

From zero to sign: Transferring food safety from Finnish to Finnish Sign Language

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ABSTRACT

In this paper we present how professional food hygiene concepts and established terminology are translated by an experienced professional deaf translator and interpreter from Finnish into Finnish Sign Language (FinSL) where the food safety concepts are in the main not lexicalized in FinSL. The translation task is a model exam of hygiene and food safety standards, providing both information on the format of an examination organized by a national authority and indications about the extent of knowledge required to pass the examination. The signed translation of the Food hygiene proficiency test (Evira 2018a, 2018b) is the first published text on safe food handling in FinSL, providing access to the Finnish deaf. In our case study we have followed Šipka's (2015) practical theory and taxonomic model on lexical anisomorphism (focusing here only on zero equivalences) and classified the signed equivalents covering lexical gaps in three main categories.

At the end of the paper we discuss the possibilities for lexical standards proposed in this kind of publicized translation and for online terminology to be recognized as part of the established lexicon in a small minority language such as FinSL. With this minor contribution we want to support the Finnish deaf community and UNESCO's (2005) actions to promote small minority language access to electronic content in all languages and improve the linguistic capabilities of users and to create and develop tools for multilingual access to the Internet in conjunction with the development and promotion of multilingual content, domain-specific communication, information and knowledge (UNESCO 2005: v).

Keywords: Finnish Sign Language (FinSL), deaf translators/interpreters (DT/Is), language for special purposes (LSP), lexical asymmetry, contrastive lexical anisomorphism (CLA), zero equivalence, food hygiene

1 INTRODUCTION

In this article we observe some of the strategies used when specific professional concepts and established terminology of food hygiene are translated from Finnish into Finnish Sign Language (FinSL) by an experienced professional deaf translator and interpreter (DT/I). By using the term "deaf translator and interpreter (DT/I) we adhere to Stone (2009, ix–xiii), who emphasizes the fact that DT/Is are able to linguistically and socially identify themselves members of the sign-language-using community when they present their translations to people like themselves who cannot hear.

In FinSL the (modern) concepts of food safety are typically not lexicalized. Despite this linguistic barrier, these elements need to be understood by deaf people preparing for their examination on safe food

handling in order to obtain a certificate demanded by the National Food Act (23/2006). The model exam includes 40 statements (see Evira 2018a for the parallel translation into English) and, apart from the commentary related to each question, it is similar to the random true-false test, performed under the surveillance of a proficiency examiner (Evira 2018a).¹

The main goal of this Erasmus+ subproject conducted by Humak University of Applied Sciences (Humak UAS) was to provide insights for sign language interpreter (SLI) education on the ways DT/Is use the expressive power of their native language. Within the limited space of this article we concentrate on one revealing aspect that constantly challenges the work of DT/Is in Finland, namely, which strategies are adopted when rendering lexical and conceptual elements from the source language (SL) into FinSL where there are no established correspondence? In this article we also ponder how likely it is that the Finnish deaf community will use the proposed terminology.

In Finland there are 5,5 million people of whom approximately 4,8 million speak Finnish as their mother tongue (Statistics Finland 2017), the deaf population (i.e. those using interpreting and translation services) consists of no more than 3 600 members (Kela 2017a).

There are few fields of specialization with enough deaf people in professional practice to contribute to the emergence of domain specific language that could then stabilize into a set of established, overlapping equivalences between Finnish and FinSL. Of those fields, currently pedagogy and linguistics are the only disciplines that have been taught to several generations of deaf students through FinSL (Takkinen, 2013). However, safe food handling has been taught (although not necessarily in sign language) continuously from 1905 to 1990s in one vocational school for the deaf, and thereafter for (mostly) hearing students with special needs (Ruuskanen, 2005, pp. 43–146; 177; 180). Today, the number of deaf students in the school (known as Bovallius Vocational College (BVC) until 2017) account for only 1 % of the school's population (headmaster Arja Kilpeläinen, personal communication, 23 October 2017). This means that at this moment, among the users of FinSL, there are very few practitioners who could be consulted as experts using the specialized language within food safety (Pokkinen, 1998, pp.23–27).

The hygiene proficiency model exam, accompanied by explanatory commentaries, is designed for everyone aiming to take the exam to demonstrate their practical competence at work handling unpacked, highly perishable food. All candidates who pass the exam receive “a hygiene passport”, required by the National Food Act (23/2006), allowing them to work in food premises in Finland. This certificate may be acquired either by having appropriate education in the food sector or by passing a separate test organized by independent proficiency examiners, approved by the Finnish Food Safety Authority Evira.

Evira does not, however, organize training nor publish any other educational material on hygiene proficiency (abbreviated hereafter as HP), besides providing the model test in Finnish, Swedish and English on its website and now the link to the translation into FinSL (Evira 2016a, 2018a, s.v. Viittomakielellä). There is a large supply of preparatory courses and training opportunities offered online and by private adult education institutions such as the Folk High School for the Deaf. For several years now, many of those attending these courses are, besides native FinSL users, immigrants with varied linguistic and educational backgrounds (Suvi Sjöroos, personal information, 22 August 2017). The preparatory courses are based on a collection of various visual materials where the safety and wholesomeness of food is illustrated visually, alongside written texts in Finnish, adapted and translated by a deaf instructor (having a background in DT/I).

1. The authors want to thank translator and interpreter Tomas Uusimäki and all other DT/Is at the sign language interpreter agency Viparo as well as the Viparo Company together with the Folk High School for the Deaf for their valuable contribution during the whole translation process. We also thank the Finnish Association of the Deaf, the owner of the Sign Language Library, and the Ministry of Culture and Education, both for financing the final production of the signed translation.

In the instructor's experience, the non-lexical visualizations (films, photographs, drawings and animations) are most useful in cases where there are no established lexical expressions in FinSL, e.g. for such central concepts as contamination and cross-contamination. There are, however, concepts for which no effective visualizations cannot be found, as is the case with water activity (controlling microbial growth), for instance. Here the only tool left to clarify the concept is the use of sign language with its spatial metaphors (Taub, 2001). Thus, for instance, the figurative idea behind the concept water-activity has been explained exploiting polymorphemic constructions in sign language (Johnston, 2009, p.952). Having a signed translation at her disposal, the teacher may utilize its conceptualisation, terminology and the signed texts on food hygiene as metalinguistic elements, when central concepts and terms are discussed and elaborated during the food safety courses. It is also important that before the HP exam occasional, commissioned interpreters are able to familiarize themselves (at least in part) with the terminology used during the courses and to use it in the test situations (Suvi Sjöroos, personal information, August 22, 2017).

2 RESEARCH QUESTIONS

As noted above, FinSL lacks most of the special terminology used in the HP field and Finnish text books on food safety cannot be exploited as support material either, since not all students read Finnish. We know that "People whose mother-tongue is not (or not sufficiently) developed from the point of view of terminology and special purpose languages (SPL) or who are denied the use of their mother-tongue in education and training, for accessing information, or interacting in their work places, tend to be disadvantaged" (UNESCO 2005, v). These linguistic obstacles must be circumvented in one way or another, so that deaf students can prepare themselves for the exam and work in their chosen profession.

The term food hygiene conceptualizes "all measures necessary to ensure the safety and wholesomeness of foodstuffs" (Forsythe, 2000, p.368) and is a good example of language for special purposes (LSP, i.e. language used by expert communities) that in popular scientific texts and course books intersects with language for general purposes (everyday language, LGP) (Tarp 1995, 16–19; UNESCO 2005, 3). Since the HP exam text represents the "final stage of knowledge" the two genres (LGP and LSP) are very present also in the model exam along with the terminological density, due to the high level of specialization (Picton and Dury 2017, p. 65 [originally Cabré, 2000]).

As for the relatively small number of deaf people sharing and using their LGP and, inevitably, an even a smaller number of people sharing the same LSP within the same field of specialty, the situation has led us to ponder the following question: which strategies are adopted by mediators between Finnish and FinSL (a native FinSL user and professional DT/I) in order to render the terminological expressions of the ST into a comprehensible target text (TT), when the commonly known equivalents for those expressions are lacking?

When dealing with foreign elements in signed languages, borrowing would be expected, i.e. through fingerspelling or by nativising fingerspelled words into signs (Johnston and Schembri, 2007, p. 176; see also examples from different sign languages in Brentari, 2001). We claim, however, that our research goal is not trivial since the target audience consists of those deaf people who are new learners of the subject and not familiar with the Finnish (or FinSL) LSP in this area. This is why the DT/I translator must find other solutions when trying to render the Finnish LSP concepts in an exam understandable for the general FinSL using public.

Finally, we also try to find an answer to a question that we consider a very crucial one: Is the lexical standardisation possible from publicized translation (or terminology collection) such as this, and will it then be recognized as part of the established lexicon of a small minority language such as FinSL?

3 THEORETICAL BACKGROUND

3.1 Temporary vs. stabilized lexicon

Neologisms and loan words have been described extensively in sign languages from Battison (1978) to Mathur and Rathmann (2014) and for FinSL (Rissanen, 1985). As regards to discipline-specific terms, the most expected strategy would be to borrow via fingerspelling or to nativise them in TL via loan translations (Takkinen, 2010 for FinSL). But as in many signed languages (Boyes Braem, 2001; Locker McKee and McKee, 2000; Sutton-Spence and Woll, 1999) as in FinSL there is a tendency to avoid using fingerspelling for loanwords representing nouns or proper names if a signed equivalent can be composed in another way. In these cases signs are often accompanied by spoken language mouthings (Rainò, 2001 and 2004; Hodge et al., 2015; Boyes Braem and Sutton-Spence, 2001.)

Safe food handling is, and must have been, part of everyday discourse ever since the 1850s when the first deaf couples had families using sign language, after attending deaf schools where sign language was the language of instruction (Salmi and Laakso, 2005; Wallvik, 2001). The lexical existence of this semantic field can actually be verified in the first dictionary presenting “the original sign language” cultivated among the first generation of sign language users in Finland (reproduced in the online sign language dictionary Suvi, 2018: Section Hirn341). In the three booklets of 341 photographs, produced by the deaf couple, professional photographers Fritz and Maria Hirn – contemporaries of the very first signing generation – the signs they wanted to document covered a variety of established lexicon of different semantic fields including gardening, farming, astronomy, meteorology and mineralogy (Hirn, 1910–1916). In this collection there are 47 signs connected to food and cookery some of which (e.g. [TO] CLEAN and DIRT[Y]) can be considered to be on the topic of “hygiene” (Figure 1).

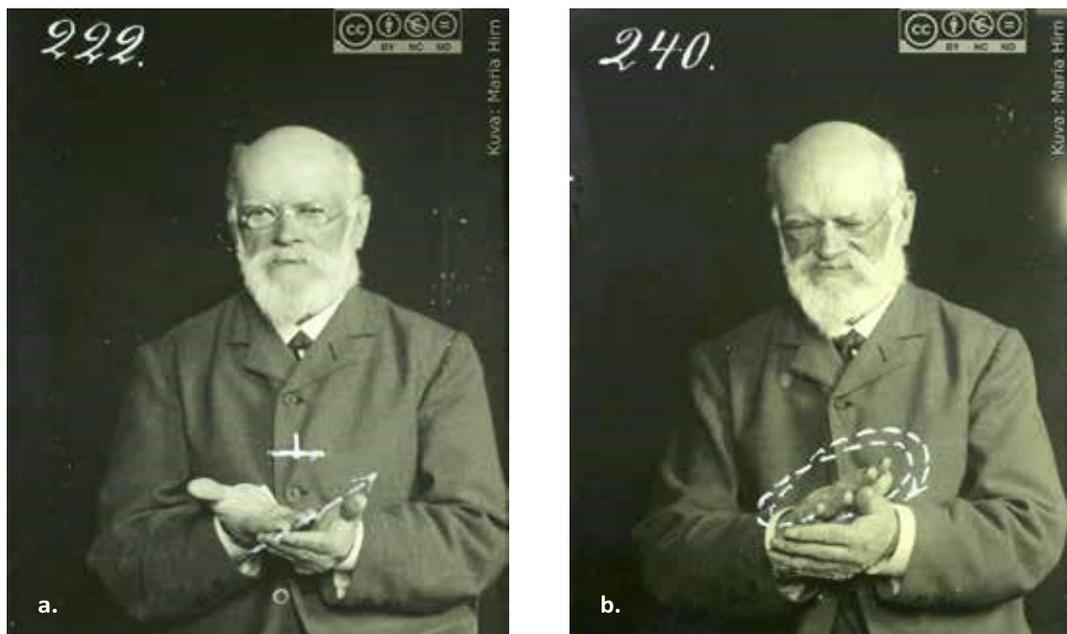


Figure 1: Signs for “(to) clean” [no. 222] on the left and “dirt, dirty” [no. 240], as signed in the 19th century in Finland (Suvi 2018: articles 3683, 3701). Primary source of the photographs: Finnish Labour Museum Werstas, Collection of the Finnish Museum of the Deaf. Photographer: Maria Hirn.

The old signs conserved by Hirn are still in use (with some phonological changes, Jantunen, 2003) in the LGP of FinSL and presented in the online dictionary (see Figure 2).

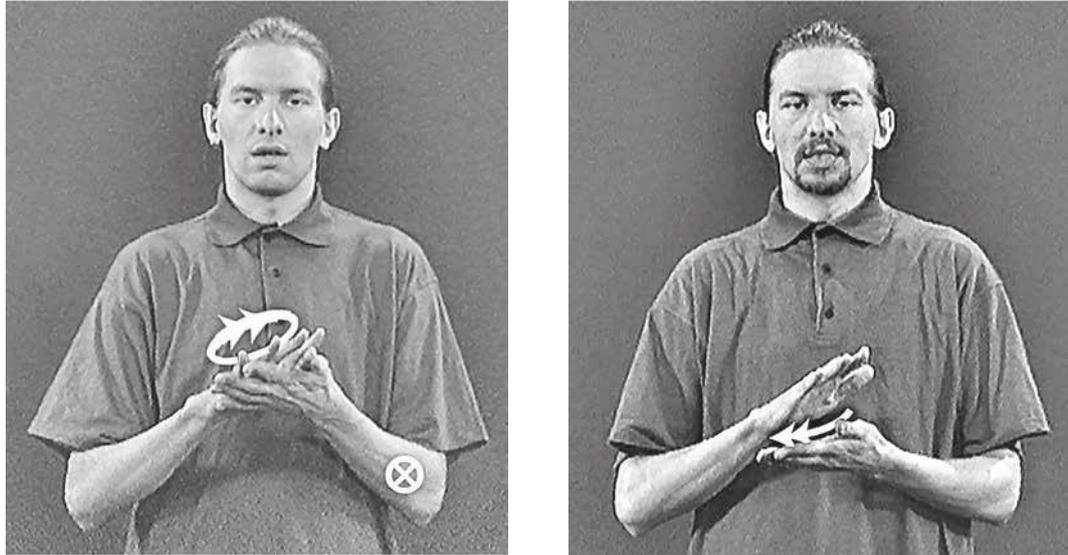


Figure 2. Signs for “to clean” (on the right, with a repetitive movement) and “dirt, dirty; pollution, polluted” on the left (Suvi 2018, articles 111 and 965) in present day FinSL.

Food safety was, undoubtedly, a topic of concern in the oldest vocational institute for deaf women in Finland, the school for cookery and food economy mentioned earlier (Nikkarila Vocational Institution founded in 1905, later Bovallius Vocational College, today working under the name Spesia). The previously mentioned signs of food hygiene must have developed when teaching cookery, dairy production and nutrition (Ruuskanen, 2005), since interaction between the hearing staff and deaf pupils was conducted, at least at times, by “speaking with the hands” (Ruuskanen, 2005, p. 79; p.104). These signs also appear in the vocabulary compiled on the College’s website as equivalents for hygiene (appearing also in the sign for to disinfect) and dirty (in the meaning of “contaminated”). This collection named Professional Signs [Ammattiviittomat] of 350 lexical entries contain 75 expressions regarding food hygiene, and is targeted “for the use of students, teachers, tutors and interpreters” (BVC 2015; Figure 3).²



Figure 3. Signs for hygiene and dirt(y), contaminated (the rightmost image, in which the active hand makes a rotary movement), in the signed online vocabulary by BVC (2015).

However, many of these signs for food safety, especially in the sign language vocabulary produced by the BVC made us ponder their status: do they provide proof that those concepts and terms exist in the FinSL LSP (Šipka, 2015) such that a translator may (or should) adopt them without further consideration? Have they been lexicalized, either through a horizontal transfer, i.e. between people belonging to the same generation (Dahl, 2004), or through a vertical transfer (within different generations) of FinSL users? The idea that the vocabulary and terminology once used and then conserved in a glossary, in order to be

2. Due to a fusion in 2018 with another vocational school, it is possible that the webpages of BVC and the signed vocabularies presented in this paper will be filed away in the future (BVC 2017; headmaster Arja Kilpeläinen, personal communication, 23 October 2017).

reused by “students, teachers, tutors and interpreters” (BVC 2015) goes against “the dynamic principle of the lexica of linguistic communities” presented by the typologist Wälchli (2005) who says:

The lexicon of a language community is on a scale ranging from the temporary lexica of individual texts and individual conversations to the permanent lexicon as it is presented in dictionaries. The dynamic model of the lexicon leads us also to a new view about lexicalization. A lexeme of a temporary lexicon is not yet lexicalized. ...Temporary lexemes may drift toward the permanent lexicon if they happen to be used increasingly often by ever more speakers (p.115).

It was this dynamic model that led us to unearth documented expressions of food hygiene in FinSL described above, as they should be “used increasingly often by ever more speakers” before being considered permanent lexicon. Despite the fact that some signed food hygiene expressions are documented and, regardless of them being presented and provided by “a native signer who had some work experience in the field” (Lahti, 2010, p.11–12; p.41), this does not seem to imply that other deaf sign-language-users use, or have used, the proposed professional signs. According to Lahti (2010), terminological conflicts arose when the terms were collected, as the deaf informants said the linguistic correctness of the signed equivalents could not be confirmed (Lahti, 2010). Similarly, in our project, the deaf translators were hesitant to adopt them, even if they would have been semantically convenient, claiming they were not familiar enough with the proposed expressions. Notwithstanding the “professional signs” being used at the vocational school when discussing food safety, and even if they had been preserved in a vocabulary list presented by recognized deaf people, the hesitation of the professional DT/Is to accept most of the vocabulary could be explained by acknowledging they belong to a short-term lexicon (see Wälchli, 2005) instead of the long-term lexicon in FinSL. This means, then, that when rendering food hygiene texts into FinSL other strategies must be followed.

3.2 Contrastive lexical anisomorphism as a tool for lexical comparisons

In order to study strategies for translating lexical expressions from Finnish LSP into FinSL we were inclined to move away from the abundantly studied morphophonemic features of the loan signs, etc. towards a broader context, offered by a generic contrastive terminological analysis. As a working tool we chose the contrastive lexical anisomorphism (CLA) (Šipka, 2015) concentrating on lexical asymmetries between languages. CLA is based mainly on the frameworks of contrastive and cross-cultural linguistics, but when describing different categorizations on how lexical gaps are filled, Šipka’s model also draws upon different translation theories. Šipka’s practical theory is based on observations covering over 100 typologically, genetically, culturally and geographically diverse languages. He proposes the following categories to describe lexical asymmetries between two languages:

- Zero equivalence, in which SL has a word for which there is no equivalent in the TL
- Multiple equivalence, in which the SL has one word for which there are two or more equivalents in the TL
- Partial equivalence, in which there is one TL equivalent of a SL word but they differ in some key aspect of their functioning (Šipka 2015, p.50)

Due to the limited space we will focus on zero equivalence for which Šipka (2015) proposes four categories, presented below. Of these we will further observe only those concerning the relationship between terminological content-words in the SL and their equivalences in the TL.

Co-referential features and zero equivalence in operators are beyond the scope in this paper. We will now outline Šipka (2015) zero equivalence between content words [and thus also “content signs”].

Entity-related zero equivalence is when one language points to a segment of reality that is not present in the other language. These may be contextually and culturally-bound feasts, historical periods, plants, animals, etc. This kind of asymmetry may also surface when the SL has a rich science and technology background compared to the TL. In our case study relevant example of this would be many of the central concepts in food hygiene, one of which is water activity (see Section 5.1 below). The asymmetry is often covered by a) borrowing the word from SL and adapting it to the TL phonology; b) coining the expression from existing words in TL (possibly following the model of SL); or c) by giving a totally new meaning to words that exist already in TL.

On the contrary to the entity-related equivalence, concept-related zero equivalence is sense-related and not reference-based. It operates when the entity is clearly present (as is the case with contamination) both in SL and TL, but SL features the concept while TL does not, since it lacks the word [or sign] for it. – In this category the equivalence is normally rendered by a long explanation in TL to describe that special part of reality that has been brought in light by the SL.

Thirdly, hierarchical zero equivalence is a subcategory of concept-based zero equivalence specifically when a concept denoted in SL is missing from TL and, the gap is found within words [signs] that are hierarchically linked. A full hierarchical gap is in place when TL lacks a general term that exists in SL. A partial zero equivalence, on the other hand, leaves some of the space at the hyponym level uncovered, which cannot be fully covered by another hyponym without distorting the meaning. For example, in the LGP of FinSL there is one sign that covers both “virus”, “bacterium/a” and “microbe(s)”; the same sign also denotes “infection, influence” and “transmission”, among other referents (cf. Suvi, 2018, article 1157). This is an example of hierarchical zero equivalence in two directions, as FinSL when compared to Finnish lacks both the hypernym for “microbe” (i.e. full zero equivalence) and the sign for the hyponym “bacteria” (i.e. partial zero equivalence).

It has to be noted, though, that in FinSL at least in part conceptual hypernyms are created by co-compounding (Wälchli, 2005) two or three basic category-level terms. In FinSL for example the meaning vehicle is constructed by coining such signs as CAR^TRAIN^BUS(^AND-SO-ON) into a co-compound while WINTER^SPRING^AUTUMN is equivalent for “season” and MONDAY^TUESDAY^WEDNESDAY for “a(ny) day of the week” (Rainò, 2016 [2010], p.10). This lexical construction is widespread in numerous Eurasian, Finno-Ugric languages and also in American Sign Language (ASL) where it is used to lesser extent (Wälchli, 2005; Klima and Bellugi, 1979).

Apart from a few documented observations regarding lexical testing on elderly deaf people (Rainò, 2016 [2010]) and now this case study (see Section 5.3), no further research has been carried out on the lexical status of co-compounds in FinSL.

4 METHODOLOGY

The primary data for this case study is the Finnish HP test translation into FinSL. The final recording of the translation was undertaken by the Sign Language Library of the Finnish Deaf Association, providing also the link to the translation in FinSL to Evira’s website (2018a, s.v. *Viittomakielellä*).

Before the translation process took place, three preparative workshops were organized by Humak UAS at Viparo. In addition to the translator/presenter and the two authors of this paper, the working groups consisted of three other native signers and professional DT/Is, some from multi-generational deaf families (cf. Stone, 2009). As there is no printed nor signed video texts on food hygiene in FinSL (besides the BVC [2015] vocabulary) both groups were needed as reference and support for the translator, to discuss the existence of the lexical equivalents in the deaf community’s mental lexicon (Aitchison, 2012) and to evaluate the appropriateness of the terminological choices proposed by the translator.

The observations presented are based on the two recorded versions of the initial translation and discussions during the preparative workshops and meetings of the core translation team.³ Additional information was also retrieved from two semi-structured interviews conducted in August and September 2017 with the translator/presenter and the instructor of the courses on food hygiene. Our interests lie in the zero equivalence between Finnish and FinSL. However, when we refer to wordings in the SL LSP, we are obliged to use English as the metalanguage. There are several instances where the term and concept of interest (e.g. *contamination*) appears in the parallel English translation but not in the Finnish ST where the expression “get dirty/polluted/ deteriorated” [saastua] is used more frequently. With this in mind we only describe findings where the lexical features of Finnish and English LSP overlap serving as a *tertium comparationis*. This avoids lengthy discussions on the typological differences between English vs. Finnish and FinSL and, consequently on the possible interference of Finnish into FinSL.

5 FINDINGS/RESULTS

5.1 Entity-related zero equivalence

Apart from cultural differences (as described in Section 3.2) zero equivalence in the TL is present when the TL does not have the scientific and technological context present in the SL with a developed set of established expressions. In FinSL, there is a total referential gap for specified microbes and certain processes within the field of food safety that lack an established, lexicalized equivalent.

5.1.1 *The word referring to the object is borrowed from SL*

When Latin names or abbreviations are used in the SL LSP, the expressions are borrowed either: a) letter by letter in their entirety via fingerspelling (e.g. *Listeria monocytogenes*; pH, UHT); or, b) by co-compounding fingerspelling with an existing sign in FinSL LSP, as in “norovirus” > n-o-r-o^VIRUS in question 12 (tinyurl.com/zero-to-sign, p. 5). In addition to proper names (e.g. Evira), these types of borrowing are the only occasions when the transliterated calques appear in the target text.

We would argue that in the cases presented above fingerspelling does not underline “knowledge whose centre is outside the deaf community” (Johnston and Schembri, 2007, p.178), nor does it refer to “a discipline-specific term that may have not undergone broad discussion within the Deaf community” (Brentari, 1994, p.105). We consider them simply as scientific expressions that remain, as in Finnish, untranslatable calques where elements of LSP intersect with LGP (Picton and Dury, 2017).

5.1.2 *The expression is coined from existing words in TL (possibly following the SL model)*

This strategy has also been used very sparingly in the translation of the model exam. One of the few occurrences of this pattern can be found when the complex notion of “water activity” (cf. Forsythe, 2000, pp.71–72) appears in the commentaries to the Questions 3 and 6 (tinyurl.com/zero-to-sign, pp. 2–3). Since both parts of this LSP compound can be coined from existing signs, a neologism WATER^ACTIVE following the morphemic order of the SL Finnish term [*vesi/aktiivisuus*] has been adopted.

Neither the concept “water-activity” nor the signed compound exists as such in FinSL. The translator has used a signed equivalent only when the source text itself provides an explanation for the LSP term, otherwise the neologism would remain an incomprehensible calque for FinSL users.

3. The core translation team comprised the authors of this paper (PR and OA), the lecturer of food hygiene Suvi Sjöroos and the producer of the signed model test Riitta Vivolin-Karén and the professional DT/I Tomas Uusimäki from Viiparo.

5.1.3 Extending the meaning of existing words/signs or introducing completely new meanings

This strategy is also used sparingly and only when the semantic fields of the new concept and the existing sign are similar. For example for the central LSP concept “hygiene” the translator adopted the BVC vocabulary (2015, s.v. *hygienia*) using the LGP expression “to clean” (see also Question 39, tinyurl.com/zero-to-sign, pp. 14). The mouthing used does not follow the equivalent LSP word in spoken Finnish. This makes the expression resemble a nativised loan word in FinSL LGP (not LSP). The new meaning now covers the “conditions or practices conducive to maintaining health and preventing disease, especially through cleanliness” (Oxford Living Dictionaries, 2017 s.v. *hygiene*).

5.2 Concept-related zero equivalence

In our case study both of the terms contamination and cross-contamination represent similar “conceptual niches” indicated in the SL LSP for food hygiene lacking equivalence in TL. During the translation process the recurrent word contamination led to lengthy discussions in workshops and within the translation team. The proposed equivalent in the vocabulary provided by the BVC (2015, s.v. *saastunut*) is the sign DIRTY, accompanied by a Finnish loanword mouthing [*saastu(nut)*]. In the Finnish HP exam ST the word for “dirt/[get] dirty, polluted” [*saastua; saastuminen*] appears more frequently than the loanword *kontaminaatio* in those parts of the text where the term *contamination* is used in the parallel English translation. The high frequency of *saastua* that covers a narrow part of the semantic field of “contamination” may explain why the sign “dirt/[get] dirty” has been offered as the only entry for this concept in the BVC (2015) vocabulary. In her report Lahti (2010: 46) confirms this simplified view since the word *kontaminaatio* was collocated with *saastuminen* in the conceptual list offered to native informants.

It was not, however, considered sufficiently accurate and precise to denote, not only “the harmful matter” (that admittedly dirt often is), but specifically the semantic dimension of “the presence or addition of unintentional matter”. The vast semantic sphere of the term *contamination* (FAO and WHO 2015 [1995]) explains why the central focus in the translation shifted from “dirt” to “the existence of something unintentional”. As with Šipka (2015, pp. 51–53), “extensive explanatory glosses” have been adopted to “carve out the conceptual niche” of “hazard” and “involuntary, unintentional presence of something”.

Regarding the concept denoted by contamination, “the same segment of reality” (following Šipka, 2015, p.54) where “something involuntarily gets in a wrong place” is clearly present in both Finnish and FinSL. Finnish LSP features the concept with a distinct loanword, while in FinSL the sign referring “to [get] dirty” that has been used in similar contexts covers only a small part of the whole process of contamination. In the HP model exam translation a more complete equivalence is rendered by an explanatory paraphrase where that special part of reality (“something getting in a [wrong] place”) has been highlighted using the abstractions offered by the polymorphemic constructions in FinSL, along with the signs DIRT(y) or IMPURE. See e.g. the commentary for Question 4 (tinyurl.com/zero-to-sign, pp. 2).

SL: [The usual cause of water] being contaminated is contamination [by faeces]

TL: POOP / WATER // [poop as] FLAT MATTER₁]-GETTING-ON THE SURFACE-OF-[water as] FLAT- MATTER₂
/TURN-INTO IMPURE //

5.3 Hierarchical zero equivalence

As described in Section 3.2, in FinSL LGP there is only one sign denoting all micro-organisms, i.e. for the hypernym “microbe(s)” and the hyponyms “bacteria” and “virus” with no disambiguating mouthing (Suvi 2018, article 1157). In this translation task both the generalization gap (for microbes) and the specification gap (for bacteria) needed to be solved due to their high frequency in the ST (altogether 95 occurrences of *microbes*, *virus* or *bacteria*). Some lexical support could be found in the online FinSL dictionary which,

besides the LGP sign VIRUS also contains the following LSP lexical variants for *bacteri/um*, -a (cf. Suvi 2018, article 3390) in health care:

- 1) the sign VIRUS, with a mouthing imitating the Finnish word [bakteeri]
- 2) a compound DIRT^VIRUS
- 3) a polymorphemic sign denoting “rows-of-small-round-elements-on-flat-surface”.

Of these, the polymorphemic sign for bacteria was also recognized by the translation group as a sign for microbe[s]) within the FinSL community. It was chosen to represent this hypernym in the Question 2 (tinyurl.com/zero-to-sign, pp. 2). For bacteria, however, neologism was elected, a loan-sign construction containing a transliterated letter b and the sign for “virus”: b^VIRUS (Question 7 and its commentary, tinyurl.com/zero-to-sign, pp. 3). Similarly, a sign v^VIRUS is used for “virus(es)”, to distinguish the nominal sign from the homonymic verb “spread, infect” (tinyurl.com/zero-to-sign, pp. 2). This strategy of combining LGP signs with fingerspelled initials taken from scientific expressions to create LSP signs has been in use in FinSL community continuously since the 19th century as described in the aforementioned dictionary by Hirn (Suvi, 2018, Section Hirn341, art. 3520).

By far the most challenging lexical gap was, however, the term *food premises* that appears constantly in the ST. Evira itself defines “food premises” (i.e. food establishments) as follows: “Food establishments mean any building or premises or part thereof or other outdoor or indoor space in which food meant for sale or conveyance is prepared, stored, transported, marketed, served or otherwise handled” (Evira, 2016b). This type of superordinate conceptual hybrid was new to the DT/I and the translation team, but it was also considered an extremely cumbersome and a complex concept to be incorporated in FinSL into the TT. For instance in the following phrase “The person handling the unpackaged easily perishable food must wear sufficient protective clothing that only is being used in the food premises” the concept could hypothetically be translated as a co-compound RESTAURANT^CAFETERIA^SHOPS^AND-SO-ON. But this kind of a co-compound was felt too limiting to represent the wider concept of establishments covering food warehouses, indoor and outdoor markets and slaughterhouses, for example. (Tomas Uusimäki, personal communication 6 September 2017.) This is why only the loan compound from Finnish LSP FOOD^ROOM was chosen to represent the concept in its various instances. This is again another case, besides the transliterated loanwords, where the DT/I left the responsibility of interpretation of the semantic content of the neologistic expression to the viewer.

6 DISCUSSION

This case study focuses on the HP model exam translation into FinSL, completed by a professional DT/I (a native user of FinSL). In this translation task the LSP lexical asymmetries (anisomorphism) that prevail between Finnish and FinSL are clearly present. In our article we have noted some of the lexical solutions adopted by the DT/I when the TL FinSL lacks the terminology present in the SL Finnish. We have followed Šipka’s (2015) practical theory and taxonomic model on lexical anisomorphism (but focusing on zero equivalences) and classified the signed equivalents covering lexical gaps in three main categories.

When translating the model exam, the challenges arise from lexical gaps due to 1) the whole entity being missing from the discourse and language used within the deaf community (e.g. “listeria” or “water activity”); 2) semantic narrowing of the referent in the FinSL (e.g. “contamination”); or, 3) due to differences in the hierarchical organization of the lexicon (e.g. “food establishments”). Even though the strategies adopted by the DT/I are well-known, this case-study provides an insight into what extent those strategies are used by a native signer.

In FinSL, conceptual gaps are most often filled by neologisms created from existing signs following the SL model or by extending new meanings to existing signs. They may or may be not followed by an in-text explanation but when direct loanwords are transliterated by fingerspelling no additional explanation is provided. The reason may be that the calques are considered part of the professional knowledge the consumers of the text should possess, whichever their linguistic background, which differs from the principles offered by Hodge et al. (2015).

We must bear in mind that the FinSL community is a small linguistic minority when trying to understand the challenges faced by deaf people who “possess the knowledge” of their native language and work using that knowledge when interpreting and translating for their own linguistic group. The community cultivating the expertise in safe food handling and the vocabulary connected to it is extremely small. “The broad discussion” called for by Brentari (1994), in order to stabilize food hygiene LSP equivalents for example is a very farfetched. And the ever-diminishing number of FinSL language users – in the field of food hygiene or any other specialty – does not allow for a critical mass to be formed constraining the persistence and horizontal transmission of signed terminology (see Gialluisi et al., 2013; Senghas, 2005 for further discussion). This is why we assume that proposed terms for non-equivalents remain as isolated single appearances in our small community of FinSL users – or using Šipka’s wording (2015, p.60) they may “remain forever in the relation of zero equivalence”.

Today’s sociolinguistic context of FinSL does not favour vertical transmission to next generations either; the number of users of FinSL in schools has diminished drastically from 2000 onwards (Selin-Grönlund, Rainò and Martikainen, 2014). Thus it seems improbable that the proposed lexemes in this kind of public texts (or online signed vocabularies) would be used “increasingly often by ever more speakers [signers]” (Wälchli, 2005, p.115) and drift toward the permanent lexicon of the sign language community.

The idiomatically appropriate lexical suggestions developed with deaf FinSL users, and further elaborated by the native deaf translator/interpreter, will probably remain as suggestions that can be used sporadically among groups of deaf people studying food safety. As shown by our case study, recording signed vocabulary for the special purposes does not ensure its acceptance and maintenance by FinSL users. Nevertheless, the translation provided in this case study sheds light on strategies that may be adopted to produce neologisms needed when translating LSP texts and, why LSP superordinate concepts cannot always be expressed by co-compounds in FinSL. This is why their lexico-semantic position and their lexical status as possible hypernyms equivalents (and not only “a visual list of examples”) should be studied further, to understand which kind of lexico-semantic constraints there are restricting the semantic range they may cover and limits within which they may be used such as in a test situation without revealing crucial information when scrutinizing examinees’ knowledge.

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