When and how to revise?

Building a cognitive dyad of translator and reviser through workflow adjustment

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The translation production team that consists of a translator and a reviser can be investigated as a specific kind of (sub)system of socially distributed cognition, a cognitive dyad; this system is defined as only including the translation professionals who are directly involved in the drafting of the translation. Based on interviews with translation professionals, I argue that this fine-tuned cognitive dyad gets its form not only as a result of its participants' characteristics, but also under the influence of other factors, some of which vary from one project to the next, leading to the flexible formation of the reviser's task in particular. The three most important project-specific influencing factors are the text genre, the translator's experience and competence, and the client's needs and requirements. While genre and the client's needs and requirements seem to have a markedly similar impact, mainly influencing the internal task configuration of the cognitive dyad, the translator's experience and competence often leads to non-revision. Trust is an important element in this process.

Keywords: socially distributed cognition, cognitive dyad, translation revision, translation workflow

1. Introduction

Commercial specialized translation services are often made possible through collaboration between several people; the participants and characteristics of this collaboration vary between translation projects. Here, I apply the theoretical framework of *socially distributed cognition* (SDC) and explore how a translation project's characteristics may contribute to determining the composition and internal task configuration of what I call a *situated cognitive dyad*—a two-member (sub)system of SDC—formed by a translator and a reviser, the two participants

often found at the core of a translation project. The emergence of such a sub-system through communication via several channels, including the translation file, has been described in Korhonen & Hirvonen (2021). Limiting the observations to these two actors who participate in the concrete drafting of the translation allows a focused investigation of the factors that influence the division of cognitive work between them. The approach adopted here spotlights how situated cognitive tasks are rooted in concrete, observable circumstances, and helps us understand the challenges that such fine-tuned features present for translation professionals' work. Since the aim is to delve deep into this part of the collaborative network of translation production, attempting to grasp how the intertwined cognitive contributions of the two participants take shape, a full description of the entire network as an instance of distributed cognition must remain outside the scope of the present study.

I argue that the cognitive dyad takes on its form not only as a result of its participants' characteristics, such as their L1 and genre-specific skills, but also under the influence of other factors that vary from one project to the next, and that the complexity of these characteristics necessitates and leads to the flexible formation of the reviser's task in particular. Rather than being the result of authoritative decision-making, the cognitive dyad gets its form in complex, situated processes. I will base my description of the cognitive dyad and its formation on experts' views on which factors are most influential in these processes. The description will focus on the reviser's task, which has hitherto received much less attention than the translator's scope of the work. The results presented here give new precision and a stronger empirical foundation to the current understanding of SDC as it appears in the language service provider (LSP) context; for descriptions, see Risku (2009), Sannholm (2021) and Korhonen & Hirvonen (2021). This article also contributes to the body of knowledge about LSPs' revision policies and foregrounds the reviser as an equal collaborator in translation production, rejecting the role of mere proofreader that revisers have so often been identified with.

The results presented here are based on 20 expert interviews with translation professionals—LSP decision-makers and revisers—who talked about whether and how translations should be revised, and which factors may or should influence these decisions. A qualitative analysis was then carried out to establish some project characteristics that have an impact on how the cognitive dyad takes form. Although many interviewees openly discussed their organizations' ways of solving these questions, this study does not claim to survey the current real-life operating methods of LSPs with full accuracy; that would require extensive fieldwork at several LSPs. Rather, the goal is to explore the conceptions of experts, most of whom make choices on revision practices at one level or another as part of their

work, and thus participate in determining how the cognitive dyad will carry out its work.

The rest of this introduction presents the theoretical background of the study and combines knowledge about the revision practices and procedures of LSPs, theories of distributed cognition as well as their application in translation studies. Following an account of the data and methods in § 2, the results (§ 3) show how the composition and internal task configuration of the cognitive dyad are determined as a result of many factors which often have a combined impact. The focus will be on three major project-specific factors—text genre, translator's experience and competence, and client's needs and requirements—which vary between translation projects.

1.1   Revision practices and procedures of LSPs

Revision policies of LSPs have been investigated in several European countries, including France (Hernández 2009a, 2009b), Denmark (Rasmussen & Schjoldager 2011), Finland (Uotila 2017; Korhonen 2021) and Austria (Schnierer 2019), providing valuable background information and a starting point for the current analysis. These surveys have addressed several aspects of revision, such as the choice between revision vs. non-revision, and whether the revision procedure includes one or more rounds and bilingual or unilingual reading. The relative emphasis on different revision parameters (a list of problem types which revisers may correct; see Mossop 2014: 134–149) has also been discussed to some extent. Some of the studies consider the grounds for these choices, but not in any depth.

Rasmussen & Schjoldager (2011: 101) found that most companies where their respondents work revise all or nearly all translations. Schnierer (2019: 189) presents very similar results from Austria, with 22 of her 31 respondents stating that, in the companies where they work, all translations are revised. Korhonen (2021) placed the question slightly differently and found that, while revision was not part of the typical workflow for all respondents, it was still a possible step for almost all of them. In summary, the findings of all these surveys seem to point to the same direction: revision is considered a normal part of the process, but not an indispensable one. Rasmussen & Schjoldager's (2011: 102–103) and Schnierer's (2019: 190–191) surveys also cast some light on the grounds for sometimes leaving out revision. Factors such as the translator's competence, the text genre and the customer's wishes were mentioned, as well as the difficulty and intended use of the text. Practicalities such as lack of time and the need to save costs were also recognized. Hernández (2009b: 70–72) also found that costs and lack of time sometimes forced translation operators to leave out revision, while highly competent translators or easy texts rendered the task unnecessary.

Both Rasmussen & Schjoldager (2011) and Schnierer (2019) found that bilingual revision is the norm. As grounds for choosing a procedure, Schnierer (2019: 185–187) lists similar factors as those influencing the choice between revision and non-revision.[1] Korhonen (2021: 137–139) did not deal with procedures directly but, when asked about revision parameters (slightly modified from Mossop's original list; see § 2), a clear majority of her respondents included accuracy in the necessary parameters, which usually requires bilingual revision. Studies on the effectiveness of different revision procedures have found that bilingual revision generally leads to higher quality than unilingual revision (e.g., Brunette et al 2005). This is the likely explanation for LSPs' preference of comparative reading. In these surveys, direct discussion of revision parameters has been limited (see, e.g., Hernández 2009a: 142, where only four *critères de qualité* are discussed). Rasmussen & Schjoldager's (2011: 105–109) respondents placed most importance on linguistic correctness. Variation between different projects was not discussed, but one of the interviewees raised the following point: "Why would we need a checklist? It all depends on the text type and on the wishes of the customer" (Rasmussen & Schjoldager 2011: 108). Korhonen (2021: 138) also found that Finnish LSPs tend to emphasize language-related parameters, together with accuracy.

1.2   Distributed cognition

For the purposes of examining a collaborative cognitive task, we can assume a distributed cognitive system. As stated, this article describes how the project's characteristics influence the formation of a situated system of distributed cognition, a cognitive dyad, encompassing a translator and a reviser. I thus adopt the view that cognition is not merely an individual's brain-internal logic device, but that it emerges from the interaction between people and their environments, which may comprise other individuals, material artifacts and various tools. In what follows, I will first introduce theories of distributed cognition as they have been presented in cognitive science, and then overview how these theories have been applied in translation studies.

1.2.1   Extended and distributed cognition in cognitive science

Cognitive science, much like translation studies, is a relatively young field of study, and still in the process of developing its paradigms (cf. Dawson 2013). The three

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1. While the translation service standard ISO 17100 defines *revision* as bilingual examination of the translation, in translation studies literature the same term is used of both bilingual and monolingual examination.

main branches of cognitive science are classical, connectionist, and embodied cognitive science; the first of these is largely based on the metaphor of the brain as a computer, the second assumes a neural network-based cognitive architecture, and the third sees cognition as a system that coordinates perception and action directly, without the intermediate stage of creating representations of the world (Dawson 2013: 3–8, 11, 205).

Under the umbrella of *embodied cognition,* several slightly differently positioned theories about cognition have built ever strengthening ties between the mind and the world, and introduced related concepts.[2] The extended mind hypothesis (Clark & Chalmers 1998) postulates that many items of the material world may be such essential scaffolds to cognitive operations that they should be considered part of the cognitive system of an individual. In a translation context, artifacts and tools such as translation memories, quality assurance tools, and the translation software that arranges the source and target texts neatly together could be seen as scaffolds that greatly increase the translator's capacity to carry out cognitive action. The extended mind hypothesis is an individual-centred theory; some related theories consider cognitive systems that include two or more people. Such systems have been discussed under the labels of distributed cognition (e.g., Hutchins 1995a, 1995b) and, more specifically, socially distributed cognition (Perry 1999). In this article, I follow Perry (1999: 87), who defines socially distributed cognition as a term "used specifically to investigate multi-person activities, often in concert with physical artefacts that act as cognitive resources [...] but also act as intermediaries in communication between individuals".

1.2.2   Distributed cognition in translation studies

Translatory collaboration has been addressed in translation studies from various theoretical perspectives, including the actor-network theory (Abdallah 2012) and the concept of translaboration (Alfer 2017; Zwischenberger 2020). The lens adopted here, however, is a different one: collaboration in the translation workflow is seen as an instance of socially distributed cognition, constituting a system in which people adopt the roles of translator and reviser, among other relevant roles, and jointly engage in the cognitive task of creating a new translated text.

Theories of situated, extended and distributed cognition have been mainly developed in translation studies by Risku (e.g., 2009, 2014; Risku & Rogl 2021, 2022), Muñoz (e.g., 2016, 2017) and also Krüger (2016). Practical applications of such theories include Nurminen (2020), Sannholm (2021) and Korhonen &

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2. *Embodied cognition* here refers not to a particular theory but to a set of interrelated approaches to cognition (cf. Risku & Rogl 2021) also known as *situated cognition* and *4EA cognition* (cf. Muñoz 2021: 210).

Hirvonen (2021). Most of the theoretical development as well as practical research applications have, however, focused on individual-centred extended or distributed cognition; socially distributed cognition has only been expressly discussed by Korhonen & Hirvonen (2021), who describe a joint cognitive—and creative—process of translation that a translator and reviser engage in. Pleijel (2021), while not adopting the SDC terminology, studies group cognition in the context of Swedish bible translation, observing *we-mode* translation (Gallotti & Frith 2017) and stating that "the properties of the translation team are not possible to either reduce or attribute to anyone of the individual members of the team" (Pleijel 2021: 323). Sannholm (2021), on the other hand, discusses the social aspect of translation as a type of scaffolding, in which translators interact with social networks with the goal of finding assistance in their translation tasks; the perspective can thus be said to be that of an individual.

2.   Data and methods

The data for this study consists of 20 semi-structured thematic expert interviews between 41 and 87 minutes with translation professionals working in the Finnish translation industry. The first three interviews took place in March 2020 (face to face), and the rest in autumn 2021 (via Microsoft Teams or Zoom). The interviewees can be roughly divided into two groups, LSP decision-makers (e.g., managing directors, production managers, project managers) and revisers, although in many cases, the individuals took on several different roles as part of their work. Two of the revisers were independent professionals, while all the other interviewees were employed by LSPs. The interviewees' years of experience in the translation industry ranged from nearly 4 years to 30 years, with long careers being strongly represented (average experience, 20 years). A total of eight LSPs were represented in the data. Some of these are large multinational companies with ownership outside of Finland, and others are smaller companies that only operate in Finland. All interviews were carried out in Finnish. The examples presented in this article have been translated into English by the author.

The interviews covered several themes. The present analysis is largely limited to the interview sections focusing on revision policies and procedures. Revisers were asked about how a revision task proceeds at a practical level, while decision-makers were asked about business-level matters and decisions. Open-ended questions were followed by more detailed questions when necessary. In the 17 interviews conducted in 2021, some support materials were shown during the interviews, including a list of revision parameters (introduced in Mossop 2014 and modified by Korhonen 2021: 137–139). The following revision parameters

were included in the list: accuracy; completeness; logic; factual errors; smoothness and cohesion; style: suitability for end users; style: suitability for text type; terminology; idiom; linguistic correctness; compliance with client's style guide; layout; typography; and organization.

I carried out and transcribed the interviews myself, which ensured thorough familiarity with the data. Coding was performed in ATLAS.ti with the aim of identifying links between influencing factors and the revision variables that define the task of the reviser. As the starting point of the analysis, I used revision variables (whether to revise or not, how many revision rounds, etc.) that some earlier revision surveys (see § 2) had identified. I carried out two full coding cycles and checked the consistency of some codings using various list and report functions available in ATLAS.ti. The final coding system placed main focus on six revision variables (see the list in the following section) and all the elements that interviewees mentioned as influencing the decisions on these variables. For each mention of a revision variable, I strove to identify what the interviewees had said about the elements that influenced it, and vice versa. Finally, I interpreted the results using the theoretical framework of socially distributed cognition.

The coding effort was thus partly informed by previous research, particularly in the area of revision variables and, to a minor extent, in the area of the project-specific factors. A much larger portion of the coding system was, however, data-informed, reflecting the reality as the interviewees understood and constructed it. The code reports and co-occurrence tables available in ATLAS.ti were used as a tool that helped direct focus to the most prominent links between project-specific factors and revision variables.

3.   Results: Forming a cognitive dyad under the influence of project-specific factors

In this section, I list the revision variables relevant for the present study, and then illustrate the most important elements which translation professionals mentioned as influencing the revision process; these elements are also the ones that seem to determine the overall composition and internal task configuration of the cognitive dyad encompassing a translator and a reviser. In the following three subsections, I describe the impact of three most important project-specific factors. These descriptions indicate that factors external to the distributed cognitive system may have a major bearing on how the cognitive collaboration within it is constructed.

The composition of the cognitive dyad as well as its internal configuration are conceptualized here based on six revision variables (listed below), most of which are derived from previous research, and which have also been identified in

the current data. The first of these defines the *composition* of the system—that is, whether a reviser is included in the workflow, becoming the second participant in the cognitive dyad. In some cases, the translator is alone responsible for the translation, and no cognitive dyad is formed, which also constitutes an interesting situation. On the other hand, having more than two persons directly involved with the drafting of the same text or part of a text seems to be rare; such configurations will not be discussed here. Variables 2–6 define the *internal task configuration* through setting the scope of the revision task. In the current data, variables 1 (Revision vs. non-revision), 2 (Revision parameters) and 6 (Level of detail) received the most emphasis; therefore, they will also appear most prominently in the analysis.

1. Revision vs. non-revision
2. Revision parameters
3. One vs. more rounds of revision
4. Full vs. partial revision
5. Bilingual vs. unilingual revision[3]
6. Level of detail: A very careful revision vs. focus on major errors only
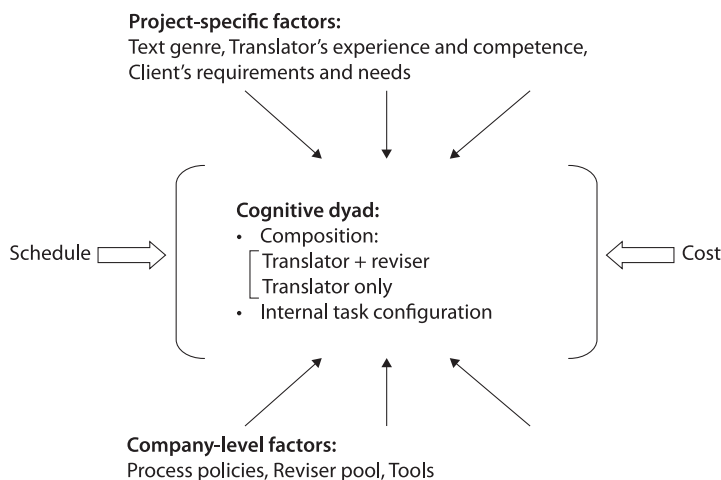

Figure 1. The cognitive dyad and the elements that influence its formation

Moving on to the factors that influence the composition and internal task configuration of the cognitive dyad, Figure 1 presents the cognitive dyad and the three types of elements identified in the data as having major influence on its forma-

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3. In the interviews, this revision variable was rarely discussed explicitly, but as it relates closely to one of the revision parameters (accuracy), it was often discussed implicitly.

tion. These elements can be divided into three groups. First, there are the *project-specific factors,* which demonstrate considerable variation from one project to the next; the current data indicates that the three top factors are text genre, the translator's experience and competence, and the client's requirements and needs. Second, the *external pressure elements* of schedule and cost mainly have a restricting impact, and sometimes seem to force workflow choices that lead to a less than ideal cognitive dyad.

The third group of influencing elements are the *company-level factors,* relatively permanent enabling or limiting conditions that have often been determined or chosen by the management of the LSP. The most important company-level factors appear to be process policies, reviser pool, and tools. By process policy, I mean the standard workflow chosen as the basis of translation production in that company. Reviser pool refers to the available revisers and their competence profiles that allow the performance of a specific kind of revision. The revisers are included in company-level factors rather than project-specific factors because based on the current data, the reviser pool is usually much more scarce than the translator pool, and often seems to be limited to LSP employees. Finally, the properties of the pre-selected tools guide the cognitive work: for example, revising tools may limit and guide what the reviser can do, or what information is available to them, thus setting boundary conditions for the task.

In the following subsections, I discuss how the interviewees construe the influence of the three major project-specific factors—text genre, translator's skill and experience, and the client's needs and requirements—on the composition and internal task configuration of the cognitive dyad. In everyday terms, this means decisions on whether and how revision will take place. While the analysis focuses on project-specific factors, company-level factors as well as schedule and cost will also be considered when they have been mentioned as contributing factors. A more thorough discussion of these elements will, however, remain outside the scope of the present article.

3.1   Text genre

When talking about different kinds of texts, the interviewees did not follow any consistent theoretical framework of genre or text type. Rather, they used a utilitarian text categorisation system that combined genres, topic domains and, for example, classification of texts into the client's internal and external communications. For the sake of simplicity, this complex system, largely based on prototypes, is conceptualized here as genre.

Figure 2 summarizes the interviewees' opinions on the relative importance of genre for decisions on whether and how a translation is revised. The numerical information included in the graphics, based on the coding of the data in ATLAS.ti, cannot be used in any actual statistical analysis, as the data is not structured to produce quantitative results.
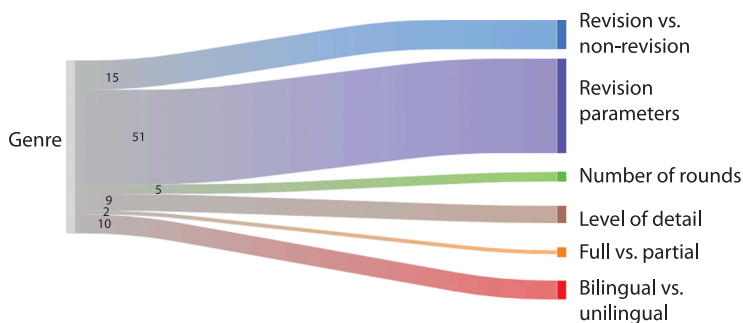

Figure 2. Genre in relation to the six revision variables

From the topmost part of Figure 2, it appears that genre has no great impact on whether the translation will be revised or not, and does thus not greatly influence the composition of the cognitive dyad. A more detailed examination of the data does, however, reveal that some genres are understood as critical and always require revision: court decisions and other legal materials as well as some medical text genres are mentioned as examples. On the other hand, non-revision is rarely chosen based on genre alone: additional factors such as translator's genre competence, schedule and cost are often taken into account when deciding on non-revision. The degree of visibility, the size of the target audience and the longevity of the text also play a role.

For texts that are considered to be creative, attitudes towards revision vs. non-revision seem to be divided. Some believe that these texts do not required revision if the translator is known to be at home with them:[4]

(1)   *Sometimes it's also enough if it is a more creative translation* […] *to have no reviser but to have it finalized directly by a translator who is really good at creative texts*

On the other hand, others consider revision to be particularly beneficial for such texts:

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4.   In the LSP context, *creative* does not mean actual literary texts; various kinds of marketing communications, for example, are often characterized as creative translations.

(2)   [...] *for creative translations [...] it's not automatic that they would always be revised but maybe for this type [...] the benefit of revision is higher than for some straight-forward translations*

It is likely that in Example (2), the interviewee means a particular kind of revision, one that focuses on smoothness of expression; this implication leads us nicely to the second tier of Figure 2, which shows that interviewees indeed recognize text genre as an important factor for determining which revision parameters are emphasized. It seems that most genres can be included into one of two general categories, which could be roughly characterized as "fluent translations" and "precise translations". The former prioritize smoothness, the latter accuracy. Table 1 lists genres that were brought up by interviewees, and the revision parameters that interviewees typically connected to these. This categorization system seems to be fairly universal across the operators represented in the data.

Table 1. The two basic genre categories and the revision parameters typically connected to them

Translations	Genres	Important parameters
Fluent	marketing text creative text blog magazine article	smoothness, logic, style, idiom, appropriate style for purpose, appropriate style for users, linguistic correctness
Precise	specialized text legal investor communications user manual medical public administration contract research survey or data	accuracy, terminology, factual errors, linguistic correctness, completeness

Knowledge of these genre categories and what they require is, of course, as important for a translator as it is for a reviser. In this area, genre and the translator's competence together determine the distribution of cognitive work: if the translator doesn't have adequate genre competence, the reviser must take on a larger share of this work. This, among other matters related to the translator's competence, will be further discussed in the next subsection.

3.2   Experience and competence of the selected translator

In addition to the translators' general experience or competence, the interviewees recognized four types of sub-competence which influence the distribution of cognitive labour between the translator and the reviser: skill in the language pair (often in combination with directionality); knowledge of the client; knowledge of the field or industry (subject matter); and genre competence, which was already mentioned above. In this subsection, I will first discuss the perceived impact of the translator's general experience and competence as well as genre competence, and then take a look at language pair-specific skills and the translator's knowledge of the client and the industry.

Some interviewees considered the competence profile and level as well as the experience of the translator to be the most important factor shaping the revision task (and thus also the cognitive dyad). In the following example, the interviewee implies that the difficulty of the text is not an absolute, but is often determined by the translator's competence level:

(3)   RS19: *it's more about who translates, that's more essential. Of course if we know that* [the text] *is very difficult, but even then it's more about* [the translator] *not knowing the subject matter that well, or not knowing the kind of language to use*

The same text may be difficult for some translators, and relatively easy for others, depending on their competence profiles. This example demonstrates well the intricate network of co-dependencies between different project characteristics that influence the cognitive work.

Figure 3 describes the relative importance of the translator's competence and experience on the revision variables. Again, the data does not allow any actual quantitative analysis. The figure shows that the translator's skills and experience are often used to justify decisions on whether revision is necessary at all, which revision parameters (Mossop 2014: 134–149, Korhonen 2021) should be focused on, and how detailed—or meticulous—the revision should be. The impact on other revision variables seems to be marginal.

Starting from the top of Figure 3, non-revision often seems to result from previous successful experience from working with the translator: their translations have been found consistently good (sometimes through standardised measurements), and revision would only waste resources that were more urgently needed elsewhere. Work ethics also count: translations created by a translator who is not only highly skilled but also known for doing their due diligence may be revised less often or less thoroughly. This indicates that a relationship of trust between the project manager and the translator may lead to a situation where no cognitive dyad will be established. (On the importance of trust in translation, see
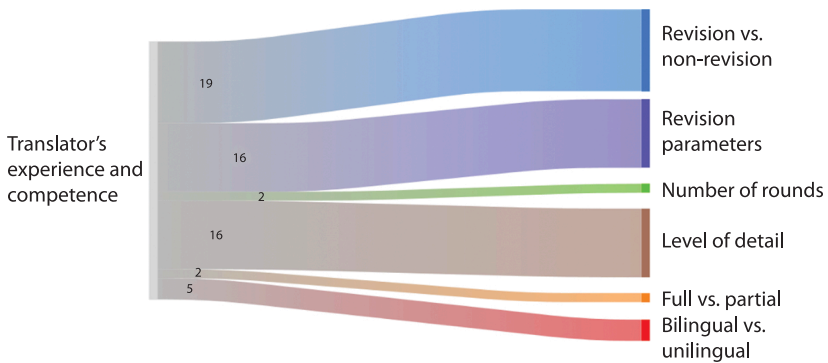
Figure 3. Translator's experience and competence in relation to the six revision variables

Abdallah & Koskinen 2007; Pym 2004; Chesterman 1997: 180–183.) The need to select translators carefully was brought up in the interviews, and one manager expressly stated that they are willing to pay more to a consistently excellent translator, and prefer this practice over buying from inexperienced, cheaper translators whose work needs to be revised more carefully.

Additional factors including tight schedules and sub-competences such as experience with similar texts (genre competence) were mentioned when discussing non-revision. Interestingly, subjecting the work of a high-level translation professional to revision might even lead to deterioration of quality if the reviser is not as highly qualified as the translator, but fails to recognize this and assumes too large a share of the cognitive task:

(4)   RS15: *sometimes there's top people working so that it will only get worse if someone else then messes with it, it would be crazy to force an unnecessary revision into the process*

Moving on to the second tier of Figure 3, the translator's experience and competence also impacts the selection of the revision parameters that the reviser should pay attention to. In the previous section, it was noted that the translator and reviser should both be equally aware of how to treat a text: whether, for example, smoothness or accuracy should be emphasized. The translator's genre competence, or rather the possible lack of it, explains why the reviser still sometimes needs to fix the translation in this respect. The reviser may, for example, know that the translator is not knowledgeable in appropriate terminology, or has problems with smoothness or style.

Several decision-makers emphasized the need to know their translator resources, and, if possible, to make sure that the translation management system contains information on the translators' genre-specific competences. If this information is not available, project managers will have a difficult time choosing

translators for projects that require certain skills, for example for marketing translations which require the ability to write a very fluent translation in an appropriate style. This could lead to a less than ideal configuration of the cognitive dyad, and potential failure of the shared cognitive task. The reason some interviewees emphasized the need for this information may be that the translator's preferred language pairs and the clients for which they have worked are basic information that can be found in the translation management system, but genre competence may never be recorded or may be much more difficult to extract from the system. It may require extra effort from project managers who tend to be busy and rather want to avoid any extra tasks.

Level of detail is the third revision variable that the translator's competence appears to have a high impact on; again, much seems to depend on trust. If the translator is well known and trusted, the reviser may carry out a less detailed revision—not necessarily disregarding any particular revision parameters, but reading the translation with the predisposition that they will only correct definite errors and not stop to consider every detail. If we then observed the distribution of tasks after their completion, we would notice that a larger portion of the shared cognitive task has fallen on the translator.

Sometimes emotions come to play, however, and may change the way the reviser works, leading to them assuming a larger share of the work mid-task:

(5)   RS6: *I trust that they have done the background work, and if that trust is betrayed* […] *then you get negative emotions towards the translator. And you start to take a different attitude and get more critical, and don't forgive them for something that you might forgive someone else* […] *you notice they have clearly used Google Translate* […] *and have not checked it, and you start to go through it line by line, and once you go line by line, you start finding all kinds of things.*

Directionality and the translator's skill in the specific language pair have a combined impact that shapes the cognitive dyad in several ways. The impact is most prominent in the areas of revision vs. non-revision, and the revision parameters. Interviewees were more inclined to allow non-revision when the translator translates into L1, but other criteria such as genre competence would also be considered. In some cases, an L1 translation may first be subjected to a spot check which will then reveal whether full revision will be necessary. This procedure is practical for example for very long texts which would take hours or even days to revise. If the quality of the L1 translator's work meets the needs of the project, it is not only unnecessarily costly to revise the material in full, but also a very tedious exercise for the reviser. A similar scenario may of course also arise for L2 translations when the translator is adequately competent in L2.

With regard to revision parameters, directionality divides revision tasks into two groups. When translating into L2, translators may have problems with linguistic correctness, smoothness or idiom. When translating into L1, they sometimes have problems with accuracy due to misunderstanding the source:[5]

(6) RS19: *if the translator was a native English speaker* [...] *there was rarely any part of the text where the English would have been incorrect, but the Finnish was often misunderstood*

In a successful cognitive dyad, the reviser should have the opposite language competence profile in order to correct these deficiencies. The scarcity of suitable revisers may, however, sometimes prevent this. The reviser may, for example, have no source language competence at all, and will thus not be able to correct any accuracy issues. This is an example of a company-level factor at work: if the available reviser pool is too limited, the cognitive dyad may fail to achieve its goal.

The translator's familiarity with the client and the field or industry came up in the interviews from both a negative and a positive perspective: if the translator has little or no experience from a client's texts or their industry, their translations must be revised. On the other hand, if the translator has often worked on the same client's texts—preferably of the same genre—revision may not be necessary. It may even be harmful if the reviser is not knowledgeable in the client's materials:

(7) RS12: *I have also seen many times* [...] *that errors are introduced through revision, sometimes revisers too boldly make changes for example to terms when the translator may have spent like five days on it and knows* [...] *how the device works, and then the reviser* [...] *decides to make changes and it is like out of the frying pan, into the fire*

A similar situation was already illustrated in Example (4). The same principles of success as were described above apply: if the translator lacks the required (sub-)competence level, a competent reviser should complete the task. If, on the other hand, the reviser lacks the necessary competence, the dyad may fail in its task.

3.3 Client's needs and requirements

Clients may express their needs and requirements directly, typically via a project manager. Translators and revisers may also decipher the needs from the texts

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5. This issue is common when the source language is a language of low or limited diffusion. In the present data, it was discussed with regard to Finnish as a source language.

themselves, accumulating their overall knowledge of the client's preferences over time through experience and feedback:

(8)   RS4: *if I know the client and know they just won't accept it if I make it smoother* [...] *they want the translation and the source to be exactly the same*

Sometimes, the accumulated knowledge is in conflict with the client's expressed wish—and this may be surprisingly common:

(9)   RS6: *really clients want it to be better than the original, so even if it's called a review job, revision job, in most cases what the client expects is copy-editing*

The reviser thus must be able to recognize the real need and adjust their cognitive work accordingly. The overall impact of the client's needs and requirements on different revision variables is presented in Figure 4.
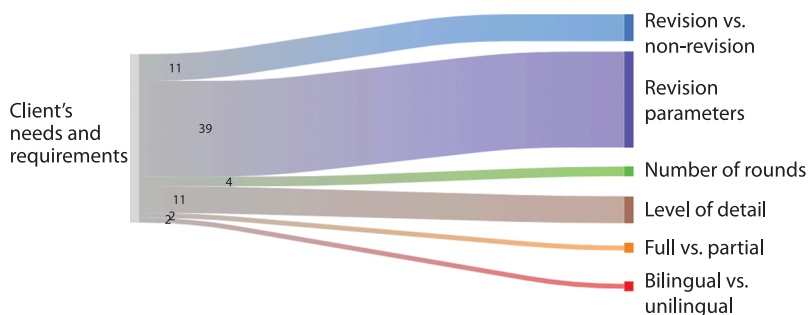
Figure 4. The client's expressed or implied need in relation to the six revision variables

Figure 4 shows that the client's expressed or implied need has often been construed as a factor that leads to emphasizing specific revision parameters, but has less bearing on the decision of whether to revise at all. In this respect, the impact on the cognitive dyad is markedly similar to that observed for text genre, and different from that of the translator's skill, which often led to non-revision. In the client-related non-revision cases that were brought up in the interviews, non-revision was rarely preferred based on the client's needs as such, but rather based on the text genres or subject areas that were typically translated for that particular client. This is indicative of the close relationship between clients and genres: clients typically order translations of the same genre over and over, to the extent that the client's name may become shorthand for their most common text genre.

A closer look at the client's impact on revision parameters reveals another similarity with text genre: it appears that clients tend to emphasize either accuracy (see Example (8) above) or smoothness:

(10)   RS20: *sometimes the instruction is not to be too particular with the source, just to make it good and smooth in Finnish, that's nice, that's a joy* (laughs)

Terminology is also important for many clients:

(11)   RS12: *terms are also one of those, some clients are very particular about them and if there is a termbank or reference material and it's not being followed, those are bad errors*

As terminology is generally more important in some text genres than in others, this further demonstrates the close relationship between the impacts of genre and the client's need.

Some interviewees confessed that if the client shows frequent interest in translation quality, or is a large and strategically important client for the LSP, their translations may be revised more consistently and carefully than those of some minor or less quality-conscious clients. However, there is no evidence that these client characteristics alone would lead to non-revision to any significant degree. Some decision-makers were very careful not to give the impression that clients would be treated differently in this respect. It was, however, emphasized that the client's real needs must be discussed with them as part of price negotiations. Honesty in these matters was considered an important constituent of successful cooperation; full revision should not be required just in case but only based on actual need.

4.   Discussion: A complex network of factors requires flexibility

The results presented above portray a complex network of project characteristics that leads to the flexible formation of the cognitive dyad, and the reviser's task scope in particular. Interviewees seem hesitant of identifying direct causal relationships from a single project-specific factor to any specific characteristic of the cognitive dyad; rather, several project-specific and company-level factors as well as external pressure elements seem to contribute to how the work is carried out. The process is construed as a negotiation between elements that may take on different emphases and most likely often contradict each other.

It appears that the composition of the cognitive dyad is often—but certainly not always, perhaps not even in the majority of cases—determined based on the translator's skillset, particularly genre competence or language pair competence, as well as the element of trust. The internal task configuration within the dyad, discussed here through the scope of the reviser's task, is most prominently conceptualized as the relative emphasis of various revision parameters and the appropriate level of detail, and seems to be often determined by the text genre (albeit

with a close link to the translator's competence profile) or the client's needs or requirements. The scope of the translator's task can also be assumed to be determined by text genre and the client's needs, but the current data does not allow explicit analysis of the translator's portion of the overall process. To sum up, the composition of the dyad often depends on the characteristics of its participants, while factors external to the dyad have a greater impact on its internal task configuration.

Based on these results, the reviser should provide the knowledge and competencies that the translator lacks. The reviser should also be able to assess the quality of the translator's work accurately, and define the necessary scope of the revision work based on it. If the reviser doesn't have the necessary competencies, or fails to recognize the translator's competence and makes changes that deteriorate the translation quality, the cognitive dyad has failed in its task. Ideally, both the translator and reviser need to know how texts of different genres should be translated; however, if the translator lacks the appropriate genre competence, the reviser must correct the text by emphasizing the appropriate revision parameters (for example, accuracy and terminology for a technical text or smoothness and style for a marketing text). Directionality of the translation illustrates even more clearly how the translator's skill profile influences the distribution of the cognitive work: If the translator is translating into L2, the reviser usually needs to pay special attention to smoothness, but may decide to trust the translator's ability to translate accurately.

Impact networks that are formed in an everyday working context are an essentially fuzzy and slippery research object, as the work may take place under many different pressure factors. Everyday LSP work is hectic and decisions often need to be made quickly. Competence gaps that the reviser needs to fill may come as a surprise, but they may also be the accepted result of less-than-ideal circumstances: the project manager may be aware that the available translator does not have all the required competencies, but instead of trying to find another translator (and possibly jeopardizing the project deadline) they decide to compensate for the deficiency by transferring a larger share of the work to the reviser. It is also probable that when making process decisions, some factors may be disregarded and others emphasized not based on a careful consideration, but rather based on what comes to mind in a hurry, when working under pressure. The rational decision-making portrayed by many interviewees may thus not fully reflect reality, which may be considerably more impulsive. On the other hand, the opposite is also possible—decision-making may often be based on routines that people fall back on without considering all the relevant factors.

Trust was found to be an important element in many decisions. Firstly, relationships of trust exist between project managers and translators, sometimes lead-

ing to non-revision; the project manager assigns the entire translation task to the translator. If there is lack of trust, the task is not only distributed to a translator/reviser dyad, but the reviser may also end up carrying quite a large portion of it. Secondly, the degree of trust between the translator and the reviser may play a role in how carefully the reviser processes the text; if the reviser doesn't trust the translator, they may decide to take on a larger part of the distributed cognitive work.

5.   Conclusion

The results discussed here can be read as a straightforward account of LSPs' revision practices and how they select revision workflows; as such, the results are consistent with previous surveys of LSP revision policies (see § 2). However, the selected perspective—socially distributed cognition and the elements that are at play in the formation of the cognitive dyad—allows for the construction of a significantly more complex picture. Workflow design should be based on a thorough understanding of the work; it is thus important to recognize the fine-tuned impact mechanisms that lead to establishing a successful, mutually complementary cognitive dyad of two professionals.

The present study is, however, only the beginning, and to confirm these findings, direct empirical observation of cognitive dyads in authentic working environments would be necessary. Competencies, tools, language pairs, types of communication, clients' preferences and other factors need to be considered every day by the LSP management, project coordinators, translators and revisers—often under financial pressure. Many aspects of real-life cognitive labour are also determined by the individual practices, preferences and routines of the translation and revision professionals. Regardless of how carefully the decisions regarding the revision process are made, the final execution of the work relies on the revisers' competencies and motivations, which may after all change the outcome from what has been intended.

The complexity of the network of factors that influence the cognitive dyad brings forth many new questions. To name a few, the impact of the company-level factors needs to be analysed more carefully; the discussion of trust should be given more attention and extended to revisers, leadership, and the client; and the cognitive processes related to how the cognitive labour itself is distributed need to be looked into. Direct ethnographic observation would also allow a rich analysis of tools and artifacts that are immediately available to the reviser and that constitute parts of the extended cognition of a reviser in an individual-centred system; so far, such descriptions have only been produced for translators (Sannholm 2021). The affordances of these tools and artifacts should also be studied on a

detailed level. On a different note, the need for a thorough investigation of the concept of genre as it appears in the LSP industry was recognized during the present study. Research on these and other similar topics will provide us with a sorely needed understanding of situated and distributed cognitive tasks in general, and translation in particular.

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