrospection might elicit a (small) learning effect, since it could trigger participants to reflect more explicitly upon their performance (cf. Bowles 2010). However, the study by Schrijver et al. (2014) among students showed that in similar conditions (with two weeks in between the test moments) no learning effects could be detected. Although this does not guarantee a similar outcome in the present study, we deemed a learning effect unlikely, since the translation task of the pretest was only one of the many translation assignments that professional translators had to complete that week (or even that day), in contrast to students for whom each translation task can be considered a more pronounced learning event given the considerably lower amount of translation work that students complete. The data collected did not reveal or hint at any learning effects caused by the retrospective interview either (e. g. comments in the questionnaire referring to the pretest translation process and to the retrospective interview).

2.3.2 Treatment

Three to seven weeks after the pretest (depending on participant availability for the pretest), the participants were given a joint, two-and-a-half-hour writing instruction session. The instruction took place in the computer lab at the University of Antwerp. It was made explicitly clear to the participants that the instruction was exclusively aimed at writing instructional texts in Dutch, and that, consequently, no links would be made with languages other than Dutch or with translation practice.

The writing instruction consisted of an interactive lecture, in which the instructor and participants discussed the main characteristics, components and functions of user manuals. Moreover, the instructor and participants explored how users read, interact with and use these texts, and how writers take into consideration linguistic, pragmatic and rhetorical issues when drafting such texts. Questions, brainstorming, editing and writing exercises were used to actively involve the participants in how they could strive for the optimal content, structure, formulation and visual design of instructive texts. The texts used and created during these exercises were derived from authentic didactic materials[6] and had been previously used in the

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[6]   These materials had been based on exercises developed by Joyce Karreman (University of Twente), an

study reported on by Schrijver et al. (2014). The texts did not concern devices that were the objects of the STs used in the experiment. This decision was consciously taken to avoid a one-to-one correspondence between the writing instruction and the translation tasks.

Given the limited duration of the instruction, four important features were addressed: (1) titles, (2) the sequence of instruction steps, (3) action–reaction information and (4) warnings in user manuals. With regard to titles, the participants were asked to analyze, compare and improve two tables of contents. In this exercise, peer feedback and group discussion were used to examine how writers accommodate the selective, scanning and action-driven reading manners of users in the formulation of titles. The participants also explored how they could optimize the usability and readability of instructions by breaking down the instructions into action sequences of various steps and by formulating these steps from a reader's perspective, using imperatives as well as unambiguous and consistent terminology. A number of Dutch excerpts were used to stimulate the participants' critical reflection about possible pitfalls in the information order of action sequences and in the combination of individual steps. Moreover, the participants were asked to write an instructional text based on a linear, prose-like text. This exercise allowed for deliberate focus on information structure, action-driven formulation of instructions, specific and unambiguous formulation, as well as the visual design of instructions (i. e., using bullet points or action–reaction schematics). In relation to the action sequences, the participants were also taught how to integrate action–reaction information into the instructional steps. This type of information enables users to verify whether they have carried out the various steps correctly, but it also serves as a motivation to continue reading. The importance of warnings in user manuals, their placement in the texts, either as a separate section or as part of an action sequence, was discussed with the participants by means of a number of textual examples. To conclude the writing instruction, the participants were asked to write a set of instructions based on a video clip that teaches viewers how to create a bamboo plant.[7] This exercise, which has been used in previous research (Lindgren/Leijten/van Waes 2011), integrated all previously addressed issues regarding titles, the sequence of instruction steps, effect–result information and warnings. The instructor provided individual feedback on the participants' written texts and ended the writing instruction by summarizing the primary pitfalls as well as good solutions in the writing exercise.

2.3.3 Posttest

Fifteen minutes after the writing instruction, the participants took part in a posttest in the same computer lab where they had received the writing instruction. The setup of this posttest resembled that of the pretest: an instructive ST (in this case a text about a turnspit oven) was used of similar length, difficulty, content and rich points as the ST in the pretest, and the same translation brief was used. Moreover, the participants had Internet and the same electronic dictionaries at their disposal, as was the case in the pretest. The time restriction of one hour

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expert in usability, as well as on a course developed at the University of Antwerp (de Meyer, Fleur et al. [2010]: *Calliope. Instructieve Teksten.* 26.01.2015 <http://www.calliope.be/dutch/html/topic_0C088C2F-4331-4127-85BC-9FC4DEE8D861_9E48C765-6C79-46A3-A7B1-BDD0BF3C9AA8_1.htm>).

[7]   This videoclip can be found on the following webpage: <http://www.calliope.be/dutch/html/topic_17B3F25F-A45B-4193-9228-6717992546   B9_5FC8183D-CB0A-4604-8FCE-9D14D89B2BDD_1.htm> (01.07.2015).

was also maintained. Participants were not allowed to consult the writing instruction materials during the translation task.

The data-collection methods used during the posttest entailed computer keystroke logging. To obtain information about the translators' decision-making processes, we asked them to fill out a questionnaire after completion of the translation task. Unfortunately, the use of cued retrospective interviews was not possible, since all participants took part simultaneously in the posttest. The posttest questionnaire was slightly longer than the questionnaire used in the pretest. It contained the 7-point Likert-scale statements and open process-related questions that were featured in the pretest questionnaire. However, the posttest also included two open questions about which writing-instruction elements the translator had used and had deliberately decided *not* to use in the translation task. In addition, the posttest questionnaire contained several 7-point Likert-scale statements about the use and usefulness of the information discussed in the writing instruction. To give a few examples: The translators had to state their levels of agreement or disagreement with statements such as "I have used the information from the writing instruction while revising", "My customers' requirements and expectations do not allow me to apply the information in my professional translation practice", "The information from the writing session is difficult to apply in professional translation practice due to the translation software that I must use".

2.4 Data analysis

We analyzed the translations of the rich points as well as the overall quality of the translation products to examine what elements from the writing instruction the participants had taken into account while producing the translations. The quality of the translation of every rich point was assessed on the basis of the genre conventions discussed in Section 2.2 (in particular those valid for Dutch user manuals, as discussed by Steehouder 2008, which are based on professional best practices and extensive usability testing). If the translation of a rich point complied with the genre conventions, it was considered a correct (i. e., genre-appropriate) translation. Moreover, correct translations also implied that the participant had learned something from the writing instruction and had taken it into account while producing the translations, because many of the translation problems posed by the rich points could be solved by implementing information received during the writing instruction. The total number of correctly translated rich points in the pretest and posttest were compared at the level of rich-point type to ascertain changes from pretest to posttest. In addition, we analyzed the keystroke-logging data for each of the correctly translated rich points in the posttest to verify whether the translators had used writing-instruction information for the rich points immediately (i. e., a genre-appropriate translation being the first translation solution visible in the log file) or whether they had used it later on in the translation process (i. e., as a revision). Since the rich points did not cover all the elements discussed in the writing instruction (e. g. visual-design elements, action–reaction information), we also carried out a textual analysis of the TTs to find any salient ST deviations in both formulation and structure. The shifts observed in the TTs of the pretest and posttest were compared systematically for each participant to verify whether a potential change in general translation method (e. g. from literal translation to a freer translation) and changes in type of shifts (e. g. lexical, syntactical, textual deviations) had taken place after the writing instruction. We subsequently combined the results of these two analyses to establish what kind of writing-training elements that the participants had taken into account while producing the translations.

The translation products were assessed by two trained raters, one being the first author of this contribution and the other an external rater. Both raters analytically assessed the translations using an error-based scheme, which comprised four error categories:

- category A: ST interpretation and TL formulation errors that hinder the understanding of the ST content by the target audience;
- category B: translation choices that violate idiomatic and stylistic preferences in the TL;
- category C: errors against TL genre conventions;
- category D: language-system errors in TL, such as grammar, spelling and punctuation errors.

The fact that one of the raters was aware of the research conditions may be considered problematic. However, we feel that this concern is partially alleviated by the satisfactory interrater reliability that was obtained for most of the error categories. The interrater reliability for the total number of translation errors was .995 for the pretest scores and .984 for the posttest scores (calculated using the Intra-Class Coefficient; one-way, consistency, single measures). The interrater reliability for the four error categories was above .77, except for error categories A and B in the pretest, which obtained lower agreement rates of .50 and .47 respectively. In light of these data on interrater reliability, we used the mean of the two raters' assessment scores in the data analysis. Given the limited number of participants (n = 5) and the absence of a control group in this exploratory study, no statistical tests were carried out on the data concerning the quality of the rich points or the overall product.

The analysis of the translation processes focused on the reasoning and motivation behind the (lack of) use of writing-instruction information in the translation task. For this qualitative analysis, we contrastively analyzed the questionnaires that were filled out in both the pretest and the posttest to reveal changes in task knowledge (i. e., knowledge of the characteristics of the commissioned TT). We also analyzed the data provided by the retrospective interviews, which had been collected only in the pretest. They allowed us to verify not only whether the professionals already showed awareness of certain translation problems *before* the writing instruction, but also whether the criteria of their problem-solving behaviour regarding certain translation problems had changed (as expressed in the posttest questionnaires). In particular, we checked if the participants' answers to the question "Which information from the writing instruction did you use in the translation task; and which did you deliberately decide not to use?" in the posttest questionnaire were reflected in their translation products. We also analyzed the keystroke-logging data: to gain insight into how information from the writing instruction had been used for the translation of the rich points, we analyzed for each correct translation solution of a rich point that was visible in the final product whether the translation constituted the first translation solution or not, and how many times the translation for that rich point had been revised in the translation process. To detect potential differences between the pretest and posttest in terms of process organization, revision and pausing behaviour, we also analyzed the pausing data as well as the process graphs generated automatically by Inputlog. In these graphs, we focused on the process line, which shows the number of characters produced (including deletions), the product line, which reveals the actual document length, and the cursor line, which shows the position of the cursor in the text (cf. Leijten et al. 2014: 298 for more information).

3 Results and discussion

In this section, we will present the findings to answer the research questions formulated in section 2. Section 3.1 contains a general overview of the effects on the translation products of all five professional translators. Section 3.2 addresses the effect of writing instruction on decision-making processes. In Section 3.3, we will discuss which factors may influence the transfer of writing-instruction information to a translation task, and consequently the usefulness of writing instruction for professional translators.

3.1 The effects of the writing instruction on the translation product

From the textual analysis of the translation products, we cannot deduce that the writing instruction inspired a radical change in translation method (i. e., general translation approach [free vs literal]) among the participants. However, the writing instruction appeared to help them to detect (and to solve) specific translation problems better and to pay more attention to particular TT features (such as TT formatting and visual design). This became particularly clear in the analyses of the translations of the rich points in the pretest and the posttest. Table 1 shows the percentage of rich points translated correctly (i. e., in a genre-appropriate manner) on average as well as the standard deviation (*SD*).[8] The number of rich points that each rich-point category consists of is mentioned in between brackets after the title of the category.

Table 1: Percentage of rich points translated correctly in the pretest and posttest

Rich-point categories	% Pretest (SD)	% Posttest (SD)
Titles action-driven (1)	0 (0)	20 (45)
Titles consistency (1)	20 (45)	60 (55)
Information structure Micro (2)	80 (27)	90 (22)
Information structure Macro (2)	0 (0)	50 (50)
Illocutionary indicators (7)	69 (23)	71 (17)
Terminology (1)	60 (55)	80 (45)
All – categories	**38 (19)**	**62 (27)**
All – rich points (14)	**51 (18)**	**67 (21)**

Table 1 shows that the participants translated 51 % of all rich points correctly in the pretest and 67 % in the posttest. If we draw a general picture based on a calculation in which all six rich-point categories are weighted equally, there is an increase from 38 % in the pretest to 62 % in the posttest. This increase seems to suggest that the participants took into account a large number of writing-instruction elements in their translation processes. The data for the

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[8]   The data for each subcategory in table 1 were calculated on the basis of the mean percentage of correct translation solutions for each participant within that category. Since the rich-point categories consisted of a different number of rich points, the total percentage of rich points translated correctly (All) was calculated in two ways: (1) on the basis of the mean percentage for all rich points independent of the rich-point category; (2) on the basis of the mean percentage of correctly translated rich points in each rich-point subcategory.

rich-point categories also seem to suggest that the translators' attention for certain features changed after receiving the writing instruction. In the pretest, the participants' relatively successful performance concerned mainly the linguistic micro-textual level, since the translation quality was highest among the rich points represented by illocutionary indicators and micro-information structure (although less distinctively so for terminology, given the high standard deviation). Yet, in the posttest, the participants also appeared to become slightly more attentive to macro-textual features, such as the formulation of titles in a consistent manner, as well as chronological macro-information structure.[9] What did not seem to transfer particularly well from the writing instruction to the translation task was the action-driven formulation of titles. None of the participants used action verbs and objects for the titles in the pretest, and only one participant did so in the posttest.

On the basis of these relative data, we could argue that there is a transfer of information from the writing instruction to the translation task. However, it is important to interpret these results with caution, not only given the exploratory nature of this study but also because the extent to which the individual participants (i. e., professional translators) applied information from the writing instruction to their translation tasks varied considerably. The inter-individual differences at a global level (All) seem to be somewhat limited, given the relatively small standard deviations. Indeed, four out of five translators improved in terms of the total number of correctly translated rich points, although the individual improvement rates differed. However, the inter-individual differences are larger with regard to the rich-point categories that represent macro-textual features, such as Titles consistency and Information structure Macro. Increased attention to macro-textual features seems to be characteristic of three participants only. These three translators were also those who took into account most of the writing instruction elements in their translation products and translated most rich points in a genre-appropriate fashion. Interestingly, the three professional translators also paid more attention to text layout and design after the writing instruction, as could be observed in their introduction of bullet points, different font styles and warning signs into the TTs produced in the posttest. The other two translators seemed to be less aware of the macro-textual features. For one of them, the translation product (and the posttest questionnaire) did not contain any indicators to suggest awareness of the translation problems posed by the non-chronological suprasentential content structure. However, the other participant did appear to have noticed a certain translation problem: although she did not change the ST content structure in the TL, she did introduce Dutch warning signs (*Let op* – 'Beware') in bold prior to two TT sentences that did not follow the chronological content structure. Another indicator of translation-problem awareness might be that the same participant stated – in the posttest questionnaire – that the ST was incoherent on some occasions. These two participants also appeared to have trouble applying what they had learned about the formulation of titles in the writing instruction. They translated the first two section headers of the posttest ST in a consistent manner, but failed to do so for the third section header. It remains unclear what caused this inconsistent approach and partial transfer of writing instruction information.

The writing instruction seemed to have a relatively larger beneficial effect on the quality of the translation products. As shown in table 2, the total number of errors that were made on average (i. e., sum of errors produced by all translators divided by 5) decreased considerably from pretest to posttest. It went from 31.2 errors in the pretest to 19.9 errors in the posttest,

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[9]   This result could also be observed in research related to translation students (Schrijver et al. 2014).

which amounts to an average decrease of 36 %. This is a result observable across all translators. The writing instruction seems to have had most effect on style- and genre-related errors (categories B and C), which all professionals committed less frequently in the posttest (i. e., decreases of 72 % and 36 % respectively). More variation among the translators could be found with regard to content (category A) and linguistic (category D) errors. Two of the five translators committed those errors less frequently in the posttest. Interestingly, it was the three professional translators who took into account the most writing-instruction elements who committed slightly more content (category A) and linguistic (category D) errors in the posttest than in the pretest, although they still improved in terms of overall score.

Table 2: Translation quality assessment

Error categories	Average number of errors	
	Pretest (SD)	*Posttest (SD)*
Category A: contents	2.4 (2.1)	4.8 (1.8)
Category B: idioms and style	13.7 (2.3)	3.9 (2.0)
Category C: genre conventions	12.1 (3.1)	7.7 (3.6)
Category D: grammar, spelling and punctuation	3.0 (1.2)	3.5 (2.6)
All	**31.2 (6.8)**	**19.9 (3.9)**

3.2 The effects of the writing instruction on the decision-making process

Triangulation of the comments made during the retrospective interviews, the answers in the pretest and posttest questionnaires and the translation solutions visible in the translation products suggests that the writing instruction may have influenced the professional translators' decision-making processes in three respects.

- First, the writing instruction seems to have provided the professional translators with more detailed knowledge of the characteristics of quality user manuals and, consequently, of the translation task at hand. In the pretest, the professional translators manifested rather general, linguistically focused genre knowledge during the retrospective interview. Moreover, most translators mentioned two to three criteria when they were asked in the pretest questionnaire which TT quality criteria they had taken into account during the translation process: the use of imperatives in Dutch (as one of them stated "you should say 'do this, do that'"), natural sounding sentences that are not too "stiff" or "bombastic" and the use of standard Dutch instead of Flemish linguistic variants. In the posttest questionnaire, the translators answered the same question in a more detailed manner, referring to specific textual components: consistently using imperatives, avoiding synonyms, striving for conciseness and clarity, using unambiguous and motivating titles, and clearly explaining and visualizing the steps that users have to carry out. The considerable decrease in genre-related translation errors (i. e., category C) as well as the transediting of rich points further supports this finding. This increased task knowledge may have broadened the array of factors that the professional translators took into account while translating the STs.
- Second, the writing instruction appears to have stimulated the professional translators to consider 'the bigger picture' during the translation task. More specifically, it seems to make them take into account the target readers and the readers' interaction

with the TT more consciously in their translation processes. In the pretest, the retrospective interviews and the answers to the open questions in the questionnaires did not contain any indicators to suggest that the target readers played any specific role in the professionals' decision-making processes. In contrast, four out of five translators stated in the posttest questionnaire that they had taken on the users' point of view in their translation tasks in response to the question "Which elements from the writing instruction did you use in your translation task?". Even the two professional translators whose translation products did not reflect a considerable transfer of writing-instruction information to the translation task referred to an increased focus on the target audience. This pattern seems to be confirmed by the average level of agreement on the posttest questionnaire statement "The writing training has stimulated me to pay more attention to the target readers while translating": 6.2 on a scale of 7 (*SD* = .84). The new or increased focus on the end users was also observed in the product data. The writing instruction seems to have helped to extend the translators' awareness of linguistic, stylistic aspects to pragmatic non-linguistic elements, as can be deduced from the change in ST titles and paragraph order, as well as the adaptation of the visual design of the ST in the posttest. The previously mentioned user perspective also seems to have influenced the linguistic formulation of the TT, as can be deduced from the important decrease in stylistic translation errors (i. e., category B). In fact, even the two professional translators who took into account relatively few writing-instruction elements while producing their translations improved considerably in this area, making fewer errors related to both non-idiomatic phrases and inconsistent terminology in the TL. Nonetheless, it is difficult to establish how the writing instruction actually influenced the professionals' translation of terminology, because this rich-point category consisted of only one rich point. Moreover, three out of four translators who translated the rich point correctly in the posttest had done so in the pretest as well. Furthermore, these translators had also elaborated during the retrospective interviews in the pretest on having tried to use clear and consistent terminology throughout the TT.

- Third, the writing instruction seems to have yielded a more critical stance on ST quality. In the pretest, no translator voiced any criticism about the quality of the content, structure or formulation of the ST when answering an open question about this issue in the questionnaire. In contrast, four out of five translators expressed several concerns about ST quality when answering the same question in the posttest questionnaire. This criticism was mostly directed at the chronological content structure of the ST.

The three aspects mentioned above suggest that the professionals' reflection had deepened after the writing training. Another indicator that seems to support this interpretation can be found in the keystroke-logging data. These data showed that the professionals pausing behaviour changed slightly from pretest to posttest, becoming more focused. Their mean process time decreased from 54 min 2 sec (*SD* = 13 min 39 sec) to 43 min 14 sec (*SD* = 18 min 48 sec). Their mean pause length (calculated on the basis of pause ≥ 2 sec) slightly increased from 6.5 sec (*SD* = 1.0 sec) to 6.7 sec (*SD* = 0.9 sec), although the number of pauses and the total pause time decreased. The number of pauses (calculated on the basis of pause ≥ 2 sec) decreased from 194 (*SD* = 40) to 150 (*SD* = 80). The total pause time (calculated on the basis of pause ≥ 2 sec) decreased from 21 min 15 sec (*SD* = 7 min 2 sec) to 16 min 31 sec (*SD* = 7 min

27 sec). Given the decrease in mean process time, this implies that the relative time dedicated to pausing stayed approximately the same (i. e., 36 % of total process time in the pretest and 38 % in the posttest). Taking into account that the proportion of pausing time is similar for the pretest and the posttest, we contend that there is a shift in the manner in which the professionals reflect on certain issues. Since the product data have shown that the participants translated the rich points slightly different and the questionnaires have shown that they reflected more in detail about the rich points, the change in reflection is probably related to the integration of the writing training information in the translation task.

Finally, the product data have shown that the amount of writing-instruction information that the five translators took into account while translating varied considerably. Yet, the manner in which they used this information seemed quite similar. All translators assigned a high level of agreement to statements in the posttest questionnaire that expressed that they had used information from the writing instruction in various phases of the translation process: while reading the ST, but also when formulating the TT and revising the translation.[10] It is difficult to check the reliability of these data, since we did not use any methods that directly tapped into the translators' cognitive processes. However, these data can be partially confirmed by the keystroke-logging data, at least with regard to the phases of TT formulation and revision. The log-file data showed that when the professional translators took into account writing instruction information and produced genre-appropriate translation solutions for the rich points they did so immediately in most cases. Two translators did so always, whereas the other three did so in respectively 85 %, 86 % and 92 % of the cases. From the keystroke-logging data, we were also able to deduce that the translators revised on average 14.3 % (SD = 20.2) of all rich points in the pretest, whereas this percentage was 10 % (SD = 6.4) in the posttest. These data seem to confirm that the professionals indeed used information from the writing instruction while formulating the TT. It does not provide evidence that the participants used the information for revision. However, a comparison of the pretest and posttest process graphs suggests that the writing-instruction information may have influenced the translators' revision behaviour too. This was most visible in the process data of the translator who translated most rich points correctly in her translation task. Figures 1 and 2 contain the process graphs from the pretest and the posttest for this translator. In these graphs, the beginning of the final revision phase is circled and starts at the point where the number of characters of the TT (visualized by the product line; the process line represents the number of characters produced) maintains stable. A comparison of these two graphs reveals that, compared with the pretest, the final revision phase in the posttest was relatively much longer in duration (12 minutes vs. 4 minutes, amounting to 40 % and 13 % respectively of the total process time). Moreover, the cursor-position movements (visualized by the dotted line) were much more erratic in the posttest, not only in the formulation phase but also in the final revision phase. Since the translator went back and forth in the TT (during her final revision) considerably more often, there seemed to have been more than one revision episode in the posttest.

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[10]   While the scores attributed to the statements differed between the five translators, each translator assigned the same score in the pretest and in the posttest to each of the three statements.

Figure 1: Process graph pretest
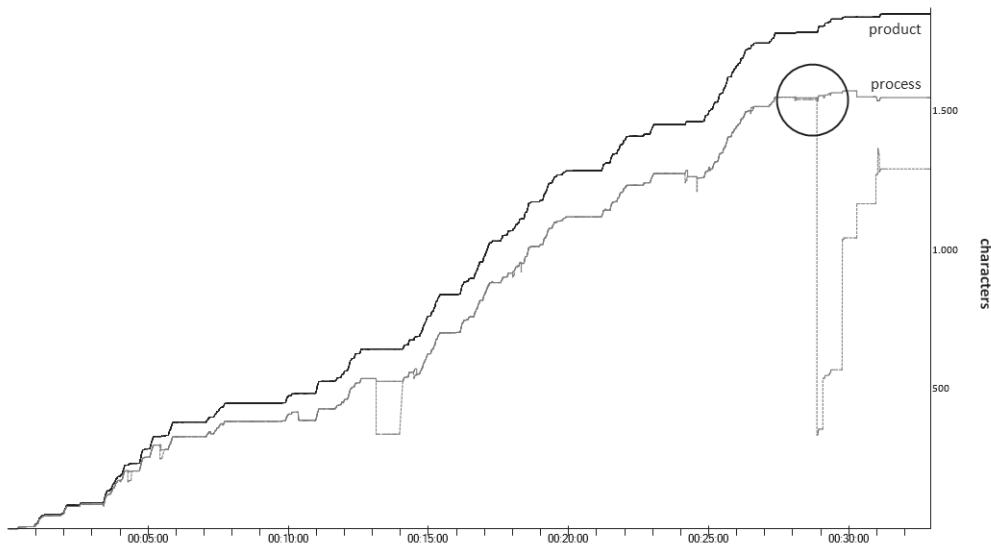
Figure 2: Process graph posttest
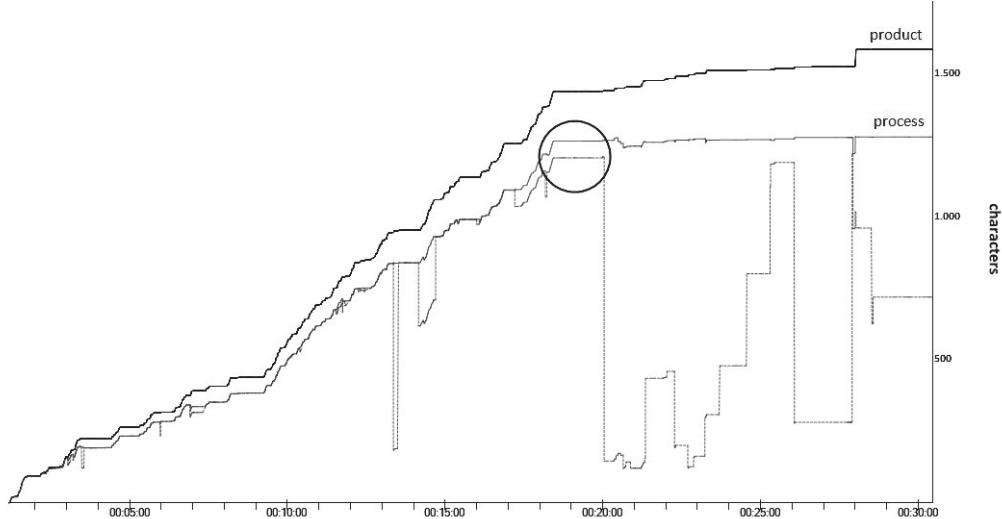
3.3 Factors influencing the transfer of writing instruction
to translation task

The decrease in translation errors, the heightened attention to TT function and to target readers, as well as the broadened genre knowledge may suggest that the professional translators in this study benefited from writing instruction. However, they did not all appear to do so in an equal fashion: while four out of five participants took into account many elements from the

writing instruction in their translation tasks, one did not follow this general pattern. This raises the question: what are some of the factors that may influence this (lack of) transfer?

The lack of sufficient retention and internalization of the acquired writing-instruction information seems to have been an important factor that influenced transfer to the translation task. Retention of the information provided during the writing instruction seemed to be particularly problematic for the translator who incorporated the fewest instruction elements. Although retention was not explicitly tested, her succinct and vague answers to questions about the quality requirements of user manuals and about the deliberate use or avoidance of writing-instruction elements in the translation task indicated little retention. The other four translators mentioned more writing-instruction elements in the posttest questionnaires, but did not refer to elements related to those rich points that they did not translate correctly either. This too hints at partial retention. Since the posttest immediately followed the writing instruction, the translators might not have had sufficient time to internalize all the information provided during the writing instruction. To increase the potential usefulness of writing instruction for translators, it is warranted to provide sufficient time for deliberate practice and knowledge retention.

A second factor that might negatively influence transfer from one context to another is cognitive overload. Some data in the current study suggest that for the professional translator who hardly made any use of writing-instruction elements in her posttest, a lack of available cognitive resources may indeed have played a role. She expressed in the posttest questionnaire and to the researcher after the experimental session that she had tried to "apply what we had previously learned", but that problematic ST interpretation had hindered her from implementing more elements in her translation and "thinking about the user" and using imperatives. Moreover, her responses to the questionnaire statements about the difficulty of ST interpretation, TT production and overall task difficulty showed that she had experienced the task as rather difficult.[11] In contrast, three of the other four translators reported similar or higher levels for TT production and overall task difficulty (although lower levels for ST-interpretation difficulty),[12] but still managed to transfer more writing-instruction information to their translation tasks than her. The contrasting data make it difficult to prove or disprove the interpretation that cognitive overload might have had an impact on transfer of information from the writing instruction to the translation task. In follow-up research, it might be necessary to integrate additional data-collection methods, such as eye-tracking (measuring pupil dilation, for example; cf. Seeber 2013), to assess changes in cognitive load and the potential role of cognitive overload in information transfer from one context to another.

A third factor that may influence transfer of writing instruction information to the translation task might be the translators' adaptiveness or flexibility to apply newly acquired information (or knowledge) to solve a familiar task. The ability and willingness to adapt core competences and routine problem-solving behaviour to new settings may differ among individuals, as has been suggested in research on transfer of learning (e. g. Schwartz/Bransford/Sears 2005). The perceived merit of 'going out of your comfort zone' may influence the willingness

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[11] The levels of agreement for this professional translator on the posttest questionnaire statements concerning ST-interpretation difficulty, TT-production difficulty and overall task difficulty were 6, 4 and 4 respectively (on a scale of 7).

[12] The average levels of agreement to statements concerning ST-interpretation difficulty, TT-production difficulty and overall task difficulty were 3.3 (*1.2*), 4.3 (*0.6*) and 5 (*1.0*) respectively (on a scale of 7).

to change: when professionals consider it highly unlikely that they can and will use the writing information in their professional translation practices, for example, as a result of customer reluctance or even refusal, and/or software limitations imposed by translation memories, this may negatively affect transfer. Although the translators' answers to related questions in the posttest questionnaire did not provide conclusive evidence to support this interpretation in this study, this factor ought to be examined more in detail in future studies to assess if and how writing instruction can benefit professional translators.

4 Conclusion

In the introduction to this paper, we quite provocatively posed the question whether translators need writing skills and, if so, whether they actually have those skills since many of them do not receive any writing instruction during their studies. We did so to pave the way for the main topic: the effect of writing instruction on translation performance. The results of the present study suggest that writing instruction can positively influence professionals' translation products and decision-making processes. Overall, the translators in this exploratory study applied a reasonable number of writing-instruction elements in their translation processes. However, the type and amount of writing information that the individual translators applied differed considerably. Nonetheless, writing instruction seemed to have a positive effect on the professional translators' genre knowledge, as well as on their awareness of the needs and expectations of the target audience. Writing instruction also appeared to have a positive effect on translation quality, since the professionals committed fewer style- and genre-related translation errors.

Especially in light of the limited duration of the writing instruction (two-and-a-half hours), these results are quite promising and suggest that writing instruction might indeed be beneficial for professional translators (and by extension, for other language professionals), not only to familiarize themselves with new text genres but also to understand why text genres are composed in certain manners and how users read and process such texts. However, we have to treat these results with caution: the present study was of an exploratory nature and did not examine writing instruction in comparison to other types of learning activities or conditions (such as providing specific translation briefs) to improve translation performance. More research is necessary to confirm the results reported here and future studies would do well to include a control group (who receives no writing instruction), more participants, participants of various competence levels, other text genres, as well as texts in which literal translation suffices.

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Definition frames as language-dependent models of knowledge transfer

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Abstract Definitions are an important means of structuring knowledge in a domain. We explore definitions in the domain of karstology from a cross-language perspective with the aim of comparing the cognitive frames underlying defining strategies in Croatian and English. The experiment involved the semi-automatic extraction of definition candidates from our corpora, manual selection of valid examples, identification of functional units and semantic annotation with conceptual categories and relations. Our results comply with related frame-based approaches in that they clearly demonstrate the multidimensionality of concepts and the key factors affecting the choice of defining strategy, e. g. concept category, its place in the conceptual system of the domain and the communicative setting. Our approach extends related work by applying the frame-based view on a new language pair and a new domain, and by performing a more detailed semantic analysis. The most interesting finding, however, regards the cross-language comparison; it seems that definition frames are language- and/or culture-specific in that certain conceptual structures may exist in one language but not the other. These results imply that a cross-linguistic analysis of conceptual structures is an essential step in the construction of knowledge bases, ontologies and other domain representations.

Keywords definitions, frame-based terminology, karstology, cross-language comparison, definition types, defining strategies, English-Croatian corpus

1 Introduction

"Any scientific research in any field of study strives to establish a maximum of certainty and control in the field of categorization." (Andersen 2007: 3)

Definitions represent the core of conceptual structuring in a domain. According to the Aristotelian scholastic principle concepts must be categorised into classes and definitions represent the formal link between the concept (*definiendum*), its parent concept (*genus*) and the differentiating set of properties, allowing its assignment into a particular class (*differentia*). In the general theory of terminology (GTT; Wüster 1974 or Felber 1984) the definition plays an equally central role of concept delineation, in other words, the pinning down of meaning before the assignment of the (linguistic) designation.

While this neat and logical approach is still useful in practical tasks such as terminography, recent decades have brought dramatic shifts in the understanding of concepts, definitions, and the linguistic reality of (intercultural) communication. Central points include the following:

1. The transient and dynamic nature of concepts (Temmerman 1997, 2000, Kageura 2002).
2. The inherent mismatch between the term definitions written in natural language and concept definitions written in a formal language (Roche et al. 2009).
3. The inadequacy of definition typologies (Seppälä 2007).
4. The inadequacy of the onomasiological approach to tackle variation, register, style (Pecman 2014, De Santiago 2014).

5. Insights from cognitive science providing evidence that concepts are in fact layers of associative networks which are "reloaded" each time they are evoked (Faber 2009, 2012).
6. The fuzziness and indeterminacy of definitions (Leitchik/Shelov 2007).
7. Multilingual and cross-cultural aspects (Faber 2012).

In the present study, we do not dwell on all of these aspects, although in our opinion, they open up exciting new spaces to explore. Instead we focus on the theoretical vs. applied nature of definitions across registers and languages, and explore the multiple formal and semantic dimensions of definitions through a corpus-based analysis. The empirical part of our study is based on the cognitive model of terminology as proposed by Faber (2009), because we find that definition frames provide a helpful tool in exploring the multidimensionality of concepts, especially if we seek to demonstrate that the cognitive-semantic components chosen to define a concept in a particular context vary. This view is in line with Sager's (1990: 16) postulate that the value of a concept is defined as a range, which means that it occupies a set of points on a given axis.

In a previous monolingual study (Grčić Simeunović/Vintar 2015) we explored the multidimensionality of concepts in karstology and their dependence on register, subdomain and author. Here we examine definitions in English and Croatian didactic and scientific texts in the domain of karstology, and by comparing different definitions of the same concept, we show that the choice of the defining strategy is influenced by a number of factors, including the perspective from which the concept is described in an interdisciplinary domain, register (didactic vs. scientific) and language (English vs. Croatian).

The described analysis is novel in that it applies the principles of frame-based terminology to a new domain and a less-researched language pair. Our specific aim is to demonstrate the multidimensionality of concepts and the dependence of definition frames on context and register. In particular we aim to compare selected dimensions of definition frames across two languages. As part of this analysis we also devise a methodology for semi-automatic definition extraction and a detailed framework for semantic annotation.

2 Defining definitions

Formulating a definition is an essential step of terminographical description and traditionally relies on nominalist philosophy and logical positivism, both clearly discernible in Wüsterian principles of terminography. With the advent of corpus-based methods as well as language technologies targeting the automatic identification of terms and definitions in texts, the highly abstract *in vitro* view of definitions was no longer viable. Pearson (1998: 33) writes: "We think that a definition which does not take text function and target readership into account will run into difficulty because authors write for a purpose and for a readership and they tailor their language accordingly."

Apart from Pearson (1998), who first proposed a descriptive and corpus-driven approach to terminological description, numerous authors (Cabré 1999, Temmerman 2000, Gaudin 2002, Kageura 2002, L'Homme 2004, Faber 2012) have challenged the rigidity of the traditional approach. The purpose of defining is still to delineate the meaning of the term and to embed the concept in the conceptual network of a domain, but this embedding inevitably takes place under the influence of a number of pragmatic factors, such as discourse type, expected level of prior knowledge in the target audience, culture, and language (cf. Blanchon 1997, Diki-Kidiri 2000, Madsen/Thomsen 2008).

There is little consensus among linguists about what constitutes a definition and how to classify different definition types. The majority of classification attempts stem from lexicography, although various other categories are defined in philosophy depending on their function (Parry/Hacker 1991, Copi/Cohen 2009: 88). For lexicographical purposes, the most common type is the analytical definition, usually expressed in a single phrase. The variability of defining strategies is illustrated by Svensen (1993: 117), who distinguishes between true (intensional) definitions, paraphrases (also including synonyms and near synonyms), combined definitions, and definitions by describing the use of the defined term. Subtypes of intensional definitions include the following: (i) relational definitions, in which terms are defined by their relation (other than synonymy) to other terms; (ii) operational definitions, which state that a term is applied correctly to a given case if the performance of specified operations yields a specific result; (iii) functional definitions, which define a term by explaining its use; (iv) typifying definitions, which define a term by means of its typical properties.

In related literature (Shelov 1990, Béjoint 2000, Westerhout 2010: 37) we find other categories, such as quantitative definitions, which describe the dimensions (size, weight, length, age, etc.) of the definiendum (e. g. "A mountain is a peak that rises over 2,000 feet"), qualitative definitions which state the qualities, characteristics, or properties of the definiendum, enumerative or extensional definitions which list all subordinate concepts of the definiendum, and contextual definitions. Seppälä (2007) describes several criteria that characterise definitions in order to show that definition typologies, as they exist in the literature, are insufficient to understand the real nature of terminological definitions.

Empirical analyses of authentic texts confirm that defining strategies can be multifarious and highly dependent on register, domain, and style of writing (Pollak 2014). Pollak (2014) explored definition types in an English and Slovene corpus of language technologies as a step preceding the design of a definition extraction algorithm. Not only did she identify over 20 definition types, but she also arrived at the conclusion that almost 40 % of the definition candidates were borderline cases which could be regarded as definitions or not. A validation experiment with 20 students who were required to mark sentences as either definitions or non-definitions resulted in inter-annotator agreement of 0.36 (kappa), which is very low.

Automatic extraction of definitions from text is a well-researched topic within Natural Language Processing. Many early approaches to definition extraction relied on morphosyntactic patterns presupposing the analytical definition type (Klavans/Muresan 2001), later extended with more sophisticated grammars or lattices (Navigli/Velardi 2010). Several approaches use machine learning techniques to distinguish between definitions and non-definitions (Fišer/Pollak/Vintar 2010), and the combination of a base grammar and a classifier proved most successful than either of these techniques used alone (Degórski/Marcinczuk/Przepiórkowski 2008, Westerhout 2010). A common problem to all these attempts is low recall and/or low accuracy when extracting definitions from highly unstructured noisy corpora.

In our own approach we were concerned first with extracting definition candidates from text, then with distinguishing between definitions and non-definitions and finally with identifying the semantic constituents of each definition. The awareness of the high variability of definitions and the knowledge of different typologies helped us both in the semi-automatic extraction and the validation phase. While the use of lexico-syntactic patterns inherently assumes certain formal characteristics of defining contexts, we deliberately also included some lexical triggers which did not presuppose a certain syntactic structure (e. g. *term*; see section 4.1). Still, we were frequently faced with the dilemma of whether a certain candidate sentence

was to be considered a definition in the given context; our selection criteria are discussed in section 4.1.

3 Frame-based Terminology
and its application to a cross-language study of definitions

Frame-based Terminology is a relatively recent attempt to reconcile the conceptual/cognitive layers of specialised knowledge and the textual reality. It responds to several of the pressing issues mentioned in the introduction, including the inadequacy of the traditional approach to handle variation, multidimensionality, and cross-language-related phenomena.

Frame-based Terminology uses a modified and adapted version of Fillmore's Frames (Fillmore 1976) coupled with premises from Cognitive Linguistics to configure specialised domains on the basis of definitional templates and to create situated representations of specialised knowledge concepts (Faber 2002, 2012, Faber et al. 2006). The definition templates are based on corpus evidence from which typical concept features and relations are extracted and subsequently mapped to a framework of categories.

The definition patterns of individual conceptual categories are represented by combining dynamic semantic roles such as AGENT, PATIENT, INSTRUMENT, LOCATION etc. on the one hand with concept classes such as ENTITY, EVENT, PROPERTY or PHYSICAL OBJECT on the other. The conceptual structure of the domain is described via events or situations governed by non-hierarchical semantic relations between the concept classes, e. g. *causes, measures, has_function, has_form.* Such semantic frames represent possible cognitive structures used to define the meaning of a terminological unit. However, instead of being abstract, they are based both on past experience and expert knowledge and on the frequency of contextual patterns.

We adapted this model to the domain of karstology, which seems particularly well suited to such categorisation. Firstly, the domain is interdisciplinary in that it may be studied from a geographical, geomorphological or hydrological perspective with the possibility of further extensions into ethnology, agriculture, history and many other fields (Laurini 2013). One of our intentions was to demonstrate the multidimensionality of definitions with regard to the perspective of description chosen in a particular context. For instance, special attention is given to examples where the same concept is defined via different genus concepts. This is in consonance with Faber's Frame Semantics approach which proposes elaborating hierarchies of meaning within lexical fields.

Secondly, the process-oriented view seems a natural and intuitive way of modelling karst phenomena, where multiple environmental factors (agents) affect limestone rocks and result in various typical landforms. A prototypical event in karstology could be modelled with the following frame:

> Natural AGENT: *erosion, tectonics* → causes process: *dissolution, sedimentation* →
> affects PATIENT: *rock, limestone* → results in: *uvalas, dolines, caves.*

For our cross-language analysis of definitions in the karstology domain, we adapted the model proposed by Faber (2012) for EcoLexicon (ecolexicon.ugr.es) and introduced several additional concept categories and semantic relations. However, as Faber (2012: 120) points out, any categorization of concepts into classes is in all likelihood fuzzy and dynamic, which is why

we should expect concepts to appear in several categories, and specific dimensions of concepts may be activated in specific contexts. We aim to demonstrate this aspect through corpus-based evidence, and even more importantly, we wish to compare these dimensions across languages. In the following sections we show that cognitive patterns, insofar as they can be discerned from definition frames, are also language-dependent.

4 Empirical analysis of definition frames across registers and languages

Our corpus-based analysis of definitions was performed on a comparable English-Croatian corpus of karstology, where for each language the corpus consisted of two subcorpora, one containing scientific texts (doctoral dissertations, scientific papers, conference proceedings) and the other, didactic texts (textbooks and lecture notes). Both corpora are comparable in size: the Croatian corpus contains 881,174 tokens, whereas the English corpus has 913,416 tokens (cf. table 1). The corpus was compiled within the framework of the doctoral research carried out by one of the authors of this paper (Grčić Simeunović 2014) and contains authentic, relevant and contemporary works on karstology, which were selected with the help of a domain expert. The English and the Croatian corpora can be considered comparable in terms of domain and text types included, but the number of tokens in the subcorpus of scientific texts is larger in Croatian.

Table 1: Basic corpus data

		English	**Croatian**
Scientific	Number of texts	23	9
	Tokens	499,422	628,138
Didactic	Number of texts	17	9
	Tokens	413,974	253,036
Total	Number of texts	40	18
	Tokens	**913,416**	**881,174**

Both corpora received standard pre-processing including tokenisation, PoS-tagging and lemmatisation. For Croatian, pre-processing was performed by Nikola Ljubešić with a recently developed tagger (Agić/Ljubešić/Merkler 2013). For the pre-processing of English and for corpus querying we used the SketchEngine facilities (Kilgarriff et al. 2014).

Our analysis involved the following steps:
- extraction of definition candidates using lexico-syntactic patterns,
- validation of definition candidates, and
- annotation of definitions with semantic categories and relations.

In the following subsections these steps are described in more detail.

4.1 Extraction and validation of definition candidates

Definition candidates were extracted using a set of lexico-syntactic patterns, designed specifically for each language on the basis of previous research into definition extraction (Fišer/

Pollak/Vintar 2010, Pollak 2014). Some of these patterns assume the traditional analytical definition (*[NP]-is-a-[NP]*), while others may contain only a trigger word or phrase (*term, be-defined-as*), and will therefore frequently capture definitions of an entirely different format. Croatian and English patterns are similar but not completely parallel. For example, the trigger word *term* has two near-synonyms in Croatian, and we used all three (*termin/naziv/izraz*).

Clearly these pattern lists are not exhaustive and other potentially fruitful expressions could also be used, but since we were not aiming for total recall, their yield was deemed satisfactory. Table 2 lists the patterns for Croatian and English, the number of candidates yielded by each pattern, and the number of definitions retained after manual validation.

Table 2: Definition extraction patterns and their productivity[1]

Croatian	# candidates extracted	# definitions	% definitions	English	# candidates extracted	# definitions	% definitions
naziv	455	84	18.46	*term*	444	64	14.41
izraz	169	5	2.96				
termin	25	14	56				
N-*biti*-N	345	28	8.12	N-*is-a*-N	98	21	21.43
				N-*be-used*	92	4	4.35
N-*predstavljati*	219	31	14.15	N-*represent*	81	3	3.70
nazivati-se	24	17	70.83	*be-called*	74	20	27.03
N-*biti*-A-N	134	12	8.95	N-*is-a*-A-N	71	9	12.68
definirati-se-kao	1	1	100	*be-defined-as*	45	32	71.11
sadržati	61	10	16.39	N-*contain*	40	4	10.00
N-*značiti*	133	3	2.25	N-*mean*	27	2	7.41
zvati-se	12	2	16.67	N-*refer-to*	15	3	20.00
N-*sastojati-se*	18	2	11.11				
možemo-podijeliti-na	6	0	0				
proces-Ng	106	11	10.38				
Total	1708	220			987	162	

The manual validation performed by the authors of this paper was not an easy task, especially considering the variability of definitions discussed in section 2. We retained sentences which contained an explanation of the definiendum in any form by giving at least one distinguishing feature. In this way, several sentences were retained although they contained no genus. As can be observed in table 2, the majority of candidate sentences were still discarded, and several cases, not listed above, were either marked as borderline or as KRC (knowledge-rich context). In the end we limited our analysis only to true definitions and ignored semi-definitions and KRCs, even though they also contained important conceptual relations. Some definitions were

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[1]   The data in all the tables are sorted by frequency in English corpus.

extracted via several patterns. After removing duplicates, the final data set consisted of 191 examples for Croatian and 142 for English.

4.2 Annotating definitions with conceptual categories and relations

For this step we first needed to define the domain-specific categories and relations to be used in annotation. A preliminary classification of karstology concepts into semantic classes had been previously performed by Grčić Simeunović (2014), which was a useful starting point. For pragmatic reasons semantic classes were added during annotation in case the need arose. As a result, the final inventory consisted of 30 classes, including: *limestone area, landform, water cycle, opening, process, measure, method, layer, minerals, rock characteristics, substance, territory, physical phenomenon, information system, situation, geographical boundary* etc.

In each definition we first identified the *definiendum* (the concept being defined) and the genus (superordinate concept), when present. Those two concepts were then assigned to a semantic class in accordance with the information contained in the definition. For the remaining part of the definition, which in most cases represents the *differentia*, no further semantic classes were assigned. Instead, we identified the semantic relations activated by the context. The following example illustrates this procedure:

Definition sentence:
Less permeable rock below an aquifer that keeps groundwater from draining away is called a confining bed (also known as aquitard or aquiclude).

Table 3: Example of semantic categories and relations found in a definition

Definiendum:	*confining bed / aquitard / aquiclude*
Definiendum class:	hydrological form
Genus:	Rock
Genus class:	Mineral
Differentia:	less permeable
Relation:	has_attribute
Differentia:	below an aquifer
Relation:	has_location
Differentia:	keeps groundwater from draining away
Relation:	has_function

Thus, a *hydrological form* is defined by specifying the *attribute*, *location* and *function* of its genus.

We described our dataset with a total of 23 relations; they are listed with the frequencies for each language in table 4. The total number of relations in the dataset was 509.

Table 4: Semantic relations and their frequencies

Semantic relation	CRO	ENG	LL
has_location	51	47	1.12
has_form	52	42	0.16
has_attribute	20	29	**5.40**
defined_as	5	23	**18.49**
has_function	21	22	1.26
caused_by	29	19	0.18
result_of	6	18	**10.36**
contains	1	15	**19.20**
made_of	16	10	0.19
has_result	3	8	**4.08**
has_time_pattern	3	8	**4.08**
has_origin	0	7	**11.93**
causes	6	6	0.26
performed_as	6	4	0.03
similar_to	7	3	0.68
computed_as	6	0	**6.67**
transforms_into	0	2	3.41
has_part	6	2	1.08
time_of	0	1	1.70
used_for	1	1	0.04
controlled_by	0	1	1.70
affected_by	0	1	1.70
depends_on	0	1	1.70

Determining the semantic relation governing the relationship between the concept and its specific properties is not always straightforward, and in many cases, the distinctions between categories are difficult to draw. Our annotation preserved the AGENT – PATIENT and CAUSE – EFFECT dimensions of the karstological event, which is why we differentiate between the *causes* and *has_result* relations. This is illustrated by the examples below. In (1) *rainfall excess* is the natural agent causing *flooding*, while in (2) the *exposure of the river to the surface* happens as an effect of the *underground cavern collapsing*. In the first definition, we thus identified the relations of *causes* and *defined_as*, while the second definition contains the relations *caused_by, has_form* and *has_result*.

(1)   *Threshold runoff has been defined as the amount of rainfall excess of a given duration necessary to cause flooding on small streams.*
(2)   *Short steep-sided valleys caused by collapse of an underground cavern and exposing the river to the surface are called karst windows.*

Looking at the frequencies and the statistical significance as measured by log-likelihood ($p < 0.05$) of individual relations occurring in the Croatian versus the English corpus, there are many differences, especially as some relations occur in one language but not the other (cf. table 4). However, there are also a number of similarities. Both languages share the two most frequently observed relations *has_form* and *has_location*. For Croatian, the list continues with *caused_by*, *has_function* and *has_attribute*, and for English, with *has_attribute*, *defined_as* and *has_function*. These figures indicate that LOCATION, CAUSE, FUNCTION and ATTRIBUTE (physical or other) represent the key semantic properties of concepts in the domain of karstology regardless of language or register. In the Croatian dataset, 154 of 191 definitions contain at least one of the above relations, and in the English set, the number is 117 of 142. The main exception is the group of definitions labeled with the relations *defined_as, computed_as, performed_as*. These sentences usually contain instrumental definitions, which explain the meaning of a formula, measure or experimental method (cf. examples 3 and 4).

(3) *Biodegradation is a complex process, but may be approximated by: $ct = c_0\,e^{-kt}$, a decline analogous to radioactive decay, where ct = concentration of the degradable tracer at time t, c_0 = concentration of the conservative tracer, k = constant of decay.*

(4) *Groundwater tracing is a method of investigating underground water and contaminant transport by labelling water with identifiable tracer substances or physical properties.*

Once the dataset was annotated, we performed a quantitative and qualitative analysis of the results comparing definition frames across the two languages.

5 Analysing cross-language aspects of definition frames

5.1 Quantitative observations

The frequencies of semantic categories for the concepts defined in our karstology corpus reveal some thematic differences between our subcorpora (table 5). Apparently the Croatian texts contain a larger proportion of definitions for landforms (e. g. *hum, klanac, škrip, čučevac*), while the English texts seem to place a slightly greater emphasis on hydrological phenomena and forms as well as on different types of limestone areas, mainly karst itself or karst types (e. g. *karst, epikarst, bradikarst, fluviokarst*). These differences point to the irregularities of the term formation process where some realities are given a stable name or term in one language but not in the other. Interestingly, the English dataset does not contain a single definition of an underground form, which appears eight times in the Croatian dataset. In the English corpus, such concepts are only described in form of partial definitions or in KRC.

Table 5: Most frequent concept categories

Concept category	CRO	EN	LL
limestone area	10	26	**12.90**
Landform	50	24	3.25
water cycle	6	8	1.19
hydrological phenomenon	6	13	**5.13**
opening	13	7	0.49
process	5	7	1.19
measure	4	6	1.21
method	3	5	1.27
layer	2	4	1.40
minerals	8	4	0.44
rock characteristics	0	4	**6.82**
underground form	8	0	**8.89**

We were also interested in the distribution of semantic relations across the concept categories. The assumption that a certain conceptual category will be more likely defined via a specific set of relations, thus constituting typical definition frames for each category led us to formulate a cognitive model of the selected domain. While we might expect such frames to be universal (e. g. a landform may be described by its form regardless of language or register), we were particularly interested in verifying this assumption with our bilingual dataset.

Table 6: Cross-language comparison of relations occurring with selected concept categories

landform	CRO	EN	*process*	CRO	EN	*limestone area*	CRO	EN
has_form	31	14	caused_by	3	1	has_location	4	10
has_location	21	8	has_location	2	0	result of	0	10
caused_by	13	6	has_attribute	1	1	caused_by	3	7
made_of	9	1	defined_as	1	3	has_attribute	3	6
has_attribute	7	2	computed_as	1	0	has_form	3	5
similar_to	4	0	has_result	1	4	has_result	0	4
contains	0	5	has_time_pattern	0	2	contains	1	4
result_of	0	4	causes	0	1	made of	2	4
has_function	3	2				has_function	2	2
has_part	1	2						
causes	1	0						

Table 6 shows the relations occurring in a particular concept category typical of each language. For *landform* it seems that definition frames are universal at least in the top three relations. As might be expected, a landform is typically defined by specifying its form, location, and the

natural process that contributed to its formation. The lower part of the list seems less aligned though, and there seems to be little correspondence between languages. A similar impression is conveyed by the list for *process*. Processes are usually not described in terms of their form or their composition, which explains the absence of relations such as *has_form, similar_to, made_of* and *has_part*. On the other hand, a process may be defined or even computationally modelled, and may exhibit a time pattern. The category *limestone area* was more frequent in the English subcorpus, but apart from this difference, we were surprised to find the *has_result* relation in English but not in Croatian. This relation is usually expected to occur with processes and not territories or areas.

Our study also found that for concept categories occurring fewer than 15 times, such quantitative cross-language comparisons bear little significance. We nevertheless detected the general patterns from which definition frames can be discerned, and certain observed differences provide clues for further exploration.

Before describing the qualitative analysis of a selected concept in both languages, we discuss the size of a typical definition frame, in other words the number of specific properties expressed through semantic relations. In our annotated corpus, the average definition contains two relations, and four of our definitions contain as many as four. This refers to examples from the English subcorpus, and, interestingly, all of them come from scientific (as opposed to didactic) texts. We suspected that the definition frame might be larger if the *definiendum* was a more sophisticated concept, however, this does not seem to be the case. In fact, our most complex definitions were for *tidal creek, karst* (cf. example [5]), *hazard,* and *gravine*.

(5) *Karst is defined as a terrain, generally underlain by limestone or dolomite, in which the topography is chiefly formed by the dissolving of rock, and which may be characterised by sinkholes, sinking streams, closed depressions, subterranean drainage and caves.*
   Relations: *made_of/has_form/contains/result_of*

5.2 Qualitative analysis of karst and related terms

An interesting observation mentioned above was the appearance of some agent-like relations in the context of defining concepts that we consider static, such as landform or terrain. Nevertheless, this only occurred in the English subcorpus. We thus decided to take a closer look at definitions of *karst* and related terms in both languages in order to see whether the resulting cognitive models of the domain overlapped.

The Croatian corpus contains 13 sentences defining either *karst (krš [3])* or types of karst (*klastokrš [2], tektokrš, škrapavi krš, linearni krš, fluviokrš, boginjavi krš, hidrotermokarst, obalni krš*). While all of these *definienda* belong to the same category of *limestone area*, their *genus* concepts fall into two groups. More specifically, eight of the examples define *karst* or karst type as a 'kind of terrain, area or relief form', while four definitions choose the genus *pojava* ('phenomenon'). The *differentia* of the definitions contain the following relations: *has_location* (9), *made_of* (5), *caused_by* (3), *result_of* (2), *has_part* (2), *develops_from* (1).

The three Croatian definitions of *karst* (examples [6–8]) illustrate the context-dependence and multidimensionality of the concept *karst*. In example (6), *karst* is defined as a 'relief form developing on soluble rock' (*limestone, dolomite* etc.). This is not surprising since this definition belongs to the didactic part of our corpus, which is more specifically composed of textbooks. Example (7) is a less typical definition in that it focuses on the processes and agents

contributing to the formation of karst. On the other hand, example (8) defines *karst* as a 'group of morphological and hydrological phenomena found on soluble rock'.

(6) *Krš je specifičan oblik reljefa koji se razvija na topivim stijenama (vapnenac, dolomit, sol, gips).*
     [Karst is a specific relief form which develops on soluble rock (limestone, dolomite, salt, gypsum).]

(7) *Krš kao reljef na topivim stijenama predstavlja rezultat raznolikih i međusobno uvjetova-nih čimbenika kao npr. litološkog sastava, kemijskih procesa, pukotinske cirkulacije vode, tektonskih pokreta, klimatsko-bioloških čimbenika, a u novije vrijeme sve više dolazi do izražaja i utjecaj čovjeka.*
     [Karst as relief on soluble rocks represents the result of various and mutually interacti-ve factors, such as the lithological composition, chemical processes, water circulation in crevasses, tectonic movements, weather- and biology-related factors, and in recent times increasingly human interventions.]

(8) *Krš je specifičan skup morfoloških i hidroloških pojava u topivim stijenama, prije svih vapnenačkim i dolomitskim […].*
     [Karst is a specific set of morphological and hydrological phenomena occurring on soluble rocks, mostly limestone and dolomite […].]

The English subcorpus has as many as 25 definitions for *karst* (10) or its subtypes: *hydrother-mal karst, hypogene karst* (2), *endokarst, epikarst* (3), *contact karst, bradikarst, ore-bearing karst, anomalous hydrothermal karst, heterogeneous karst, fluviokarst, doline karst, thermal karst*. The majority of the genus concepts used to define these terms belong to the categories 'limestone area', 'territory' or 'relief form', just as in Croatian. A surprising observation, how-ever, was the fact that four definitions describe *karst* (or its subtype) as a 'process' (examples [9–12]), and as a 'consequence', *has_result* is one of its relations.

(9)   *In the broadest sense, hydrothermal karst is defined as the process of dissolution and possi-ble subsequent infilling of cavities in the rock by the action of thermal water.*
(10) *Here we introduce the working term "anomalous hydrothermal karst" to describe the hydro-thermal process developing in zones where the steady-state thermal field of the hydrosphere is disturbed.*
(11) *In the most general terms, karst may be defined as a process of interaction between soluble rocks and different waters, as a result of which characteristic features develop on the Earth's surface and underground.*
(12) *Hypogene karst is defined as the formation of caves by water that recharges the soluble for-mation from below, driven by hydrostatic pressure or other sources of energy, independent of the recharge from the overlying or immediately adjacent surface.*

This observation supports the view that the cognitive structures governing knowledge presen-tation in a specialised text are not universal and depend not only on context, register, or the au-thor's beliefs, but also on the language in which the definition is formulated. Our corpus-based evidence shows that the definition frame [limestone area] *is_a* [process] *has_result* [result] is possible in English, but not in Croatian. Quite possibly, the concept of karst activates slightly different layers of meaning for a speaker of Croatian (or Slovene), because the term originates

from the geographical area Kras and thus bears a strong associative link to a (static and physically identifiable) landscape.

This finding was unexpected in the context of our study, however the relationships between language, thought and natural landscapes have been addressed by several authors. Smith and Mark (2003) for example explore the concept of MOUNTAIN in the context of building a universal ontology of geographical forms, and discuss the difficulties of unifying geographical concepts because the meanings associated with them are essentially linked with the human experience of landscapes. According to this, a MOUNTAIN may be perceived as an obstacle or a place of shelter, making it clear that our understanding of landscape forms is inevitably intertwined with our cultural perceptions. Burenhult and Levinson (2008: 138) go even further by arguing that landscape features "do not come presegmented by nature", and they demonstrate how the concept of MOUNTAIN evokes such diverse features of meaning in different languages that any attempt at a universal ontology of landscape forms must fail.

Returning to Smith and Mark (2003), who fruitfully combine philosophy and geography, we find a nice explanation of our karst-as-process finding:

> Since contemporary geomorphology is almost entirely concerned with understanding the processes that shape the Earth's surface, and with the question of how local elevations and slopes control the spatial distribution of those processes and their impacts, landforms-as-objects are in practice irrelevant to most subfields of geomorphology. (Smith/Mark 2003: 18)

6 Conclusions

In a previous monolingual study (Grčić Simeunović/Vintar 2015), we explored the multi-dimensionality of karstology concepts and the effects of register, context, and style on the range of concept properties chosen for the definition. This study extends those findings into the space of cross-language comparison. The results obtained seem to indicate that cognitive structures underlying knowledge transfer, of which specialised texts are a surface representation, are influenced by language and culture. While the concept of *karst* can only be defined as a type of terrain in Croatian, in English within certain contexts, it is described as a process.

This observation is interesting for a number of reasons. Firstly, it challenges the efforts to build language-independent domain representations, such as ontologies or semantic networks of the WordNet type. Secondly, it could have important implications for multilingual terminography, which for the most part remains rooted in the traditional concept-oriented approach and has so far included language or translation-specific information mostly in the form of collocations and phraseology. Finally, it would be worthwhile to fully understand the reasons why such profound differences in cognitive frames come to exist, even in the realm of specialised discourse. In the case of our experiment, we suspect that the relation between the "donor" and "receiver" language regarding the origin of terms may play a certain role, in the sense that karstology concepts might have initially evolved in a close relationship with the geographical (and cultural and linguistic) reality represented by Karst as a region. Given the dynamic nature of concepts, the layers constituting the cognitive boundaries of a concept may be restructured or modified through the transfer and expansion of knowledge to other languages and cultures, as well as through interdisciplinarity.

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"The wording is on occasion somewhat emotional": a qualitative study of English and German peer reviews for a chemical journal

Heinz L. Kretzenbacher

Abstract Peer reviews are an essential text type in academia. Due to their internal character, however, few empirical studies of the text type exist. This paper reports on a study of a large corpus of peer reviews of manuscripts submitted for publication as *communication/Zuschrift* in the high impact chemical journal *Angewandte Chemie*. There are both German and English peer reviews, although the language of the review is not always identical with the language of the reviewed manuscript. Apart from the language choice of reviews, meta-linguistic comments in them are analysed as well as the vocabulary and style of evaluation and reference to the members of the communicative triad of reviewer, journal editor and manuscript author(s) in the reviews.

Keywords peer review, text type, academic communication, meta-linguistic comments, language and style of evaluation

1 The publication peer review as a written text type of internal academic communication

Academic careers are subject to all sorts of peer reviewing, starting with external examination of higher research theses such as doctoral theses, to reviews for job applications, grants and scholarships as well as for academic promotions. Peer reviews are particularly ubiquitous for scholarly output such as papers submitted for academic conferences, manuscripts submitted for publication and published books. And of course, all but the most junior academics function as the reviewers at one time as well as the reviewed at other times in all or most of these scenarios.

While peer reviewing is far from a faultless method of evaluating academic quality, it mostly does a reasonably good job at it (notwithstanding spectacular failings in individual cases, such as papers published in peer reviewed journals having to be withdrawn after being found out to present doctored data or even to be hoaxes). Adapting a witty remark about democracy as a political system, one could say that peer reviewing is the worst possible method for evaluating scholarly quality – except for all other methods, of course. Yet in spite of academics evaluating the research of their colleagues all the time in their publications (in the form of positively or negatively evaluating academic intertextuality, cf. Kretzenbacher 1998: 136 f.), book reviews are almost exclusively the only public (and published) form of academic peer reviews, if one does not count evaluative elements in review articles or handbook chapters as peer reviews proper.

Even though different processes of collective (and often partially or completely public) peer reviewing in scholarly networks online are developing (cf. Veletsianos/Kimmons 2012: 770 f.), it is unlikely that a substantial part of peer reviews will change their character any time soon from an essentially internal text type, the authors of which also remain anonymous to the colleagues reviewed in most cases. On the one hand, it is in the interest of colleagues who have been reviewed that a possible refusal of their academic promotion, grant application or submitted manuscript remains internal knowledge of the circle of colleagues immediately

concerned with the process. On the other hand, reviewers' anonymity is conducive to their honest judgment, particularly if reviewer and reviewed are acquainted and/or the reviewer has junior status in comparison with the reviewed.

The mostly internal character of the text type peer review means that reviewers, who often provide their service for free, do not get any career brownie points for peer reviewing in form of publications counted for job applications, tenure or academic promotions. It also means that for new and emerging reviewers, there are very few templates of what a good and helpful peer review looks like, apart from the guidelines provided by the journal or organisation commissioning the review (cf. Paltridge 2013a). Perhaps the most unlucky effect of this internal character of the text type, however, is the number of rumours and myths about an allegedly fundamentally malevolent and negative character of peer reviews circulating among scholars.

This paper is reporting on a current project analysing a corpus of publication peer reviews, the sub-type of academic peer reviews most frequently encountered by scholars. Unsurprisingly for such an important type of academic communication, the corpus of literature dealing with publication peer reviews is large and varied. Studies on publication peer reviews have approached their subject from the viewpoints of ethics (e. g. Lipworth/Kerridge 2011, Souder 2011), of sociology (e. g. Hirschauer 2004), or more specifically sociology of science (e. g. Bornmann 2008), of research politics (e. g. Langfeld 2006), or of scientometrics (e. g. Bornmann et al. 2011), to name just a few. Given the obvious difficulty to access text corpora of a text type of internal communication, it is not surprising that empirical analyses of peer review texts – or other texts within the process of peer reviewing (cf. Gosden 2001) – are relatively rare, compared to studies of the function or institutional role of the text type, such as Gesuato (2009) or Koltay (2010). The list of linguistic, particularly qualitative, analyses of publication peer reviews is a rather short one, given the importance of the text type for academics. Since the turn of the millennium, the most important of these studies are probably Gosden (2003), Matsuda/Tardy (2007), Fortanet (2008), Bromwich (2009), Mungra/Webber (2010), Englander/López-Bonilla (2011) and Paltridge (2013b).[1]

2 The corpus

The text corpus of this study consists of publication reviews commissioned by the journal *Angewandte Chemie* (abbreviated *AC* in the following) for a total of 1,896 manuscripts of articles of the text type *communication/Zuschrift* submitted to AC in the year 2000. Usually, there are two reviews for each communication, although in some cases the reviewing process demands more than just two (see the remarks on that process below). I am very grateful to the chief editor of *AC*, Dr. Peter Gölitz, for giving me access to the text corpus for a secondary linguistic analysis, after it had been used for a longitudinal scientometric study by the Zurich team led by Lutz Bornmann and Hans-Dieter Daniel.

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[1]   Scientometric studies with a "content analysis" approach, such as Bornmann/Weymuth/Daniel (2010) or Bornmann/Wolf/Daniel (2012), also deal with linguistic elements of peer reviews, but their analysis is mostly quantitative rather than qualitative.

*2.1 The journal A*ngewandte Chemie *and the text type* communication/Zuschrift

The journal *AC* is published by the *Gesellschaft Deutscher Chemiker* at Wiley VCH publishers. Among the top science journals with very high impact factors, *AC* is special in regard to its publication language policy: Apart from *AC-International Edition (AC-IE)*, which is published entirely in English, there is also a parallel edition *AC,* which contains German as well as English contributions. With very few exceptions (such as reviews of German books), all German contributions in *AC* are also published in English translation in *AC-IE*. Until 1998, all English contributions were conversely translated into German for *AC*, however, more recently this has only been the case when authors contribute their own German translation of their English manuscript.

Apart from its function as a newsletter for the *Gesellschaft Deutscher Chemiker, AC* is also an interdisciplinary chemical journal, whose target group are industrial and research chemists from all chemical subdisciplines. Accordingly, as opposed to specialised chemical journals that publish full papers, the scientific papers (i. e. the reviewed papers) in *AC* are mostly of the text type *communication* (German: *Zuschrift*). Communications are usually much shorter texts than full papers, and their content must have both a high enough novelty factor and (in the case of *AC*) relevance general enough for the wide scope of the journal's readership in order to justify their much more rapid publication (compared to a full paper), which is essential for claiming new discoveries or technologies in sciences such as chemistry with its mostly clearly defined and fast advancing hot spots of research.[2]

2.2 The reviews

While the publication review process at *AC* is entirely online now, nothing much apart from the medium of communication between the stakeholders in the process has changed since the year 2000, the date when the corpus was produced.[3] It usually involves three steps, with a possible fourth step added in case of authors' appeals against a rejection (cf. Bornmann/Daniel 2010: 6 f., Gölitz 2005):

- A first internal review of manuscripts is done by editors of *AC*. Manuscripts that obviously do not meet minimal quality standards, or else are not reporting novel enough content or are too special for the readership of *AC*, are rejected at this stage already.
- Manuscripts that have passed the first filter are sent to (usually two, sometimes three) reviewers. In 2000, that happened by physical mail or fax; now it is done by email.

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[2]   Compared to biological journals with an average refereeing process of over 150 days, or mathematical journals with longer refereeing processes – let alone refereeing processes in the humanities and social sciences –, in chemical publication the time from submission to first online publication (in the form of "accepted article") is estimated as "in most cases less than 50 days, the refereeing often taking less than a month"; for communications in *AC*, the refereeing process takes only "around 15 days". Peter Gölitz (2016: 13621) considers this speedy publication turnover due "to a healthy competition between chemistry journals".

[3]   One thing that has changed is the massively increased number of submissions. According to Peter Gölitz (2016: 13621), around 12,000 manuscripts of communications were submitted to *AC* in 2016, of which "a good third (> 4,000) are directly rejected, usually within 36 hours". The total rejection rate, including rejection after peer review, for manuscripts submitted to *AC* is indicated as "almost 80 %" by Gölitz (2016: 13621).

Together with the manuscript, the reviewers receive a review questionnaire and a separate sheet for comments.

- After receiving the reviews, an editor of *AC* decides on the publication of the reviewed manuscript:
  – *If there are two positive reviews, the manuscript (with amendments according to the reviewers' demands, if necessary) is accepted. If the reviewers have demanded substantial re-editing of the manuscript, it can undergo one or more additional rounds of reviewing by the same reviewers.*
  – *If the reviews are substantially different, a third reviewer (called* top adviser *at* AC*) can be asked for an additional review.*
- In case of a formal appeal against a rejection by an author or authors, the existing reviewers (or new ones) can be asked for a new evaluation of the manuscript.

Both the review questionnaire and the comment sheet contain a letterhead consisting of the name and fax number of *AC*, as well as an individual code number for the manuscript and another one for the reviewer, the short title and corresponding author of the manuscript, and a deadline for the return of the review. The name of the reviewer is recorded at the bottom of both the questionnaire and the comment sheet.

The reviews are forwarded to the manuscript authors in anonymous form, while the reviewers know the names of the manuscript authors, which makes the *AC* review process a single-blind one. A double-blind process, with the manuscript authors remaining anonymous to the reviewers as well as vice versa, would apparently be considered a pointless exercise, given that colleagues who are familiar enough with a particular kind of chemical research in order to review a manuscript dealing with it would normally know exactly which international research teams are engaged in just this kind of research at the time. Reviewers can deal in different ways with this single-blind process and the fact that their review is both addressed directly to the editors of *AC* and to the manuscript authors. Reviewers' adaptations to this multiple addressivity of their reviews range from adding information and evaluation details that are intended for the eyes of *AC* editors only in a separate text (e. g. in the cover sheet of the fax or in the email accompanying the returned review), to explicitly authorising the editors to reveal the reviewer's name to the manuscript author(s), or, on the contrary, instructing the editors not to forward any handwritten comments of the reviewer's to the author of a manuscript, in case that author might recognise that reviewer's handwriting (cf. Kretzenbacher/Thurmair 1992: 142, Kretzenbacher/Thurmair 1995: 208 f.).

The text of the questionnaire is always in English. It contains the following questions:

1) How important do you consider the results reported?
   [boxes to tick:] very important / important / less important / unimportant

2) Do the data obtained by experiment or calculation verify the hypotheses and conclusions?
   [boxes to tick:] Yes / No

3) Is the length of the manuscript appropriate to its contents?
   [boxes to tick:] Yes / No, the manuscript is too long / No, the manuscript is too short

4) Do you recommend acceptance of the communication?
   [boxes to tick:] Yes, without alterations / Yes, after minor alterations / Yes, but only after major alterations / No

5)   If you are of the opinion that the contribution is not suitable for publication in *AC*, please indicate which other journal you consider more appropriate:

Almost all of the boxes to be chosen for ticking have an asterisk added to them referring to a footnote: "*) please give comments on the enclosed sheet".

Even with the elements of the questionnaire and the comments sheet provided by *AC*, the returned reviews show a wide range of individual forms. In the reviews returned by email rather than by fax, the individual questions of the questionnaire (or at least their numbers) are usually copied into the email; sometimes the questions themselves are abbreviated or changed into a nominal style in the emails, rather than rendered exactly as in the original questionnaire. Some reviews consist merely of the ticked boxes on the questionnaire, others only of a comment including a recommendation to accept or reject the manuscript. On the other hand, there are reviews that contain more than the two elements of questionnaire and comments sheet. Some have a fax of the original manuscript with the reviewer's handwritten remarks and corrections on it added, others contain an extra message to the editors on a fax cover sheet or in an extra section contained in the email. This wide scope of forms in which the reviews for *AC* are submitted makes the text type a rather heterogeneous one (cf. Kretzenbacher/Thurmair 1995: 183 f.).

3 Findings

In the following sections, some of the analytical approaches to the corpus will be presented.

3.1 Language choice

The overwhelming majority of the submitted manuscripts (almost 9 out of 10) are written in English. Only about half a percent of the reviews of these English manuscripts is written in German,[4] in about three percent of the cases, the language in which they are written cannot be determined (because they only consist of boxes ticked in the questionnaire), the rest is written in English. As far as the reviews of the German manuscripts are concerned, however, only about three quarters of them are in the same language, more than one in five is written in English, and the language of the few remaining reviews (again ticked questionnaires) cannot be determined. This language choice of reviewers is not necessarily linked to their own linguistic skills. Of course a reviewer evaluating a German manuscript can be assumed to be proficient in German. But just under half of all the reviewers in our corpus do speak German, even some of those who review English manuscripts in English exclusively. In cases where reviewers never reviewed German manuscripts and never used German in cover emails etc., German language skills were assumed if the reviewer's email or mail address, respectively the country and area code of their fax number, referred to an office in Germany, Austria, or the German-speaking part of Switzerland. The relatively high percentage of almost a quarter of reviews of German manuscripts written in English might have to do with the dominant role that English plays as a lingua franca in academia, particularly in the sciences, but also with the fact that the primary recipients of the reviews are the editors of *AC*, many of whom do not speak German as their first language.

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4   It appears that in those cases the reviewers knew that the manuscript authors understood German rather than assuming that the editors would translate the review into English for them.

Very few reviewers justify their choice of language explicitly, as the following one does in a parenthesis on the fax cover sheet accompanying his English review of a German manuscript:

(1) *Beiliegend das angeforderte Gutachten. (ich schicke Gutachten besser gleich in Englisch, falls Sie einen weiteren, nicht deutschsprachigen Gutachter benötigen)*
    [*Please find the requested review attached. (I better send the review in English straight away, in case you need another, non-German-speaking reviewer)*]

This is also an example for code shifting between the review proper and a paratext of the review.[5] Code shifting (in almost all cases from English to German) often occurs in paratexts directly addressed to the editors rather to the manuscript authors. In many cases, they consist of a German paraphrase of the final recommendation in the review proper in the cover fax or email. Occasionally this recommendation is stronger in the German paratext than in the English review proper:

(2) [comments page:] *The communication […] should be recommended for publication in* AC.
    [cover fax:] *In der Beilage schicke ich Ihnen mein Gutachten [zu Manuskript X], das ich* **sehr** *zur Veröffentlichung in der* AC *empfehlen möchte.*
    [*As an attachment, I am sending you my review of [manuscript X] which I would like to recommend* **very much** *for publication*][6]

Code-shifting occurs in almost one in eight of the English reviews, but hardly at all in the German reviews.

3.2 Meta-linguistic comments

Reviews frequently refer to the linguistic form in which the contents of the manuscripts are presented. This can happen in positive and negative ways, and in all constituent parts of the reviews, including paratexts. Often such stylistic remarks are quite general, as in the two following examples. The first one is a sentence in the cover fax transmitted together with a review:

(3) *this is an excellent paper which is well written*

The second one is a hand-written remark on the questionnaire, next to question 4 (recommendation), where "yes, after minor alterations" is ticked:

(4) *polish language*

Sometimes, positive and negative evaluations of style allow us to recognise elements of an underlying idea the reviewer has of the appropriate style of the text type communication in *AC*:

(5) *Der Text des Manuskripts erfreut durch knappe und nüchterne Formulierungen.*
    [*The text of the manuscript pleases with concise and sober formulations*]

(6) *The wording is on occasion somewhat emotional.*

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[5]   Code-shifting rather than code-switching, since here (as usually in our corpus) languages are not changed within one and the same text (e. g. comments page, questionnaire, cover email/fax), but between them.

[6]   Bold print in quotes is always mine and signals my own emphasis.

Demanding precision of expression often extends to details such as typographical errors. In fact, reviewers have painstakingly corrected such typos in many of the copies of original manuscripts that are attached to the reviews in our corpus. More frequently, however, reviewers insist on a perspicuous style including clearly defined and appropriate terminology:

(7) *Der [X]. Satz des letzten Abschnitts der Seite [Y] sollte klarer formuliert werden.*
   [*The [X]th sentence in the last paragraph on page [Y] should be phrased more clearly*]

(8) *Legende zu Fig. [X]: Was heißt hier "marked"?*
   [*key to fig. [X]: What does "marked" mean here?*]

(9) *Der Begriff Marker ([im] Kurztext) oder Reporter ([in der] Begründung) sollte einheitlich verwendet [...] werden.*
   [*Either one of the terms "marker" ([in the] short text) or "reporter" ([in the] explanation) should be used consistently*]

(10) *proximal und distal sollte bei erstmaliger Verwendung kurz definiert werden. [...] Die geringe Bindung von [X] hat sicherlich nichts mit Aromatizität zu tun. Das ist eine begriffliche Verwirrung aus der Biologie, wo alle Nucleobasen und Analoga als aromatisch bezeichnet werden.*
   [*"proximal" and "distal" should come with a short definition when used for the first time. [...] The weak bond in [X] certainly has nothing to do with aromaticity. That is a terminological confusion coming from biology, where all nucleobases and analoga are called aromatic*]

None of the reviews of German manuscripts ever voice doubts in regard to the German language proficiency of a manuscript's author. In contrast, some of the reviews of English manuscripts criticise a perceived lack of English competence in authors who are apparently not L1 speakers of English (cf. Englander/López-Bonilla 2011, Bocanegra-Valle 2015).

(11) *the english [sic] language needs polishing by a native speaker*[7]

(12) *There are just too many places where poor English leaves the reader with no idea whatsoever as to the meaning of a given word, phrase, sentence, etc.*

In the same review that quote (12) is taken from, the next quote follows shortly after. Taken without the context of quote (12), quote (13) could be misunderstood as sarcastic, while it is more likely simply an expression of the reviewer's frustration at being prevented from doing their actual job, the evaluation of the contents of the manuscript, by the poor linguistic form they come in:

(13) *It is conceivable that embedded somewhere within this manuscript there are some worthwhile and interesting results that might qualify for publication in this journal. But not in the present form.*

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[7]   The lower-case initial spelling of "English" might just be a typo here, but that does not mean that reviewers who are not English L1 speakers always have an excellent level of English proficiency themselves, even if they write their reviews in that language and/or criticise the manuscript author's English skills. It appears that the level of English required for an internal text type such as the peer review is not perceived as being quite as high as the one for a publication.

Anna Mauranen reminds us that

> academic discourses and genres […] need to be learned as part of becoming a member of an academic community. All novices in academic institutions undergo secondary social-isation into academic discourses, regardless of their linguistic background. There are no native speakers of *academic* language. (Mauranen 2012: 68 f., italics in the original)

Maybe reviewers are particularly strict with the academic English as a lingua franca used by non-native speaking authors of English papers (regardless of whether the reviewers them-selves are speaking English as their L1 or not) because it is easy to subconsciously conflate perceived faults in academic English caused by the author being a novice as a scholar and such faults caused by the author not being an L1 English speaker.[8]

3.3 Expression of positive and negative evaluation

A sometimes suspected general malevolence of peer reviews can certainly not be confirmed in our corpus. One of the reasons for the overwhelmingly benevolent character of helpful feedback that the reviews in our corpus show might be the fact that the reviewers only get to see such manuscripts that have already passed the filter of a first in-house review by editors of *AC* (cf. section 2.2).

Even when reviewers reject manuscripts, it rarely happens because they find them lacking in intrinsic quality. Rather, the reviewers frequently find that even high quality manuscripts do not meet the very strict criteria of novelty and relevance for a broad target audience on the one hand and of shortness on the other hand that communications in *AC* must fulfil, as can be seen in the following example:

(14) *I find the subject of [X] both interesting and important [, but] the paper is not just far too long for a communication [, it is also] difficult to point out possible ways to reduce the length […]. This is good work, and I feel that it should be published as a full paper in [journal Y].*

The evaluations often follow these criteria (as indicated in the questionnaire as well) closely.

The reviewers are well aware that *AC* is a top level journal with a very high impact factor, and publication in *AC* is a privilege only deserved by manuscripts that present content both excellent in quality and relevant for a readership ranging across chemical disciplines:

(15) *This result is certainly not of major interest to the wide and heterogenic [sic] audience of* AC *and should therefore be published in a more specialized journal.*

(16) *I feel that the material itself is not so attractive for non-specialists as to justify the publica-tion as a communication in* AC.

(17) *Zweifellos sind die Verbindungen für Spezialisten und an [X] Interessierte bedeutsam und sollten in einem Fachjournal, z. B. [Y] publiziert werden.*
     [*Undoubtedly the compounds are relevant for specialists and persons interested in [X], and they should be published in a specialized journal such as [Y]*]

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8   For a closer look at language choice and metalinguistic comments, analysed in a part of the corpus stu-died for the present paper, cf. Kretzenbacher 2016.

(18) *Die in der Arbeit beschriebene Struktur [...] sollte publiziert werden. Für die heterogene Leserschaft der AC ist sie allerdings weniger von Interesse als für Leser aus dem Kreis der anorganischen Chemiker.*
[*The structure [...] described in the study should be published. For the heterogeneous readership of* AC, *however, it is less significant than for readers from the area of inorganic chemistry.*]

Another essential question is whether the manuscript is interesting and relevant enough for a communication in *AC*:

(19) *interesting chemical structures [...] interesting aggregation behavior*

(20) *Gründliche und wichtige Arbeit*
[*thorough and important study*]

(21) *Die hier dokumentierten strukturchemischen Zusammenhänge sind durchaus interessant [...] Der hier im wesentlichen beleuchtete strukturchemische Zusammenhang erscheint mir nicht ausreichend für eine Publikation in der AC.*
[*The correlations of structural chemistry documented here are certainly interesting [...] The structural correlation on which the principal focus is here does not seem sufficient for a publication in* AC *to me.*]

The German adverb *durchaus* in quote (21) weakens the positive evaluation in the adjective *interessant* more than its rough English equivalent *certainly* would; it already flags the overall negative evaluation following soon after.

Originality and novelty of the contents presented is also an important criterion for the decision if the manuscript merits the speedy publication granted to a communication or not.

(22) *The idea of the authors is original, leading to progress [...] in an important field of medicinal application. This may also stimulate other authors and rapid publication in* AC *is justified.*

(23) *This work is publishable and useful but it is not a sufficiently great advance to warrant publication in* AC.

(24) *A new way to [x] is described here. However, I recommend rejection because the key compounds [...] have already been prepared with slightly different yields by the author's group in [journal X].*

In the context of this originality/novelty criterion, neglecting to include references to previous studies considered relevant by the reviewer is not seen as a minor slip-up. Rather, it can be understood as an attempt to overstate the novelty of one's own paper by omission of earlier work in the field. Consequently, the following quote is among the very few that are quite harsh. It even uses a word entirely in upper-case letters to drive home the point, a strategy highly unusual for a peer review in our corpus:

(25) *This manuscript does not acknowledge all of the prior work and doesn't even reference it! And no, this referee has nothing to do with either group [quoted as prior work in the review]. I simply read the open literature. The claim that it is a 'new approach' (p. [X], par. [Y]) is NOT true.*

The appropriate shortness and conciseness for a text of the text type *communication* is also seen as important. Sometimes suggestions for cuts are added.

(26) *The paper is much too long for its message.*

(27) *The experimental part is not necessary, this is a communication, not a full paper.*

Last but not least, the quality of data and their presentation and the stringency of argumentation must be high enough for a publication in a journal of *AC*'s standing.

(28) *The quality of the data of [X] is not very good.*

(29) *The paper is interesting […]. The chemistry claimed seems to be sound, yet the problem is that the paper was prepared without care (I even doubt whether [first author] has seen the manuscript).*

(30) *The authors claim that […]. However, […] The presented data actually seems to contradict their claims […] Overall, the authors have not presented any convincing data to prove their claims.*

The evaluations are given in a rather matter-of-fact und unemotional style throughout. Metaphorical adjectives and adverbs from the fields of ethics and aesthetics are usually only found in strongly conventionalised form, all but devoid of their original semantics.

(31) ***nice*** *selectivity is seen*

(32) *the table […]* ***nicely*** *illustrates [X]*

(33) *eine* ***attraktive*** *Synthese*
     [*an* ***attractive*** *synthesis*]

(34) *describes a very* ***nice*** *result […] the rather* ***beautiful*** *structure*

There are only very few instances where modal adverbs or modal particles are used that betray the attitude of the reviewer.

(35) *Es fehlen* ***leider*** *Angaben zu [X] […] [Verfahren Y] ist doch mittels [Methode Z] völlig unzuverlässig.*
     [***Unfortunately***, *indications of [X] are absent […] [Procedure Y] using [method Z] is* ***obviously*** *completely unreliable*]

(36) *The findings are remarkable.* ***Unfortunately*** *the paper contains too many details for a short communication.*

Even the most enthusiastic evaluations are presented in a relatively restrained manner.

(37) *very impressive electron microscopic images*

(38) *This is an excellent ms. which should be published as submitted.*

(39) *eine ausgezeichnete, sehr komplette Arbeit. […] [X] wird sowohl überzeugend in Lösung nachgewiesen als auch über eine bemerkenswerte [Y-]analyse*
     [*an excellent, very comprehensive study. […] [X] is not only shown convincingly in solution, but also via a remarkable [Y] analysis*]

The peak of enthusiasm is reached in a characterisation such as the following:

(40) *another breakthrough in [method X] by the authors*

Similarly, negative evaluations are also expressed in a rather mild manner. Quote (42) is the most scathing judgement in the whole corpus.

(41) *I do not consider this work to be of the standard reported in* AC.

(42) *The scales bar for Fig [X] is crazy [...] This all has to be done more carefully.*

3.4 Self-reference of reviewers

The statistical evaluation of the corpus has not been completed yet, but the general impression is that in German reviews, the first person singular is used less frequently than in English ones. Such a linguistic difference (reflecting a cultural one between Anglophone and German academic cultures) would agree with results of the analysis of corpora of published academic texts in both languages (such as the recent one by Wu 2015). In many cases, there is no reference to the reviewer whatsoever in any part of the review, or the reference is given in a form that avoids the first person singular.

(43) *publication as full paper elsewhere **is recommended***

(44) *da **man** sonst vermuten könnte [...] Das [= Ablehnungsempfehlung] müsste **man** anders beurteilen, wenn etwa physikalische Eigenschaften diskutiert würden [...]. Im Folgenden **seien** noch einige Anmerkungen zum Text **aufgeführt**.*
   [*since **one** could otherwise assume [...] **One** would have to judge this [i.e the recommendation to reject] differently if e. g. physical properties were discussed [...]. In the following, a few remarks regarding the text **might be allowed to be** listed*]

Sometimes, first person singular and impersonal formulations both appear in the same review, either within the same text (as the German infinitive construction and then the first person in quote 45), or in different component texts.

(45) *unbedingt zur Annahme in der* AC ***zu empfehlen** [...] **ich** würde [...] nach **meiner** Erfahrung*
   [*absolutely **to be recommended** for publication in AC [...] **I** would [...] in **my** experience*]

(46) [in the cover fax:] *die **ich** sehr zur Veröffentlichung als Communication in der* AC *empfehlen möchte [which I would like to recommend very much for publication as a communication in* AC]
   [on the comments page:] *The communication should be recommended for publication in* AC.

(47) [in the cover fax:] ***I do not detect** [...] I would reserve judgment*
   [on the comments page:] ***This reviewer** is not pursuaded [sic] by color changes and physical measurements alone into believing that [...].*

3.5 Multiple addressivity

The reviews are directly addressed to the editors of *AC*, but indirectly also to the authors of reviewed manuscripts. There is a rather clear association of constituent texts or text sections with primary addressees: cover faxes/emails and questionnaires are primarily addressed to the editors, as are short summaries of the main points of the manuscript content often preceding the evaluative comments on the comments pages. These evaluative comments themselves, as well as suggestions for amendments of the manuscripts, are mainly addressed to the manuscript authors.

The reviewers are well aware of the communicative triad constituted by this communicative situation. This can not only be seen from stylistic differences between different constituent texts and text sections, such as the often more personal tone of the cover fax or email in comparison to the comments page, but also in differences between text sections of the comments that have different functions.

Even though the authors are hardly ever directly addressed in the second person, but rather referred to in the third person, there are instances of advice or even appeal to them.

(48) *Falls umbedingt [sic] eine Kürzung vorgenommen werden muss,* ***könnte man den Autoren raten*** *nur die Beschreibung des Endproduktes in Ihrem [sic] Manuskript zu belassen.*
[*In case the manuscript absolutely has to be shortened,* ***one could advise the authors*** *to leave only the description of the final product in their manuscript.*]

(49) *I ask* ***the authors*** *to understand my concerns about publishing this paper in* AC.

Questions – often very detailed ones – that are apparently addressed to the authors are quite frequent in the comments pages/sections of the reviews.

(50) *Fig. [X] […]: Sind die nach oben gerichteten Banden ein Artefakt, oder entsteht 4 aus 1 und 3? […] Fig. [Y]: Sind Banden […] relevant?*
[*Fig. [X] […]: Are the bands pointing/oriented upwards an artefact, or is 4 the product of 1 and 3? […] Fig. [Y]: Are bands […] relevant?*]

(51) *On p. [X] […] where is the spectroscopic evidence? P. [Y]: are the ppm given here bound shifts for 100 % complexation? […] Again, are the data based alone on [Z] shifts?*

(52) *Is there any similarity between this material and others that contain [X] […]?*

Suggestions for corrections or amendments are sometimes formulated in the indicative, but often oscillating between more and less direct forms in the same text or text section.

(53) *The authors* ***must*** *take into account the following comments: […] Some statements in the text* ***should be*** *[…] drastically* ***modified*** *[…]. [X]* ***must be*** *correctly* ***cited***. *[…] statements to illustrate [Y] must be cited. […] The authors should give information regarding [Z].*

(54) *The authors* ***need to*** *address [X] […]. [Method Y] is recommended [to the authors by the reviewer]*

Impersonal formulations are used more frequently than open directions, often in the form of modal verbs, mostly in the passive voice.

(55) *I suggest* **redoing** *the calculations with a [X] basis.* **One might start** *with […]. I suggest* **to give** *a more complete picture of the experimental and theoretical data and to elaborate on the discussion.*

(56) **sollten** *[…]* **herausgearbeitet werden**
[**should be presented** *in detail*]

(57) *this generalization* **should have been attempted** *[…] Refer. [X]* **should read** *[…]*

(58) *the chemical composition of [X]* **should be given** *somewhere*

(59) *At present, it looks like a full paper that* **could be submitted** *to [journal X].*

4 Conclusion and outlook

The corpus shows a wide range of texts and text groups constituting publication reviews for *AC*. In the majority of cases, the language of the review is identical with that of the reviewed manuscript, but there is a substantial number of English reviews of German manuscripts (while the reverse case occurs very rarely). The reviewers generally look very closely at the linguistic presentation of the manuscripts, this includes criticism of perceived lack of English language competence in authors for whom English is not their L1.

Evaluation, both positive and negative, is usually presented in rather restrained language. The triadic communication situation between reviewers, editors at *AC* and authors of reviewed manuscripts has consequences for the forms of reference to each of the partners in the communication. Self-reference to the reviewers does occur, albeit apparently more often in constituent texts and text sections addressed to the editors than those addressed to the manuscript authors, and also seems to be more frequent in reviews written in English than in German reviews. Advice to the authors is often hedged in impersonal form or expressed with modal verbs. While the manuscript authors are hardly ever addressed in the second person and direct imperatives do not occur in the corpus, questions obviously addressed to the manuscript authors are a frequent feature in the comments sections of reviews.

The analysis of the corpus is continuing. Statistical analyses of evaluative vocabulary and self-reference to the reviewers will be among the further steps of the study. A comparison with the scientometric studies by the Zurich team regarding the validity of reviewers' evaluations of manuscripts as a prediction of the success or otherwise of manuscripts published in *AC* or (in the case of rejection by *AC*) in another journal would also be interesting: Are there linguistic features of positive or negative reviews that indicate future success or failure of a paper (measured by the frequency at which it is quoted after publication)? In the longer term, a comparison of our corpus with an English and/or a German corpus of publication peer reviews for a journal in another academic field (e. g. within the humanities) might also bring interesting results.

Peer reviews, useful and ubiquitous as they are in academia, are still surrounded by a certain mystique, due to their internal and non-public character. The empirical analysis of corpora of peer reviews can help to dispel myths and rumours around this text type.

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Dissertation: „Eristisches Handeln in wissenschaftlichen Weblogs. Medienlinguistische Grundlagen und Analysen"

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Das Dissertationsprojekt untersuchte im Rahmen einer kulturanalytischen Medienlinguistik (vgl. bspw. Luginbühl 2015) mit vier Einzelfallstudien exemplarisch das wissenschaftliche Bloggen deutschsprechender Soziolog_innen. Dafür waren zwei Leitfragen zentral: (1) *Welche Konturen der Praktik des innerwissenschaftlichen Bloggens lassen sich nachzeichnen?* (2) *Wie konkretisiert sich eristisches Handeln als Strukturkennzeichen der Praxis interner Wissenschaftskommunikation im Rahmen dieser Praktik?*

Grundbegriffe und -probleme

Den Ausgangspunkt bildeten theoretische, begriffliche und methodologische Klärungen, die nicht allein für eine kulturanalytische, an Praktiken orientierte Linguistik notwendig sind, sondern gleichermaßen für das gesamte Fach. Mit einem konsequent medienlinguistischen Ansatz wurde deshalb zunächst ein erkenntnistheoretischer Standpunkt herausgearbeitet: Durch Vermittlung einer linguistischen Zeichentheorie, dem semiologischen Konstruktivismus (vgl. Jäger 1997), mit einer linguistischen Handlungstheorie, der Funktionalen Pragmatik (vgl. Redder 2008), konnten, ausgehend von der Unhintergehbarkeit der Materialität nicht nur des sprachlichen, sondern allgemein des sozialen Handelns, die Voraussetzungen hermeneutischen Analysierens sichtbar gemacht und Wege ihrer Einholung thematisiert werden. Vor dem Hintergrund der rezenten Praktiken-Diskussion (vgl. bspw. Deppermann/Feilke/Linke 2016) konnte dabei Nutzen und Notwendigkeit ethnografischer Methoden als Ergänzung zum zu selten reflektierten Methodenkanon der Linguistik offengelegt werden.

Die empirische Analyse profitierte von der Sichtung und Diskussion des Forschungsstands zu historischen und rezenten Entwicklungen in der Wissenschaftskommunikation. Denn das Nachzeichnen der Geschichte der wissenschaftlichen Öffentlichkeit konnte die komplexe Bedingtheit der Praxis interner Wissenschaftskommunikation verdeutlichen: Neue Medientechnologien, wie die Druckerpresse im 16. oder das WWW im 20. Jahrhundert, verändern *nicht einfach* die Gesellschaften und Kulturen, in denen sie benutzt werden. Vielmehr entwickeln sie sich in soziotechnischen Ökologien und entfalten darin ihre Folgen und Potenziale. Derartig komplexe Wechselwirkungen lassen weder die soziokulturellen Gemeinschaften noch die technischen Apparate als treibende Motoren der geschichtlichen Entwicklungen erscheinen (vgl. Schröter/Schwering 2014). Es sind vielmehr verflochtene, soziotechnische Konfigurationen, die Stabilisierungen und Konventionalisierungen hervorbringen, die dann bspw. als domänenspezifische Gattungen in domänenspezifisch funktionalisierten Kommunikationsformen vorgefunden werden können. Das Zeitalter des Buchdrucks hat für die Praxis interner Wissenschaftskommunikation eine Fülle solcher Gattungen, Kommunikationsformen, Organisationen und Infrastrukturen hervorgebracht. Mit den rezenten Entwicklungen der digitalen Medientechnologien geraten nunmehr gewohnte Konventionen wieder in Bewegung. Der Blick in den Forschungsstand konnte hier empirische Befunde zusammentragen und analytische Begriffe diskutieren.

Insgesamt erwiesen sich dabei zwei grundlegende Problematisierungen als notwendig. Die erste betrifft die adäquate Konzeptualisierung medientechnischer Voraussetzungen für sprachliches Handeln. Der medienlinguistische Kommunikationsformenbegriff (vgl. bspw. Holly 2011) musste aus medienwissenschaftlicher und techniksoziologischer Perspektive (vgl. bspw. Schabacher 2013) rekonzeptualisiert werden, um ihn für die Herausforderungen einer kulturanalytischen Linguistik zu „wappnen": Betrachtet man Kommunikationsformen begrifflich als Kippfigur, kann einerseits, wie üblich, ihre strukturelle Qualität und andererseits, mit der Analyse ihrer Infrastruktur, nun auch ihre performative Qualität in den Blick genommen werden (vgl. Meiler 2017). Auf diese Weise gelingt es, die soziotechnische Einbettung einer Kommunikationsform präziser zu beschreiben und ihre Verwobenheit mit institutionellen und domänenspezifischen Prozessen und den Wissenshintergründen der Akteure zu rekonstruieren. Ein so gespiegelter Kommunikationsformenbegriff macht die Rolle von Materialität und Medialität am Kommunikationsgeschehen herausarbeitbar und lenkt den Blick gleichermaßen auf die vorstrukturierend-bedingenden Qualitäten wie auch auf jene Qualitäten, die fortwährend neue Nutzungsspielräume eröffnen. Diesem Komplex widmen sich drei Einzelfallstudien (#1 bis #3).

Die zweite Problematisierung bezieht sich auf den Begriff der Eristik bzw. der eristischen Strukturen (Ehlich 1993, da Silva 2014, Thielmann 2015). Auch hier wird die etablierte Struktur-Perspektive mit einer Prozess-Perspektive vervollständigt. Eristik wird nicht als eine zweite illokutive *Struktur* begriffen, die über einer assertiven Struktur liegt, sondern kommt als vollzogenes eristisches *Handeln* in den Blick. Wenn Ehlich (1993) ein wesentliches Strukturkennzeichen von Wissenschaftskommunikation dadurch bestimmt, dass die monologischen Texte Spuren streitender, also dialogischer, Auseinandersetzung (um wissenschaftliche Gegenstände i. w. S.) aufweisen, und er diese Spuren illokutiv, eben als eristisch, qualifiziert, kann eine Analyse von Eristik nicht bei den sprachlichen Mitteln enden, die auf den allgemeinen Zweck eristischer Auseinandersetzung hinweisen. Vielmehr muss der Zweck selbst, in seiner gesellschaftlich verfestigten Gestalt, analysiert werden. Das heißt, die sprachlichen und kommunikativen Mittel, die in den wissenschaftlichen Texten aufgefunden werden, müssen in Relation gesetzt werden zu den Illokutionen und Handlungsmustern, die mit ihnen vollzogen werden, so wie diese wiederum in ihrer Domänentypik auf die Praxis interner Wissenschaftskommunikation als eristisches Unterfangen bezogen werden müssen. In einer solchen Dialektik werden Mittel *und* Zwecke eristischen Handelns rekonstruiert. Die begriffliche Wendung von eristischen Strukturen zu eristischem Handeln konnte so die prinzipielle illokutive Vielfalt interner Wissenschaftskommunikation aufweisen wie auch die Voraussetzungen ihrer handlungspraktischen Verstehbarkeit v.a. in domänenspezifischen Wissensbeständen ausmachen. Die illokutiven Qualitäten einer wissenschaftlichen Äußerung entfalten sich folglich abhängig von unterschiedlichen Wissenshintergründen als mitunter unterschiedlich vielschichtige eristische Verstehenshorizonte. Diesen Zusammenhängen wurde in der umfangreichsten Einzelfallstudie (#4) nachgegangen.

Ergebnisse der vier Einzelfallstudien

Zur Beantwortung der genannten zwei Leitfragen wurden die erwähnten vier Einzelfallstudien durchgeführt, deren Ergebnisse im Folgenden grob skizziert werden.

Einzelfallstudie #1: Aus der Rekonstruktion der Infrastrukturgeschichte des Blogs *geoberg. de* ließ sich aufzeigen, in welch konstitutivem Ausmaß seine Infrastrukturierung von einer Ar-

beitsteiligkeit geprägt ist, die sehr heterogene und distribuierte Entitäten funktional und organisational integrieren muss, damit ein plattform-unabhängiger Weblog als Startbedingung für Kommunikation verfügbar wird. Dieser konstitutiven Arbeitsteiligkeit steht eine ausgeprägte Eigenverantwortlichkeit des Bloggers gegenüber. Er trägt die organisationale Hauptlast für die Start- und Bestandsbedingungen der Infrastruktur. Er trägt aber auch die Verantwortung dafür, die hervorgebrachte Kommunikationsform in eine andauernde Kommunikationspraktik zu überführen.

Einzelfallstudie #2: Die Leistung, oder besser Dienstleistung, von Plattformen wie *hypotheses.org* ist es, den Bloggern die Pflege der Infrastruktur abzunehmen, sie gleichsam zu blackboxen und entsprechend ihrer spezifischen Politik zu überformen (vgl. Gillespie 2010). Das führt zu Mehrwerten und Einschränkungen, wie ich sie für meine Sozialisierung hinein in die Praktik des wissenschaftlichen Bloggens (*metablock.hypotheses.org*) nachgezeichnet habe. Diese spezifischen Restriktionen und Potenziale wirken freilich präfigurierend auf die Entwicklung der Praktik ein. Für *hypotheses.org* zeigt sich dies in den Institutionalisierungsbestrebungen, die das wissenschaftliche Bloggen bspw. über die gesicherte Archivierung und die ISSN-Vergabe an Normen und Infrastrukturen der internen Wissenschaftskommunikation anschließen will.

In *Einzelfallstudie #3* steht der Blick anderer Blogger auf das wissenschaftliche Bloggen im Fokus. Aus der Analyse von 19 metakommunikativen Blogeinträgen (auf dem *SozBlog*[1]) und den dazugehörigen Kommentarverläufen konnten die Perspektiven der deutschsprachigen Soziologie auf das soziologische Bloggen rekonstruiert werden. Im Sinne einer *Public Sociology* (Burawoy 2005) ist aus ihrer Sicht das soziologische Bloggen im Allgemeinen und das Bloggen auf dem *SozBlog* im Besonderen sowohl für die interne wie auch für die externe Wissenschaftskommunikation fruchtbar. Aus den von Selbst- und Fremdzuschreibungen bestimmten Auseinandersetzungen ließen sich zwei Pole ethnotheoretischen Wissens herausarbeiten: (1) ein reformorientierter Pol, der Weblogs als eine fruchtbare Ergänzung zu den etablierten Publikationsformen begreift, und (2) ein progressiver oder revolutionsorientierter Pol, der Weblogs und das Bloggen als Möglichkeit versteht, verkrustete Strukturen der etablierten Publikationslandschaft aufzubrechen.

Mit diesen drei medienkulturwissenschaftlichen Einzelfallstudien konnten Aspekte der Praktik innerwissenschaftlichen Bloggens ausgelotet werden. Inwieweit sich innerhalb dieser rahmenden Bedingungen eristisches Handeln konkretisiert, wurde in Einzelfallstudie #4 anhand von neun Blogeinträgen und Kommentarverläufen aus dem *SozBlog* und dem Blog *(SOCIAL) SCIENCE IN THE MAKING*[2] untersucht.

Einzelfallstudie #4: Auf der Ebene der sprachlichen Prozeduren zeigte sich, dass es wissens-, erwartungs- und verstehensbearbeitende Mittel des operativen Feldes (vgl. Redder 2010), ebenso Mittel des Symbolfeldes – darunter Ausdrücke der Alltagssprache, der alltäglichen Wissenschaftssprache (vgl. Ehlich 1994) sowie disziplinenspezifische Ausdrucksbestände – und schließlich Personaldeixis sind, mit denen eristische Illokutionshorizonte zu verstehen gegeben werden.

Auf der Ebene der Sprechhandlungen konnte gezeigt werden, wie es in ihrer linearen Verkettung zu modifizierenden Wechselwirkungen kommt. Eine besonders für die Wissenschaft charakteristische Wechselwirkung konnte am prospektiven und retrospektiven Begründen

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[1]   URL: soziologie.de/blog.

[2]   URL: andreasbischof.net.

(grundlegend zum Begründen-Muster vgl. Ehlich/Rehbein 1986) anderer Sprechhandlungen aufgezeigt werden. Dadurch kann die hörerseitige Akzeptanz von Aspekten vorhergehender oder nachfolgender Sprechhandlungen bearbeitet werden, was ihre illokutive Lesbarkeit maßgeblich verändert.

Für die Handlungsmuster Ratgeben und Vorschlagen (vgl. Rehbein 1977: 316–324) konnte gezeigt werden, dass sich ihre eristische Qualität aus einer kommunikationsformenspezifischen und domänentypischen Ableitung ergibt. Diese besteht darin, dass diese Muster ohne eine Bekundung von Handlungsunfähigkeit und ohne eine Bitte um Hilfe durch ein Gegenüber genutzt werden. Mit der Bestimmung des Handlungsmusters wissenschaftliches Problematisieren konnte zudem ein für die Domäne entscheidendes Handlungsmuster herausgearbeitet werden.

Des Weiteren wird auf die illokutive Komplexität des Zitierens (vgl. Brünner 1991, Steinseifer 2014) eingegangen. Das Einbinden fremden Wissens in den eigenen Text macht das Zitat zu einem zentralen Ort eristischen Handelns. Es zwingt u. a. zum eristischen Positionieren – verstanden als wesentlicher Zweck moderner Wissenschaft. Das Positionieren gibt dem Leser zu verstehen, von welchem Punkt im wissenschaftlichen Wissen der Autor spricht, welche theoretischen und methodologischen Annahmen er macht, welche Konsequenzen sich daraus ergeben etc. Mit Blick auf diesen Zweck wird deutlich, dass eristisches Handeln nicht nur dissens-, sondern auch konsensorientiert analysiert werden muss.

Schließlich fokussierten die linguistischen Analysen das Spannungsfeld zwischen den Präsuppositionssystemen (vgl. Ehlich/Rehbein 1975, Habscheid 2016) des Bloggens und der internen Wissenschaftskommunikation, das sich auch in einigen sprachlichen Charakteristika der Blogeinträge und Kommentare zeigt. Die daraus erwachsenden Maximenkonflikte können als Spuren des aktuellen Entwicklungsprozesses der Praktik innerwissenschaftlichen Bloggens betrachtet werden. Recht hohe Fehlertoleranzen und die Präferenz schneller Kommentar-Kommentar-Anschlüsse zeigen, was man mit Bolter/Grusin (2000) als eine Remediatisierung diskursiver Qualitäten im Textuellen bezeichnen könnte.

Fazit

Die Arbeit hat aus kulturanalytischer Perspektive wissenschaftliches Bloggen untersucht. Es handelt sich dabei freilich um eine Momentaufnahme der Praktik innerhalb der Soziologie, die der vertiefenden, überprüfenden und vergleichenden Analyse bedarf. Diese Perspektive kann aber andere rezente Formen der digitalen, internen Wissenschaftskommunikation genauso erhellen wie auch (neues) Licht auf die etablierten Formen und ihre Entwicklung werfen.

Aus der Verbindung von Medienlinguistik und linguistischer Pragmatik können die wesentlichen Bestimmungsmomente unterschiedlicher sprachlich-kommunikativer Praktiken interdisziplinär anschlussfähig beschrieben werden. Dabei bietet allein die Erforschung eristischen Handelns noch vielfältige Aufgaben. Eine Systematik der illokutiven Vielfalt der unterschiedlichen wissenschaftlichen Gattungen steht bspw. noch aus. Die Ergebnisse der Arbeit konnten jedoch entscheidende Aspekte beleuchten und leisten damit sowohl einen fundierenden Beitrag zur Wissenschaftssprachenkomparatistik als auch zur Didaktisierung von Wissenschaftssprache(n).

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Dissertation: "Danish as a second/foreign language – BA students' written L2 genre competence. A comparative examination of Danish native speakers' and German L2(Danish)-learners' mastery of formulaic language in selected genres"

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1 Introduction

This dissertation investigates how BA students with German as a native tongue (L1) write particular genres (abstract, commentaries, press releases) in their second/foreign language, Danish (L2). It focuses on the writing skills that enable such L2-learners to interact in Danish with Danish L1-speakers in a professional and academic way within the linguistic norm. Since only few studies on Danish as a foreign/second language have been conducted so far, writing still remains a field for further research, not least when it comes to learners of Danish with L1 German. For several years now, the University of Southern Denmark has offered Danish as a foreign language to German students enrolled in a Bachelor programme "BA in Modern Languages and Intercultural Communication". The aim of this programme is to enable L2-students to perform as fluently in Danish as native-speaking professionals. Thus, the aim of the dissertation is to investigate students' genre writing in L2-Danish in relation to Danish L1-standards as they manifest in three genres: (i) abstract (Bachelor project/Master's thesis); (ii) commentary, and (iii) press release. The analysis combines research approaches from genre linguistics as well as from research into formulaic language, for example phraseology and/or corpus linguistics (e. g. Stein 1995, Lüger 2007, Fandrych 2008, Lenk 2014, Biber 2006, Wray 2002, 2012, Hyland 2012), where the textexternal rhetorical situation and the textinternal macro- and micro-structures are approached through analyses which, cf. Hüttner (2007), culminate in an *extended genre analysis*, with *co-conventionalisation* becoming the core concept. The major research interest of the dissertation therefore focuses on the following questions:

(i)   What is L2-genre competence compared to L1-genre competence and compared to L2 writing competence, including L2 formulaic competence?

(ii) To what extent do L2 students (not) meet the requirements of general, academic and LSP genres within the framework of an LSP BA education (CEFR: B2-C1)?

2 Theoretical framework

Based upon positions within genre theory, including Bakhtin's theory of speech genres (Bakhtin 1986), English for Specific Purposes (Swales 1990, 2004, Bhatia 1993, 2010), New Rhetoric (i. a. Miller 1984) and Systemic-Functional Linguistics (cf. Halliday 1994), partly on Sandig's (2006) approach to stylistics and the genre model developed by Ditlevsen et al. (2007), written L2 genre competence and L2-learners' formulaic competence are examined in the theoretical part of the dissertation. Genre competence is defined as comprising of four key interrelated *capacities* (Illeris 2011: 64): (i) sociocultural knowledge, insight; (ii) micro- and macrostructural knowledge of language and text organization; (iii) knowledge of speech acts;

and (iv) knowledge of content, which is determined by the readiness for academic reflection, and which entails knowledge about a subject, skills and proficiency in a particular subject. The bi-cultural, bilingual experiences perceived by the L2-learner's through exposure both to L1 and L2 are considered as the most distinct difference between L1 and L2 genre competence, in that such experiences allow for positive as well as negative transfer of linguistic traits and rhetorical conventions from L1 to L2 (Ehlich 2011, Hyland 2012).

In terms of microanalysis, the study argues in favour of *formulaic language* analysis (Stein 1995, Wray 2002, 2012) as an observable instantiation of the L2 writer's mastery of the capacities. The general motivation to focus on formulaic language is due to the assumption that L2-learner's mastery of formulaic language may result in an increased efficiency towards linguistic reception and production as well as in a more fluent and idiomatic language use (Henriksen 2013, Paquot/Granger 2012). Consequently, lexical bundles that are recurrent and exclusively defined by frequency have been studied as well as patterns of utterance. On the basis of Feilke (2012), the latter are defined as accentuating intention and constituting text as well as genre, as expressions on different linguistic levels (word, phrase, syntactic, textual level), which are salient due to recurrent co-occurrence. *Formulaic competence* is operationalised as the ability to apply correct, frequent and (non-)different formulaic language in relation to an L1 norm.

3 Data and procedure

First a corpus of texts written by L2-students enrolled at the University of Southern Denmark from 2011 to 2014 was compiled. The Danish L1 text corpus was drawn from texts taken from the internet. The corpus consisted of a total of 436 texts (253 L1 texts – 125,025 tokens and 183 L2 texts – 61,961 tokens). This corpus was divided into three genre sub-corpora. Based on one of Sandig's models (2006: 489), the second research question was then specified as follows:

- What identifies L2 genres as type of action ("Handlungstyp") compared to L1 genres?
- How is the genre realised as a means of action ("Handlungsmittel") in the hierarchy of actions and pattern of sequences that may be observed in the L1 and L2 texts?
- How is the genre realised as a means of action ("Handlungsmittel") in the formulaic language that may be observed in the L1 and L2 texts?
    – Which formulaic language represents x speech act in the L1 and L 2 texts?
    – How frequent is the formulaic language in question used?
    – Which formulaic language is over-/underrepresented in the L2 texts compared to the L1 texts? (Why?)
    – Which formulaic language is morphosyntactically/lexicogrammatically/stylistically deviant in the L2 texts? (Why?)
    – How does it affect the (assessment of) genre competence when L2 students' use of formulaic language is deviant with regard to correctness, frequency, and variation?

4 Findings

The corpora were studied with regard to text length, number of sentences and words. Then the type-token ratio was determined, which revealed a notable grading of the genres in the L1 corpus in contrast to the L2 corpus. The abstract was the most complex genre in terms of length of text, sentences and words. The press release was the second most complex, and

the commentary the least complex genre. The L2 press releases are shorter and contain fewer sentences than both all the L1 genres and the L2 abstracts and comments; whereas the average word length, in contrast, is greater in the L2 press releases than in all the other genres. With regard to the length of text, sentences, and words, the L1 and L2 commentaries show more similarity than the L1 and L2 abstracts. The least similarity is found between L1 and L2 press releases. With regard to the *type-token ratio*, the L1 texts can be graded as above in terms of genre, and interlinguistically similar, with L2 commentaries closest to the L1 norm, the abstracts less, and the press releases least close.

The corpus tool *PhraseContext* (cf. Mortensen 2006) was used to study the most frequent lexical bundles in the total corpus and according to genre. The results reveal more recurrent language means in the L2 corpus and an overuse of a few frequent bundles. The latter tendency can be observed in all L2 genres, but the abstracts differ from the other two genres in that there is less recurrent language in the L2 abstracts than in the other texts, thus also less recurrent language than in the L1 abstracts. In contrast to the quantitative characterisation and the type-token ratio, which shows the most similarity between the L1 and L2 commentaries, the lexical bundle analyses reveal that the abstract is the genre where the two corpora have the most recurrent language means in common, whereas it is confirmed that the press release is the genre that shows the greatest difference.

When comparing the macrostructural patterns of sequences and hierarchies of moves in the three L1 and L2 text genres, it can be detected that the L2 abstracts display approximately the same sequencing as the L1 abstracts and only deviate in optional sub-moves. The L2 commentaries and press releases have in common that prominent paratexts are not or only to a lesser degree realised, namely in the comments, the headline, and in the press releases, the marking of the sender and the boilerplate.

In the commentary genre, this leaves a disparate impression of the emphasis of the genre's intention, which, however, may be interpreted as an explicable expression of the situationally diverse settings that the writers are placed in. Furthermore, this spurs speculation whether or not the L1 and L2 comments should be perceived as realisations of different sub-categories of the commentary as a genre. In contrast, the press release appears to be the only genre in the corpus in which individual students display alienation from genre patterns and uncertainty about the communicative situation when it comes to marking of journalistic sender or application of academic genre conventions. The analysis of the macro- versus micro-structural level, however, emphasises that the L2 students in general do not lack knowledge of the genres' intentional and macro-structural levels, but, in contrast, knowledge of how the genres' intentions and (sub-)moves are most adequately represented. The students do not lack textual, text organisational metaknowledge about the genres, but linguistic productive skills on the micro-level.

A schematic overview of variation, L1- and L2-equivalence, L2-intralinguistic characteristics, and lexicogrammatical, morphosyntactic and stylistic characteristics on complexity continua shows to what extent the L2 texts deviate from the L1 standard.

With regard to variation, the dissertation demonstrates that the L2-students employ fewer variants than the L1 writers, in particular in the press releases, but in the commentaries as well, while in the abstracts, this depends on the type of utterance. Although there are fewer variants in a number of utterances than in the L1 abstracts, the L2 writers employ more variants in the majority of utterances. While there seems to be a didactic task of reduction in L2 abstract language, the reverse is true for the commentaries and the press releases in as far as

an extension of students' language seems mandatory in comparison to the L1 norm. The rule that L1 transfer (interference) is the primary source of L2 deviation applies to all three genres, but it seems first and foremost to apply to the press release, depending on the immediate input in the situation.

Collective problem areas of L2 texts are use of hypotaxis, filling in the syntagma, tenses, modality, and explicity. Problem areas that are collective, but of a different nature just occurring in the abstract are the filling in of clause scheme, voice, valorisation, and mediation. A specific problem in commentary and press release is mood, while in abstract and press release it is the low-frequency subject-related or academic discourse-related vocabulary. Finally, the abstract is characterised by specific problems referring to coherence and synthetic syntax.

The status of the abstract as the most normative genre of the three is confirmed. It is also demonstrated that the L2 genres are characterised by the grading of the L1 genres, i. e. by a difference of complexity where *higher order*-problems are slightly more characteristic of the abstract, followed by the press release, and *lower order*-problems are slightly more characteristic of the commentary than of the two other genres. The capacity for self-positioning, which is closely connected to the understanding of recipient and of the writer-recipient relation, is emphasised as an act that is contingent on these problem areas as an essential expression of the L2 students' genre competence.

5 Implications

The following general, collective and fundamental implications of the findings relating to L2-didactics and -acquisition can be derived from the study: (1) Language is learned most efficiently in connection with its function; (2) Grammar should not be isolated from lexis; (3) Patterns of utterances should be acquired as units, and (4) L2 is acquired most efficiently through contrastive analysis. Moreover, genre didactics may include progression at the microstructural level, i. e. a progression in terms of patterns of utterances, and may take into consideration affective elements, such as the students' courage to employ, not the forms of first choice, but of second or third choice instead. Finally, patterns of utterances may be combined with a traditional systematic framework of lexical didactics, i. e. an input-intake-output model that progresses from recognition/identification to exercise and proper application.

The validity of the findings may, to a certain extent, be limited due to a product analysis instead of a process analysis, a synchronous instead of a longitudinal examination, and to the relatively limited data in terms of corpus linguistics. Future research might focus on an examination of L2 students' socialisation to writing in their L1 context and in a longitudinal study that tracks L2 learners' development from first L2 contact at the university to BA, possibly master's level.

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Bibliography of Recent Publications
on Specialized Communication

Ines-A. Busch-Lauer

64th Installment

Seit der 48. Fortsetzung erscheint die „Kleine Bibliographie fachsprachlicher Untersuchungen" auch online unter www.fachsprache.net (Link Bibliography) und trägt den Titel „Bibliography of Recent Publications on Specialized Communication". Die Datenbankversion der Bibliographie bietet verbesserte Suchmöglichkeiten, wie beispielsweise eine Schlagwortsuche. Derzeit finden sich in der Datenbank alle Titel, die seit der 48. Fortsetzung in der Bibliographie enthalten sind.

From the 48th installment on, the "Kleine Bibliographie fachsprachlicher Untersuchungen" has appeared under the title "Bibliography of Recent Publications on Specialized Communication". The references it contains can also be accessed online at www.fachsprache.net (Link Bibliography). The online version of the Bibliography offers additional search options, for example a keyword search. Currently, the database contains the titles included in this Bibliography since the 48th installment.

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List of Journal Abbreviations

ARAL: Australian Review of Applied Linguistics, John Benjamins

ASp: ASp, la revue du GERAS. <www.geras.fr>

BPCQ: Business and Professional Communication Quarterly, Sage Publishers

Discourse & Society: Discourse & Society, Sage Journals. <http://journals.sagepub.com/toc/DAS/current>

Discourse & Communication: Discourse & Communication, Sage Journals. <http://journals.sagepub.com/loi/dcm>

ESP J: ESP Journal. English for Specific Purposes. An International Journal. New York/Amsterdam: Elsevier B.V.

ESP Today J: ESP Today. Journal of English for Specific Purposes at Tertiary Level. <http://www.esptodayjournal.org/>

Fachsprache.IJSC: Fachsprache. International Journal of Specialized Communication. Wien: Facultas. <www.fachsprache.net>

IDJ: Information Design Journal, John Benjamins

IJBC: International Journal of Business Communication, Sage Publishers

JBTC: Journal of Business and Technical Communication, Sage Publishers

JEAP: Journal of English for Academic Purposes. Elsevier B.V.

JTESAP: Journal of Teaching English for Specific and Academic Purposes, University of Niš. <http://espeap.junis.ni.ac.rs/index.php/espeap>

Terminology: Terminology. International Journal of Theoretical and Applied Issues in Specialized Communication. John Benjamins. <https://benjamins.com/#catalog/journals/term>

Text i dyskurs: Text i dyskurs – Text und Diskurs, Uniwersytet Warszawski. <http://tekst-dyskurs.eu/index.php/pl/>

TTMC: Translation and Translanguaging in Multilingual Contexts, John Benjamins. <https://benjamins.com/#catalog/journals/ttmc/main>

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