

Translators' decision-making processes in research and knowledge integration

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Abstract

This article will focus on the decision-making processes involved in research and knowledge integration in translation processes. First a short introduction is given to the psychology of decision making as seen by Jungermann et al. (2005), who propose a categorization of decision-making processes into four types: "routinized", "stereotype", "reflected" and "constructed". This classification was adapted for the investigation of translation processes and applied to a study of the translations by five professional translators and five novices of five segments occurring in a popular-science text. The analysis revealed differing distributions of the decision-making types among students and professional translators, which have to be seen against the background of whether the decisions made were successful or not. The preliminary results of this study show that professionals achieve a higher success rate when making reflected decisions. They also make more routinized decisions than students, as might be expected. The professionals' success rate improves with increasing cognitive involvement, while their failure rate is relatively high when making routinized decisions.

1. Introduction

Research and knowledge integration are integral parts of translation processes. According to Alves (1995) and PACTE (2005), a distinction can be made between internal and external support: internal support refers to the retrieval of knowledge from the translator's long-term memory, external support to the consultation of external resources, such as dictionaries and parallel texts. Many problem-solving processes require chains of these types of support before a solution can be found, and a solution always

involves making a decision or choice, whether it is conscious or unconscious. It is these decisions or choices which, in the end, lead to the target text (henceforth TT). Therefore, it seemed an interesting challenge to take a closer look at the types of decisions made and the cognitive skills involved in them. The psychology of decision making (see also Wilss 2008, Jungermann *et al.* 2005, Baron 2008, Klein *et al.* 1993) offers instruments that can be adapted and applied to the analysis of decision-making processes in translation, as will be shown below.

2. Experimental design and participants

The data analyzed for this article form part of the corpus collected in the TransComp research project,¹ a longitudinal translation process study of the development of translation competence in 12 BA students from the beginning of their first semester until the end of their bachelor's program. Their translation products and processes are compared to those of ten professional translators who had to translate the same texts. Data were collected using the following methods: think-aloud, key-logging with Translog (Jakobsen 1999), screen-recording with Camtasia Studio, webcam recordings, retrospective interviews and questionnaires. For a detailed description of the study and the corpus, see Göpferich (2009) and Göpferich *et al.* (2008ff).

3. Decision making in general and in translation

Decisions are made when persons have a choice between at least two options (Jungermann *et al.* 2005: 3) or when they are obliged to change something about the status quo, even if the options they have are as yet unknown. Decision making may involve a lot of reflection, and reflection consists of *search* and *inference*: “we search for certain objects and then we make inferences from and about them” (Baron 2008: 6). According to Baron, search focuses on three kinds of objects, which are *possibilities*, *evidence* and *goals*. *Possibilities* – in our case, TT alternatives – are

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possible answers to resolve the original doubt. They may come from inside ourselves (internal support) or from outside (external support). For the evaluation of possibilities, *goals* are necessary. Goals have the purpose to reduce the “grand world” of all possible options to a comparatively “small world” of relevant possibilities (Jungermann *et al.* 2005: 24). In translation processes, goals are set in manifold ways, for example, according to the individual perceptions and concepts of what a translation should be. If, in the course of a problem-solving or decision-making process, the goal is not clear right from the beginning, a decision about the goal has to be made prior to evaluating and choosing the best option (Jungermann *et al.* 2005: 36). This may make the processes even more complicated. A goal is considered as reached, if all the conscious or unconscious criteria are met to a degree that satisfies the translator. The translators' roles, their beliefs of what is expected from them, and, in particular, their understanding of the brief are the keys to successful performance. What counts as successful performance varies according to the requirements of each translation brief (Tirkkonen-Condit 1996: 251f). In order to evaluate the extent to which a possibility may or may not reach a goal, *evidence* is needed, which consists of knowledge, beliefs or potential beliefs. Deciders have to retrieve from their long-term memories knowledge about the implications and consequences of each possibility in order to build a basis for reliable beliefs (Jungermann *et al.* 2005: 8). Here the deciders' experience plays an important role since it helps them to judge whether it is wise to choose a certain option and whether the consequences of this option are more desirable relative to those of selecting other options (Baron 2008: 8).

Possibilities can be strong or weak depending on the extent to which the deciders (translators) consider them as satisfying their goals. Various types of evidence have a weight with respect to the possibilities and goals. This weight, however, need not necessarily determine the degree to which a possibility is accepted or rejected since emotions are involved as well and may overrule factual evidence (Roth 2001: 424). Therefore, thinkers may still err even when faced with “all” the available evidence for their possibilities and goals (Baron 2008: 7ff). We shall come across this behaviour later in many decision-making processes. Furthermore, situations can occur where the thinker has nearly decided and yet has an uneasy feeling or intuition. Intuition of that kind is usually a sign that more

evidence will be found (Baron 2008: 11). In translation, we encounter situations in which the subject has already written down a piece of TT and suddenly stops to go on searching, very often wisely so. Thus insecurity may be an important factor in decision making. When do we know enough to be able to make the right decision? How do we integrate the different types of information and knowledge available to us, and which consequences are anticipated or ignored either willingly or unwillingly? Do we evaluate all possible options or only the first available ones? How do we know that we have reached a point where a decision can be made? How do we judge our decisions (Jungermann *et al.* 2005: 3f)? At this early stage of the study, it is not possible to present answers to all of these questions, but they will guide future steps. As a first step, a typology to differentiate decision-making processes needs to be developed to have a foundation for further evaluations.

4. A classification of decision-making processes

Decision-making processes can be classified according to many features. Jungermann *et al.* (2005: 38) base their categorization on the degree of consciousness, concentration, necessary new information, flexibility, time involved, and on the types of mental representations and cognitive processes. For the purposes of my analyses, I simplified this approach. I wanted the criteria to be reduced to those which can be traced in our translation process protocols, and are at the same time clear and indisputable indicators.

The cognitive investment involved in a decision-making process strongly depends on the existence and/or accessibility of relevant information (knowledge) and its amount. If the degree of necessary new information is zero, the translator has immediate equivalent associations, retrieved in a predominantly unconscious process, a so-called *pattern-match* process. If obstacles occur, a pattern will not find a direct match. The automatic process is interrupted and conscious acting starts. The necessary information and mental representations then have to be sought and developed, sometimes by means of very demanding procedures. Jungermann *et al.* (2005), drawing on Svenson (1990, 1996), have outlined

four levels of decision-making processes: routinized decisions, stereotype decisions, reflected decisions and constructed decisions.

4.1 Routinized decisions

Routinized decision-making processes occur when a single option is unconsciously retrieved in a pattern-match process, where the underlying evaluation process takes place automatically. Such processes are nevertheless called decisions as the possibilities are the results of previous decision-making processes and the behavior shown by the decider has developed into routine in the course of time. In routinized decisions cognitive investment is minimal. The more similar a situation is to a pattern saved in long-term memory, the easier the process is.

In translation, such a process typically takes the form of: 'reads source text (henceforth ST), types TT' or 'reads ST, self-dictates TT'. The advantage of routinized decisions lies in the fact that, due to the low cognitive investment involved, the decider has free cognitive capacity left for other activities.

If, in the course of the matching process, doubts arise, the matching process is interrupted and the decider has to resort to other processes, which require more concentration and reflection.

4.2 Stereotype decisions

In stereotype decisions, just as in routinized decisions, option retrieval happens mainly unconsciously, that is, spontaneously, but more than a single option is available (Jungermann²2005: 33). Thus, a minor evaluation process takes place. This evaluation, however, is not explicit in any way, but based merely on whether an option is wanted or unwanted, and takes little time. The evaluation happens according to acquired schemes of behavior which are activated when convenient. In translation, stereotype decisions occur when more than one TT equivalent is immediately available and accompanied by an expression of a like or dislike in the evaluation process, i.e., is not guided by rational criteria. A typical example of stereotype decision making in translation is when translators read the ST, utter one TT equivalent but the next moment type a different one. Or when they utter one TT equivalent, then the next and yet another one, and then

type one of these versions seemingly without any further evaluation. Naturally, some kind of evaluation must have taken place. There is evidence, that affect- or familiarity-based evaluations as they occur in stereotype decisions require only very little cognitive processing, which is possibly even carried out in areas of the brain different to those that are activated in the course of reflected processes (Jungermann *et al.* 2005: 33). The translator may be well aware of this activity of evaluating but it cannot be claimed that a deliberate evaluation has taken place (see also Krings 1987: 167).

4.3 Reflected decisions

Reflected decision-making processes may also begin with automatically retrieved options but, if the spontaneous process is disturbed, options have to be generated consciously and deliberately using internal or external search followed by evaluation. Reflected decisions are the type of decision that we spontaneously associate with decision making in everyday life. Theoretically, reflected decision-making processes seem to be clearly organized and linear: first the definition of the goal, next the search for possibilities, finally the quest for evidence and in the end the decision. This, however, does not depict reality, particularly with experts. Orasanu & Connolly (1993: 18) present evidence that experienced decision makers can be distinguished from less experienced ones by looking at their situation assessment ability, not their reasoning processes per se. Experts' decision making often starts with automatic pattern-match processes, since they can look at a situation and quickly interpret it using their highly organized base of relevant knowledge.

Furthermore, experienced decision makers apply "satisficing" rather than optimizing strategies (Orasanu & Connolly 1993: 18). The experienced decision maker knows that in many situations various paths will lead to equally satisfactory goals. Translation has been described as a series of knowledge-based decision-making processes (Wilss 2008: 63) which strongly influence each other. The search for the optimized solution in every decision-making process might well end up in a never-ending process.

Reflected decision-making processes do not always immediately end with a decision being made. Very often decisions are postponed to a later moment when the cognitive strain is less and more possibilities or evidence have been found. Experts may do this deliberately, as can be seen from draft phases in translation processes, where routine sometimes tells them to skip difficult parts and put down placeholders (such as XXX) to remind them of unfinished decisions in the revision phase. Novices, on the other hand, may be forced to do so due to a lack of proper understanding at a given point.

A typical reflected decision in translation may take the following form: 'reads ST, types TT equivalent, comments on the register, sticks with the option/retrieves a new option, types it'. It may equally begin with a lack of a TT equivalent, either due to comprehension or production problems. Then conscious further processing is triggered and the process may take the form: 'reads ST, consults dictionary, evaluates, types'.

4.4 Constructed decisions

If towards the end of the reflected decision-making process answers deemed necessary to complete the decision have not been found, and consequently the translator has to resort to guessing to come to a conclusion, constructed decisions are made. This is the case, when the possibilities are elusive or the decider's personal goals are unclear or not yet defined. The highest level of cognitive involvement is required to resolve ill-structured problems, and to disambiguate evidence and competing or ill-defined goals (Orasanu & Connolly 1993: 19; Jungermann *et al.* 2008: 36). In translation, ill-structured problems often occur when the requirements defined in the brief are ignored and when comprehension of a phrase or longer passage fails due to a lack of linguistic or world knowledge. In order to structure the problem, knowledge from both external and internal resources has to be retrieved. Being unfamiliar with the problem and the implications of potential decisions, the decider cannot rely on experience or habits at all. The choice therefore is based on newly generated knowledge. Frith (2007: 128) argues that "we can't perceive something unless we already know something about it [...]. If the brain has the wrong prior knowledge, our perception will be false". Therefore, "good

thinking will ensure that our confidence in the belief is in proportion to the evidence available. Appropriate confidence is, in most cases, a more realistic goal than certainty” (Baron 2007: 70).

5. Scheme of translators’ decision making

Table 1 illustrates the typology of decision-making processes used for my analyses.

Table 1. Typology of decision-making processes

	Routinized decisions	Stereotype decisions	Reflected decisions	Constructed decisions
Retrieval of options	Unconscious	Unconscious	Unconscious or conscious	Conscious
Evaluation of options	—	Non-deliberate	Deliberate	Deliberate

Routinized decisions require nothing more than unconscious retrieval. For all other types, both retrieval and evaluation processes occur. In stereotype processes both are automatic, the TT option being uttered, self-dictated or typed silently. With reflected decisions the retrieval may be unconscious, though the evaluation is always deliberate. Constructed decisions are entirely conscious and deliberate actions. With increasing complexity of decision-making processes, some automatic interim evaluation processes may still occur, but they are always accompanied by conscious ones.

Summing up the typology regarding translation processes, the important implications of *routinized* and *stereotype* decision-making processes for the translator are that these processes happen mainly unconsciously or with little cognitive involvement, thus reducing the cognitive workload significantly, with the consequence, however, of remaining entirely inaccessible and uncontrollable. Reflected decision-making processes happen consciously, at least to some extent, therefore they are accessible and controllable, but nevertheless they require cognitive effort occupying parts of the working memory. The success or failure of reflected decision-making processes in translation, as in other situations, depends strongly on the introduction of goals. If goals are defined prior to option-retrieval processes, they will have an impact on them. If goals are

generated after the retrieval processes, erring and random decisions are likely to take over. Therefore, the need to introduce goals prior to retrieval processes – even if they are still poorly elaborated – is a prerequisite for organized decision making.

6. Operationalization

6.1 Methodology

In the present study, the categorization of decision-making processes was based on the scheme in Table 1. Additionally, it was necessary to search the translation process protocols (TPPs) for characteristic features of the four translational decision-making types in order to be able to establish model processes. The TPPs include all utterances made by the subjects and a wide range of actions accompanying the translation process, such as typing, dictating to oneself, dictionary consultations, reading of the ST and the TT, etc., but also many additional events (i.e., pauses, sighs, vocal shifts), which are hard to interpret objectively on their own. It was thus decided to look at the incidents 'reads ST', 'reads TT', 'types', 'consults' and the accompanying utterances ('utters option' and 'evaluation' in the schematic diagrams below).

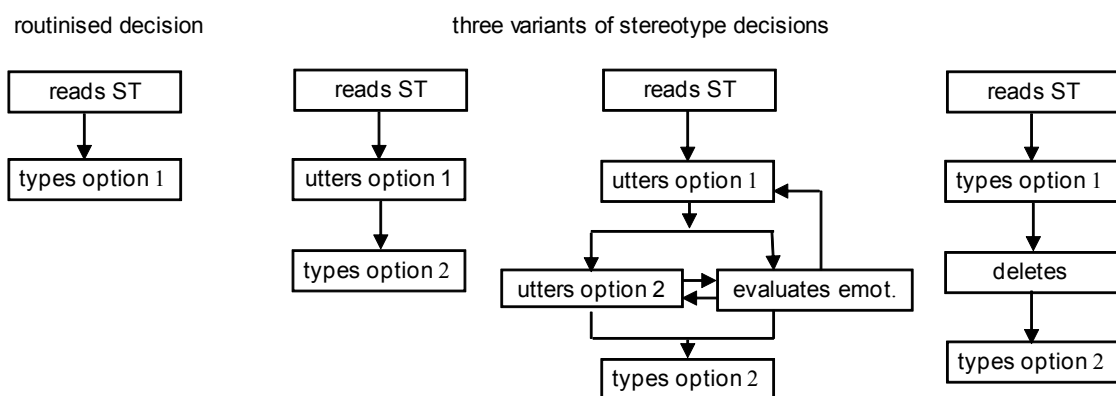


Figure 1. Schematic diagrams of routinized and typical stereotype decision-making processes

The utterances included non-rational spontaneous evaluations ('das klingt nicht gut' [*that doesn't sound good*]) and rational ones ('ich mach das besser im Nominalstil' [*I'd better nominalize here*]). Jungermann *et al.* (2005: 33) specify stereotype evaluations as those which lack situational

assessment and are therefore based on learned criteria only. Stereotype evaluations take place in a holistic and intuitive manner and require hardly any cognitive processing. Whether evaluation requires new cognitive processing or not is a distinction which is necessary to differentiate stereotype from short reflected processes.

The utterances and incidents were modeled into prototypical decision-making processes. Whereas routinized decisions only consist of reading and typing/self-dictating, stereotype decisions include utterances of options and non-rational, mainly emotional evaluations and mostly only two TT options. It was decided to classify as *stereotype* decisions all processes which

- contained two (see also Figure 1) discernible options,
- lacked any or any explicit rational evaluations or
- contained evaluations which refer to like or dislike only,
- lacked pauses in the TTP which would hint at reflected processes.

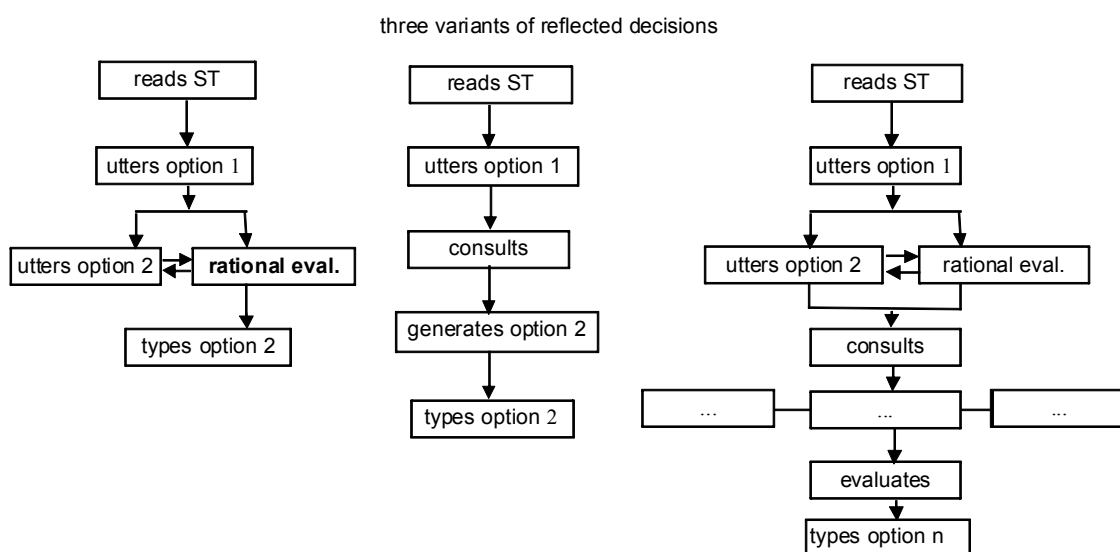


Figure 2. Schematic diagrams of reflected decision-making processes

Reflected decisions require at least four steps but can also develop into highly complex processes. Constructed decisions look very much like reflected decisions with the difference that utterances of uncertainty occur in which the translators clearly state that they lack evidence or understanding. A typical utterance would be: ‘Da müsste ich jetzt den Auftraggeber fragen; ich schreib’ das mal so hin.’ [*I would have to ask the commissioner. I will put down this version for the moment*].

The schematic diagrams introduced above form the structural basis of the categorization. In the process of differentiating between stereotype and reflected processes, *linearity* proved to be an additional helpful criterion:

'reads ST' – 'types TT' is a linear process,

'reads ST' – 'utters option' – 'evaluates option' – 'types TT' and

'reads ST' – 'types TT' – 'evaluates TT' – 'reads new ST', also.

'Reads ST' – 'utters option' – 'rereads ST' is not linear, since it involves a regression. This then indicates an irritation, a sign of a beginning reflected process.

6.2 Definition of data corpus

In the following, the decision-making processes involved in the translation of five segments from one ST that the TransComp subjects had to translate will be analyzed according to the criteria specified above. The ST segments, which were chosen to comprise a variety of textual as well as extratextual problems, are the following:

“Do this and you’ll be welcome anywhere”

This textual problem is a chapter title from the book *How to Win Friends & Influence People* by Dale Carnegie (2006: 53). In a chapter thus entitled, Carnegie suggests how one can learn from a dog's behavior to make people take a liking to you. The difficulty involved in translating this title into German is the necessary shift from the English direct address to a more indirect and formal German version which complies with German genre conventions but at the same time is short and precise.

“winner of friends”

This textual problem unit is taken from the sentence “Why not study the technique of the greatest *winner of friends* the world has every² known?” Here, a German paraphrase of the English expression is required, since there is no German compound noun for an impersonal individual who easily makes new friends (at this stage it is not yet clear to the reader that a

² The error was contained in the ST given to the subjects.

dog is going to be the example). Fixedness to the English structure, which is concise and highly explicative, is expected to cause failure here.

“he doesn’t want to sell you any real estate”

In the ST, this sentence is used to illustrate that the dog (now that we have been introduced to him) does not expect anything from you in return for his love. ‘Selling a real estate’ is a typical example of what I call a hidden culture-specific knowledge problem, since in this case the phrase hints at annoying behavior in the US and not at selling a house or piece of land. Culture specificity only reveals itself with closer attention. In German-speaking countries, a prototypical example would be ‘selling a Hoover’ or, more generally, ‘selling anything’.

“Did you ever stop to think ...”

The rhetorical question “*Did you ever stop to think* that a dog is the only animal that doesn’t have to work for a living?”, a textual problem, is asked to make the reader believe the author’s assumption that dogs need not work for their living. The phrase must not be misread as ‘*stop thinking*’ which, of course, would render the opposite meaning. Additionally, the lexical ambiguity of ‘think’ calls for a further specification in German to express the notion of a longer process instead of a spontaneously retrieved idea.

“dinner pail”

The word *dinner pail* refers to the little pail in which schoolchildren used to take along their lunch in the morning. In the sentence “*as soon as he [the dog] heard my voice or saw me swinging my dinner pail [...] he was off like a shot [...] to greet me*” the emphasis is on the dog and on his behavior, in fact all that is needed is to create a typical scene of a boy coming home from school. Since in Germany or Austria in the early twentieth century, there were no lessons in the afternoon, children did not need to take along a meal and did not carry a dinner pail, and therefore the use of the German lexical equivalent ‘*Henkelmann*’ or Austrian ‘*Menagereindl*’ would leave the reader puzzled. If one wanted to pay tribute to the autobiographical aspect of the scene, the use of German ‘*Schulranzen*’, an old-fashioned word for schoolbag, would be a good translation. But it is equally effective simply to say ‘*sobald er mich sah*’ [*as*

soon as he saw me], leaving out all the explicitations. Here, textual and world-knowledge and culture-specific knowledge come together.

7. Analyses and findings

The five TT versions of the above-mentioned units of analysis produced by the five professional translators and the five first-semester novices were analyzed for their underlying decision-making processes. For illustrative purposes, two examples will be provided for each unit of analysis and each group of subjects in the tables below. The left column provides a short description of the translation process, and the right column the analysis of the decision making involved. The classification of the TT versions as either acceptable (pass) or unacceptable (fail) is the result of an independent evaluation process by three raters who hold a degree in translation studies. The results are summarized in additional tables. First, the professionals' behavior will be looked at.

7.1 Findings in the data from the professionals

Table 2a. Professionals' translations and decision-making processes (excerpt)

ST: Do this and you'll be welcome anywhere	
<i>Final TT version FLS: Wie man sich bei jedem beliebt macht</i>	
Main phase: FLS reads ST, types TT, makes a short comment <i>das is z'lang</i> ³ ["this is too long"] indicating that she prefers a shorter version, types a shorter one. (TPP_146-150) Post-phase 1: declares that the title has little to do with the translated text, decides to use a paraphrase. Tries several versions with direct speech, ends up with a very general and short version; the intended meaning, however, is distorted. (TPP_321-338)	Analysis Conscious process, no research necessary, minimal reflection at first, but extensive reflections during post-phase. Considers consequences. Reflected decision Fail

³ In the tables, German comments are only rendered if highly significant intermediate (bold + italics) or final (italics) TT versions were voiced. Their English translations are enclosed in inverted commas and square brackets. Other important utterances, which originally had been made in German, are only rendered in English (inverted commas + square brackets only).

Final TT version GEM: So einfach ist es, überall willkommen zu sein!	
Main phase: GEM leaves a gap. (TPP_166) Only returns to it during the second post-phase: reads ST, explains to herself the content, starts typing, revises on the spot while uttering the need to change completely without explaining why, types TT, voices agreement ["why not, but it fits"]. (TPP_526-533)	Analysis Minor reflection shedding light on her preferences, does not need research. Stereotype decision Pass

Table 2b. Professionals' translations and decision-making processes (excerpt)

ST: Winner of friends	
Final TT version GOB: einer, dem die Freunde nur so zufliegen	
GOB immediately states that there is no German one-to-one equivalent, works out that a dog is meant, retrieves from his memory that in German dogs are called man's best friends but that dogs are not known for their skills in making friends in German. Utters disapproval regarding the ST, decides to paraphrase. (TPP_309-343) Revises shortly afterwards, voices more variants, dislikes all of them, tries to nominalize the verbal construction of making friends, fails with his attempts. Puts down interim version which he is not happy with. (TPP_356-385) Comes back again less than a minute later, still does not find an appropriate version although his versions are becoming more free. (TTP_389-395) Revises shortly afterwards again, voices interim version wer das am besten macht ["who does it best"] (TPP_400-405) This is the interim version which he revises again during the post-phase, uttering several new and increasingly freer versions. (TPP_857-896)	Analysis Clearly a reflected decision with knowledge about the consequences. Reflected decision Pass
Final TT-version RCH: einer, der weiß, was man dafür tun muss	
RCH reads ST, types TT. (TPP_224-226)	Analysis No conscious acting, no alternatives. Routinized decision Pass

Table 2c. Professionals' translations and decision-making processes (excerpt)

ST: He does not want to sell you any real estate	
Final TT version GOB: Haus verkaufen	
GOB reads ST, types TT. (TPP_455-459)	Analysis No conscious acting, no alternatives. Routinized decision Fail
Final TT version RCH: nichts verkaufen	
RCH reads ST, types TT, explains that the ST (selling real estate) is more precise but argues that no explicitation is needed in German. (TPP_321-327)	Analysis No conscious acting at first, but immediate reflections of possible alternatives. Reflected decision Pass

Table 2d. Professionals' translations and decision-making processes (excerpt)

ST: Did you ever stop to think	
Final TT version FLS: Hast du dir jemals überlegt	
FLS reads ST, types TT. (TPP_199)	Analysis No conscious acting, no alternatives Routinized decision Pass
Final TT version GEM: Haben Sie sich jemals Gedanken darüber gemacht	
GEM reads ST, types TT. (TPP_231-232)	Analysis No conscious acting, no alternatives Routinized decision Pass

Table 2e. Professionals' translations and decision-making processes (excerpt)

ST: Dinner pail	
Final TT version CAS: Menagereindl	
CAS reads the ST, retrieves from her memory the Austrian equivalent <i>Menagereindl</i> , argues immediately that she had better not use it, knowing that a <i>Menagereindl</i> hardly exists any more, consults different external sources including images.google, which confirms her primary association; she utters the need to contact the (in the study non-existent) client. Giggling she uses this word nevertheless, although it is not a widely known word even in Austria. (TPP_342-372) In the post-phase she once again expresses the need to discuss <i>Menagereindl</i> with the client. (TPP_494)	Analysis External support, reflections; the explicit and recurring wish to contact the client indicates that she has no defined set of goals against which she might evaluate her evidence and thus she relies on guessing. Constructed decision Fail
Final TT version GEM: Schultasche	
GEM comments already during the pre-phase that she does not know the meaning of <i>dinner pail</i> . (TPP_158-159) Main phase: looks it up in online dictionary, grasps the meaning, produces German version that does not fit into the context, changes from <i>Jausensackerl</i> , the Austrian term for a bag containing lunch, to the next bigger container, the school bag, and types this version. (TPP_312-345)	Analysis Intensive internal and external support, reflections, she knows what she is doing. Reflected decision Pass

Table 3. Distribution of decision-making processes (professionals)

Professionals	Routinized		Stereotype		Reflected		Constructed	
	Number	Pass	Number	Pass	Number	Pass	Number	Pass
Do this and you ...								
CAS					1	1		
FLS					1	0		
GEM			1	1				
GOB			1	0				
RCH					1	1		
Total	0	0	2	1	3	2	0	0
winner of friends								
CAS					1	1		
FLS	1	0						
GEM	1	0						
GOB					1	1		
RCH	1	1						
Total	3	1	0	0	2	2	0	0
sell you real estate								
CAS	1	0						
FLS	1	0						
GEM	1	0						
GOB	1	0						
RCH					1	1		
Total	4	0	0	0	1	1	0	0
stop to think								
CAS	1	1						
FLS	1	1						
GEM	1	1						
GOB	1	0						
RCH					1	1		
Total	4	3	0	0	1	1	0	0
dinner pail								
CAS							1	0
FLS					1	0		
GEM					1	1		
GOB					1	0		
RCH					1	1		
Total	0	0	0	0	4	2	1	0
Total for all units of analysis	11	4	2	1	11	8	1	0
Percentage of all decisions made	44 %	36.4 %	8 %	50 %	44 %	72.7 %	4 %	0 %

Little cognitive involvement occurred in ‘*selling real estate*’ and ‘*stop to think*’, average involvement took place for ‘*Do this and you’ll be welcome anywhere*’ and ‘*winner of friends*’, while ‘*dinner pail*’ required the highest

effort. Second, the distribution and success rates (represented by the 'pass' category in the table) of the four types of decision making become evident. In all, 25 decision-making processes were made by five professional translators, 13 decisions were correct, 12 incorrect. The essence of this table lies in two results. First, as many as 7 out of 11 routinized, i.e. unconscious, decisions failed, whereas only 3 out of 11 reflected decision-making processes failed. Thus with increasing cognitive involvement the results became better. Given a 36.4 % success rate for routinized decisions, 50 % for stereotype decisions⁴ and as high as 72.7 % for reflected decisions, it can be said that, within this admittedly small group of professional translators, an increase in cognitive involvement seems to bring about an increase in successful translations. If we follow Krings (1987: 165) in assuming that the units translated without verbal reports are processed automatically, this might provide an explanation for the high failure rate in the routinized and stereotype categories. Krings states that they are not only inaccessible to the researcher but also to the translators' own monitoring processes. Routinized pattern matching has definitely taken place to an expected degree in the professionals' translation processes, but the activated patterns were often the wrong ones. Correct German phrases were produced in most cases, but they did not meet the criteria of functional translation.

7.2 Findings in the data from the novices

Table 4 gives examples of decision-making processes as they occurred among the first-semester students.

⁴ Since only two stereotype decisions occurred within the analyzed segments, no conclusions can be drawn here. Given the low percentage of stereotype decision processes, it may be assumed that professional translators have a well developed problem awareness and prefer problem-solving modes to non-rational processes, whereas novices cannot spontaneously recall readily available options at all.

Table 4a. Novices' translations and decision-making processes (excerpt)

ST: Do this and you'll be welcome anywhere	
Final TT version EVE: Wenn Sie dies tun wird man Sie überall willkommen heißen	
EVE reflects on the necessity to shift from English <i>you</i> to German <i>Sie</i> , dwells on this for a while; she then types a version and revises its spelling immediately; whereas the shift is correct, her version is semantically wrong. (TPP_147-159)	Analysis Short reflection, internal and external support, understands the consequences. Reflected decision Fail
Final TT Version STO: Mach das und du wirst überall willkommen sein	
STO reads ST, types TT. (TPP_147-148)	Analysis No reflection, no support; literal translation. Routinized decision Fail

Table 4b. Novices' translations and decision-making processes (excerpt)

ST: Winner of friends	
Final TT version EVE: Freundemachers	
EVE reads ST, stops to think, disapprovingly utters literal translation Freundefinder ["finder of friends"], starts intensive external research in monolingual and bilingual online and printed dictionaries and in google, utters without conviction <i>Freundemacher</i> ["maker of friends"], comments immediately that this will not work in German, continues external research, utters <i>Freundemacher</i> and Freundegewinner [lit. "winner of friends"], rules out the latter and types <i>Freundemacher</i> . (TPP_170-199)	Analysis Intensive reflection, internal and external support, understands the consequences. Reflected decision Fail
Final TT version JZE: Der Größte beim Gewinnen von Freundschaften	
JZE reads ST, immediately utters that this unit will be difficult, tries a similar nominalization in German, which she knows does not fit, starts external research, needs long pauses to think, utters several idiomatic German phrases, paraphrasing the scene (Eroberer der Herzen ["conqueror of hearts"], Meister beim Knüpfen von Freundschaften ["master at establishing friendships"]), but understands that she would distort the meaning and does not succeed in integrating the new versions into the context. She continues looking for external support in a monolingual dictionary, analysing the semantics of <i>winner</i> , and infers that the winner is also always the <i>best at something</i> and thus integrates this concept into her translation, but remains fixed on the nominal phrase of the ST. (TPP_219-294)	Analysis Intensive reflection, internal and external support, understands the consequences. Reflected decision Fail

Table 4c. Novices' translations and decision-making processes (excerpt)

ST: sell real estate	
Final TT version JZE: Liegenschaft verkaufen	
JZE reads ST, starts typing, reads ST again, consults online dictionary for <i>real estate</i> , reads aloud several German equivalents (Grundstück, Immobilie, Liegenschaft), laughs, expresses amusement at the ST scene of a dog not wanting to sell real estate ["somewhat logical that he does not sell real estate"] and types literal TT version. (TPP_406-419)	Analysis Short reflection, internal and external support, understands the scene. Reflected decision Fail
Final TT version MLE: Wertpapiere verkaufen	
MLE reads <i>real estate</i> , commenting that she once knew the meaning (TPP_545-546), translates cotext first, comes back to real estate, associating monetary funds with it, decides to google it, reads about investment trusts, feels confirmed in her primary spontaneous association, continues search in google, comes across sites with real estate funds, infers the meaning of <i>selling insurances</i> , which would convey the intended meaning in German nicely. She does not realize this and goes on looking for a definition of <i>real estate</i> , learns the meaning of <i>piece of land</i> . She tries out a literal translation, but argues that it might be better to discard it and does so (TPP_601-643). Due to a software crash she starts the process anew with a revision of the text translated so far. When reaching <i>real estate</i> again, she starts at first with Grundstück ["piece of land"], but integrates from her world knowledge the concept of real estate funds, and utters Versicherungen andrehen [coll. to "urge someone to buy insurance papers"]. (TPP_748-762) This conveys the intended meaning, but she discards it and types her final version, which fails. (TPP_804-821)	Analysis Intensive reflection, internal and external support, understands the consequences. Reflected decision Fail

Table 4d. Novices' translations and decision-making processes (excerpt)

ST: Did you ever stop to think	
Final TT version MLE: Ist es Ihnen schon jemals in den Sinn gekommen	
MLE reads ST, types TT, reads TT immediately afterwards, utters two more equivalents, all three not properly conveying the intended meaning. (TPP_821-829) She rereads the TT, comes back to this unit, and utters more alternatives ist ihnen schon einmal aufgefallen ["have you ever realized"], still not having grasped the concept of "pausing to think". MLE translates the rest of the sentence and comes back again, still not happy with her solution. Referring to the data lost in the crash she says she wishes she still had the former version. She considers two more alternatives and comes up with haben sie schon jemals darüber nachgedacht , which is the correct	Analysis Repeated reflection, internal support, understands the consequences. Reflected decision Fail

translation, rereads her TT and sticks to her incorrect version since she does not see the difference between the two phrases. (TPP_837-847)	
Final TT version THI: Hast du je daran gedacht	
<p>During the pre-phase, THI does not grasp the English phrase, starting off with <i>hast du eigentlich jemals aufgehört zu denken</i> ["did you ever stop thinking"]. (TPP_205-210) During the main phase she reads the ST, asks herself why the author put "stop to think", since due to her reasoning it should be <i>hast du jemals nachgedacht</i> – a correct version. (TPP_456-465) She moves on to the remainder of the sentence. Coming back she looks up <i>stop to think</i> in an online dictionary, utters <i>to stop thinking</i> and <i>I have never stopped working</i>, wonders about the gerund, reads the ST again and utters her annoyance about the difficulties of the text ["not again!"], reads ST once more and decides to put down her idea, the final version, but thereby changes the meaning. (TPP_484-495)</p>	<p>Analysis Intense reflection, internal and external support, understands the consequences.</p> <p>Reflected decision Fail</p>

Table 4e. Novices' translations and decision-making processes (excerpt)

ST: Dinner pail	
Final TT version STO: Essenspäckchen	
<p>STO reads <i>dinner</i>, associates <i>Abendessen</i> (TPP_325-327), looks up <i>dinner pail</i> in an online bilingual dictionary, comes across <i>Menage-Reindl</i>, which she is not familiar with. (TPP_330-336) Looks up <i>pail</i> and <i>dinner pail</i> in several online dictionaries, does not grasp the idea, puts down a draft version <i>Eimer mit Abendessen</i> ["pail with dinner"]. (TPP_357-365) Returns in the post phase, looks up <i>dinner pail</i> in a monolingual dictionary, comes across the meaning "<i>a pail in which a workman carries his lunch or dinner</i>", utters the equivalent <i>Lunchpaket</i> ["packed lunch"], does not know what to do, utters her annoyance about the mental overload and types her final version. (TPP_471-502)</p>	<p>Analysis Intense reflection, internal and external support, does not understand the meaning, puts down something.</p> <p>Constructed decision Fail</p>
Final TT version THI: -	
<p>THI stumbles upon <i>dinner pail</i> in her sight translation. (TPP_226-227) In the main phase she consults the online dictionary <i>leo.org</i> for <i>pail</i> and spontaneously associates <i>Fressnapf</i> ["feeding bowl"]. She comes back later, having read and analysed the remainder of the ST, and sticks with <i>Fressnapf</i>, but wonders about the preposition <i>my</i>, since in her view it should be <i>its</i>. (TPP_664-674) Consults printed monolingual dictionary for the meaning of <i>dinner pail</i>. (TPP_806-816) She moves on to the context again, later consulting the assignment hoping to find out what the author might have meant. Arguing that the text makes sense without this particular element she deletes it having reread her TT version. (TPP_865-874) At the end of the</p>	<p>Analysis Intense reflection, internal and external support, understands the consequences (of typing something she does not understand).</p> <p>Reflected decision Pass</p>

<p>main phase she rethinks <i>dinner pail</i> and the context, asking herself for a logical interpretation, inferring that humans do not eat from a pail, thus concluding that it has to be the dog's dish. (TPP_984-997) During post-phase 3 she utters that she still has no idea how to integrate <i>dinner pail</i> in this context. (TPP_1307-1311)</p>	
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Table 5. Distribution of decision-making processes (novices)

Novices	Routinized		Stereotype		Reflected		Constructed	
	Number	Pass	Number	Pass	Number	Pass	Number	Pass
do this								
EVE					1	0		
JZE					1	0		
MLE					1	0		
STO	1	0						
THI					1	0		
Total	1	0	0	0	4	0	0	0
winner of friends								
EVE					1	0		
JZE					1	0		
MLE					1	0		
STO	1	0						
THI					1	0		
Total	1	0	0	0	4	0	0	0
real estate								
EVE					1	0		
JZE					1	0		
MLE					1	0		
STO	1	0						
THI					1	0		
Total	1	0	0	0	4	0	0	0
stop to think								
EVE					1	0		
JZE					1	0		
MLE					1	0		
STO	1	0						
THI					1	0		
Total	1	0	0	0	4	0	0	0
dinner pail								
EVE					1	0		
JZE					1	0		
MLE					1	1		
STO							1	0
THI					1	1		
Total	0	0	0	0	4	2	1	0
Total for all units of analysis	4	0	0	0	20	2	1	0
Percentage of all decisions made	16 %	0 %	0 %	0	90 %	10 %	4 %	0 %

From Table 5 it can be seen that, for the students, all units of analysis are more or less equally demanding, except for *dinner pail*, which was highly demanding. All problems except for STO's were dealt with in reflected decision-making processes. For the novice group of subjects, it seems premature to speak of any tendency, although their results also improved with increasing cognitive involvement. The two successful decisions out of the total of 25 were reflected, representing a 10 % success rate for reflected decisions, but given the low percentage of successful decisions altogether (8 %), a larger part of the corpus needs to be analyzed before drawing any conclusions. Having received no training in translation so far, the students needed to rely solely on their own intuitive assessment of the situations and this differs widely, as can be seen from the TPPs.

The two successful translations were based on two reflected decisions not to put down anything that had not been understood properly (MLE and THI). An analysis that is restricted to the products only would suggest that the novices are very poor decision makers. A closer look at their processes, however, reveals that as many as four interim versions were at one point correct (all have been represented in Table 4) and that the novices had intensively reflected on most of the units of analysis which they, in the end, nevertheless translated inappropriately. This shows that their reflections are not entirely to be discarded (see Orasanu & Connolly 1993: 18; Hansen 2006). The novices will have to develop strategies and confidence in order to learn how to tackle difficult parts in translation.

7.3 Comparative analysis

In Table 6 the results for the professional translators and the novices are contrasted.

Table 6. Distribution and success rate of decision-making processes. The values in brackets indicate the number and percentage of successful decisions out of the total number of decisions (the percentage of successful decisions within each type).

Routinized Decisions		Stereotype decisions		Reflected decisions		Constructed decisions		Total	
Prof.	Stud.	Prof.	Stud.	Prof.	Stud.	Prof.	Stud.	Prof.	Stud.
11 (4)	4 (0)	2 (1)	0 (0)	11 (8)	20 (2)	1 (0)	1 (0)	25 (13)	25 (2)
44 %	16 %	8 %		44 %	80 %	4 %	4 %	100 %	100 %
(36.4%)	(0 %)	(50 %)		(72.7 %)	(10 %)	(0 %)	(0 %)	(52 %)	(8 %)

Professionals tend to start with routinized decision-making processes, only changing their strategies when irritations occur or unsatisfactory results are obtained (Orasanu & Connolly 1993: 18). Thus, not surprisingly, professional translators resort to *routinized decisions* noticeably more often than do students (44 % compared to 16 %). It might be assumed that in the process of scene activation the wrong scenes had been activated, since 63.6 % of the professionals' routinized decisions were not acceptable. Hönig's requirement to develop a macrostrategy before entering the maze of microstrategic decisions seems to be helpful in finding a safe way out of this maze again (Hönig 1997: 54f). This strategy was successfully pursued by professional RCH, who was the only professional with a 100 % success rate (see Appendix). *Stereotype decisions* did not occur frequently and thus it seems premature to speak of findings. *Reflected decisions* on average represent 62 % of all decisions of both groups and were by far the most frequent type. The percentage of correct reflected decisions among the professionals was as high as 72.7 %, whereas the students only succeeded in 10 % of these decision-making processes. *Constructed decisions* occurred only once in each group and both failed. Enormous effort was necessary to come to a decision in both cases. Given the results, the high investment of time and concentration, however, was not worthwhile, both subjects having been involved too much in local problem solving (Tirkkonen-Condit 1996: 252).

8. Summary

This pilot study has shown that Jungermann *et al.*'s classification of decision making can be adapted for translational decision-making processes. The resulting four types of decision making occur to different extents in professionals' and novices' translation processes and are also crowned with different degrees of success. The findings obtained encourage us to extend these analyses to larger parts of the corpus and to the other experimental waves of the TransComp corpus in order to verify the preliminary results and to determine patterns for advanced students. It is furthermore expected that different categories of units of analysis such as 'culture specificity' or 'genre conventions' will be treated differently by the

two groups and will show dissimilar decision-making processes and success rates.

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Appendix

Distribution and successes of decision-making processes per subject

	Routinized	Pass	Stereotype	Pass	Reflected	Pass	Constructed	Pass	Total Pass
Ranking professional translators									
RCH	1	1	0	0	4	4	0	0	5
CAS	2	1	0	0	2	2	1	0	3
GEM	3	1	1	1	1	1	0	0	3
FLS	3	1	0	0	2	0	0	0	1
GOB	2	0	1	0	2	1	0	0	1
Ranking novice translators									
MLE					5	1			1
THI					5	1			1
EVE					5	0			0
JZE					5	0			0
STO	4	0					1	0	0

