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ПЕРЕВОД, ТЕХНОЛОГИЯ, КУЛЬТУРА: О МЕЖДИСЦИПЛИНАРНОЙ ПРИРОДЕ ТЕХНИЧЕСКОГО ПЕРЕВОДА / TRANSLATION, TECHNOLOGY, CULTURE — REMARKS ON INTERCULTURAL ASPECTS OF TECHNICAL TRANSLATION

Бытует ошибочное мнение, что техническая документация характеризуется предельной ясностью и чёткостью по определению, и, следовательно, легко переводится. Терминология, составляющая основу технической документации, как правило, недвусмысленна и стандартизирована на международном уровне, а в случае неверного использования термина выручает контекст, устраняющий проблемы в понимании, а следовательно, и в коммуникации. В статье рассматривается ряд примеров, иллюстрирующих особенности, связанные с пониманием как специфических профессиональных, так и бытовых технических реалий носителями разных языков, что представляет собой серьёзные сложности для перевода на первый взгляд «простых» и «однозначных» единиц.

Ключевые слова: технический перевод, машинный перевод, термин, понятие, культурные различия.

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TRANSLATION, TECHNOLOGY, CULTURE: REMARKS ON INTERCULTURAL ASPECTS OF TECHNICAL TRANSLATION

There is a common misconception that technical documentation is, by definition, clear and hence easy to translate. The terminology is often naively said to be unambiguous and internationally standardized. Even if a term is used in a wrong way, the context will set it right as it eases the understanding and further communication. The article deals with examples which show perfectly how bewildering both specific professional terms and household technical realia might be for native speakers of different languages, which poses a real challenge in translating these apparently "simple" and "unambiguous" units.

Key words: technical translation, machine translation, term, concept, cultural differences.

This is how I started my presentation on February 19, 2016 in Moscow. Note that this Russian introduction is a fully automatic machine translation (MT) from English, performed by Google Translate, without any postediting. It may serve as an example of the progress of technology, here in our own field of applied linguistics. The progress that has been achieved over the last couple of years is amazing — absolutely admirable, if we look at it from a technological point of view. To professional translators, however, the progress in machine translation may well be frightening.

In fact, as I have argued elsewhere [Schmitt, 2015], there is one group of translators who really have reason to worry about their future: *bad* translators. I am referring to translators who are not only 400 times slower than a MT system (a fact which applies to all human translators), who are not only much more expensive, but also not significantly better than a MT output. And as recent research into neural machine translation (NMT) indicates [Yonghui Wu et al., 2016], this quality gap between MT and human translation (HT) is closing.

Technology does not only provide the foundation for MT hardware and software, it is also a terrain where MT can be applied with the best results. Technical documentation, especially manuals — typically with short sentences, simple syntactic structures, and clearly worded instructions — are the ideal field for MT. Certainly so if the source material is written in controlled language, with strict style guides and a compulsory terminology with multilingual 1:1-equivalences.

However, one should not, as is often the case, assume that technical communication and technical documentation are by definition clear and hence easy to translate. Not even the terminology — often naively said to be unambiguous, internationally standardized, with 1:1-interlingual equivalences — is as simple as one might expect. Whilst technical documents will not be comprehensible without understanding the terms, terms account to only about 20 percent of technical texts such as manuals. The rest — i.e. actually the bulk of technical documents — consists of general language elements such as standard vocabulary and prepositions. And until today, the vast majority of technical documents are not written in controlled language — which means that they include all kinds of ambiguities and may leave room for interpretation (or hermeneutics, as some translation scholars prefer to call it nowadays).

But I am not saying that technical documents are generally vague in the sense that they can be interpreted in many ways. While the meaning may appear to be unclear when looking at individual words, the meaning of larger units is usually clear enough. And the larger unit may well include not just the immediate cotext, but also the wider context, including the communicative situation, the culture, and the cognitive resources of the communicants.

Thus, even wrong usage of a term — which happens more often than one might expect, even among experts — might not result in communication problems, because usually the context sets it right. As St. Jerome wrote in his famous letter to Pamacchius "leave others to catch at syllables and letters, do you for your part look for the *sense*." He wrote this with Bible translation in his mind, but it also applies to technical documentation: We have to *interpret* a text, any text, including technical texts, to find its true intended meaning.

These considerations about terms, meaning and sense lead us to the basic relation between words and concepts, actually to the Semiotic triangle. Here let me quote a wonderful statement by the German philosopher Arthur Schopenhauer (my emphasis):

> Accordingly in learning a language, the chief difficulty lies in getting to know every *concept* for which it has a *word*, even when our own language does not possess a word that corresponds exactly to this, as is often the case. When learning a foreign language we must, therefore, mark out in our minds several entirely new spheres of concepts. So we learn not merely *words*, but gain *concepts* and *ideas*. Only after we have correctly grasped all the *concepts* which the language to be learnt expresses through separate individual *words*, only when we directly call to mind in the case of each word of the language exactly the *concept* that corresponds thereto and do not first translate the word into a word of our own language and then think of the concept expressed by *this* word — a concept that never corresponds exactly to the first one, and likewise in respect of whole phrases — only then have we grasped the ***spirit*** of the language to be learnt[1].

This philosophical idea is generally accepted as far as common language is concerned. Everybody readily agrees that the objects referred to by words such as French *pain*, German *Brot* and Russian *хлеб* are quite different (see 1).

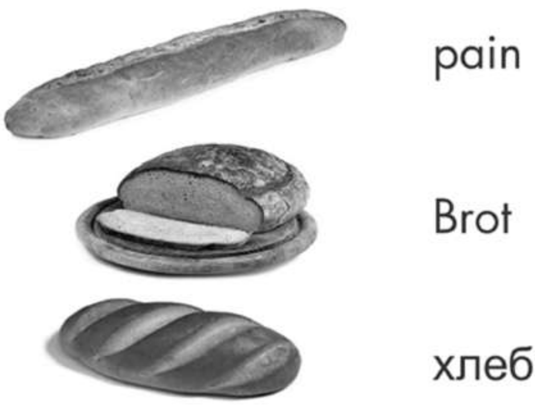

Рис. 1. *Figure: Culturally different concepts of bread*

[1] http://www.bible-researcher.com/schopenhauer.html [2017.02.05].

So, according to Schopenhauer, when reading or hearing the French word *pain*, we should NOT translate this into Russian by merely replacing the word *pain* by the word *хлеб* and only then think of a typical Russian loaf of bread (s. 2).

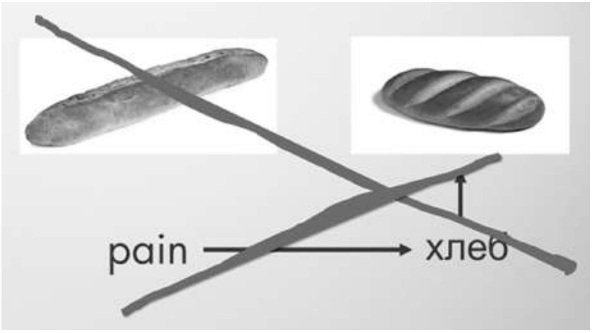

Рис. 2. *Figure: Translation by replacement of words*

Rather, we should first evoke the mental image (or concept) related to the word *pain* (and the prototypical French bread is the *baguette*), from there we should think of an equivalent (or closest possible) concept in the target culture, and only then should we look for a word in the target language which denotes this concept (s. 3). In Russian this would be *хлеб*. Lexically this is as close as we can get, but as the image shows, the mental concepts and real objects are fairly different.

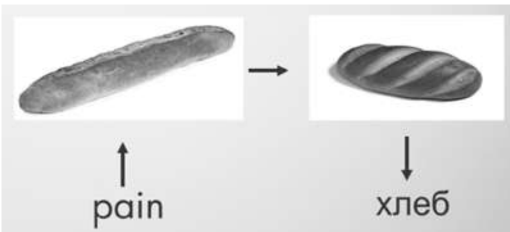

Рис. 3. *Figure: Transfer from SL word via SL and TL concepts to TL word*

In the following we will see that this applies to technical terms as well, and in doing so I shall proceed from very simple to highly complex terms, concepts, and objects.

Let us start with my favorite example — the term and concept of „hammer", an example I have been using in my lectures since the mid 1980 s. Suppose we had to translate a do-it-yourself manual on house repairs. In this example we'd have the sentence „Then I used the hammer's claw to pull the nail out completely" (s. 4).

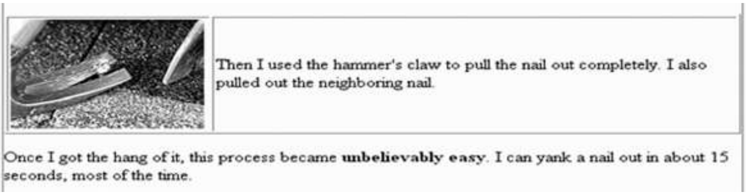

Рис. 4. *Figure: Example 1: Hammer*

From a purely lexical point of view this is easy to translate: If we were to translate *hammer* into German, the German equivalent *Hammer* — which differs only in the capital letter H — would lead us to believe that there is no translation problem whatsoever, and even the fully automatic translation by Google would be correct (see 5).

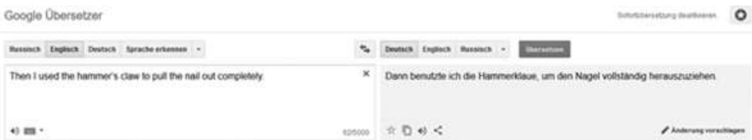

Рис. 5. *Figure: Example Hammer: Google Translation eng-ger*

However, the translation would only be correct insofar as the German sentence is semantically equivalent to the English source text sentence. But pragmatically the translation is wrong, because a typical German hammer (see 6) has no claw that could be used to pull nails. Hence, our translation would be useless in the target culture.

Рис. 6. *Figure: Typical German hammer*

To pull nails, in Germany one would use a different tool, a special type of pliers or nippers (see 7).

The situation is similar — but not identical — if we were to translate this sentence into Russian. The Russian word for *hammer* is молоток, and again Google translates this correctly (8).

Рис. 7. *Figure: Culturally specific methods of pulling nails*

The problem here is different in so far as since the fall of the "iron curtain" Russia has been exposed to Western culture and flooded with all kinds of artefacts

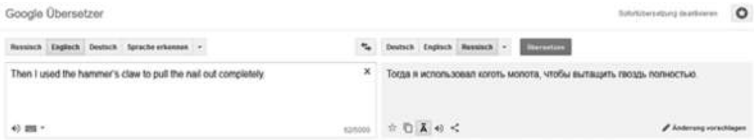

Рис. 8. *Figure: Example Hammer: Google Translation eng-rus*

from the West: The Kremlin's car fleet, for instance, consists almost entirely of German cars. And while hammers in Russia used to be identical to German hammers, a молоток today may well look like the typical Anglo-Saxon hammer (s. молоток). Which means that our translation may be adequate or not with regard to a particular reader's toolbox. But one may safely assume that a Russian reader today would understand that a hammer (albeit not necessarily the one actually at hand) can be used to pull nails.

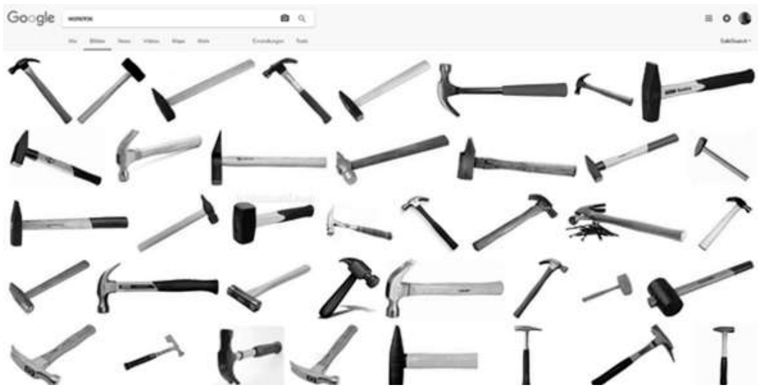

Рис. 9. *Figure: Google images for молоток*

So, when translating the English word *hammer*, one should first think of the typical English concept of a hammer, with all its features (including a claw), and then find a functionally equivalent target language concept with its related target language designation. In the example of such a DIY manual, one would have a serious translation problem insofar as the pictures show a hammer and describe a hammer function which may not be possible in all target cultures. Theoretically one could change the images in the translation process and show a typical target-culture tool in the translated text. For instance, one could show how nippers can be used to pull nails.

However, changing images is usually out of the question in translation projects, so one could resort to a lexical solution by translating the general English term *hammer* with the more specific German term

Klauenhammer. This hammer is a professional tool, mainly used by carpenters and usually not in the average household toolbox. It looks a bit different than the English-style claw hammer, but it has the same functionality as the Anglo-Saxon hammer.

Let us move on to another example, one which is more complex than a hammer. 10 shows a typical American home, a building style which you find mainly in the rural regions, or in the suburban areas of the big cities.

Рис. 10. *Figure: Typical traditional American home*

This style does not exist in Germany. But the cultural difference is not limited to style and superficial appearance. The entire design and construction are totally different. Even the most modern homes in the USA are wooden constructions — they are made of timber and wood panels (made from engineered wood, usually OSB). A typical design is shown in 11.

Рис. 11. *Figure: Typical American wooden construction*

A typical building method is called balloon framing. It is quick and cheap, but also rather fragile — as can be seen each year during the tornado season when these houses just collapse (12).

Рис. 12. *Figure: Typical American home after storm*

German buildings and private homes, on the other hand, are almost always solid masonry constructions, made of brick and reinforced concrete (13).

Рис. 13. *Figure: Typical home construction in Germany*

Obviously, this building method is much more expensive, as it involves more manual labor and more expensive materials, but the buildings are more stable physically and in terms of value, safer and they last much longer. As a consequence, German society as a whole is less mobile than the US society: Once German families have built a home, they usually stay there. For Americans, on the other hand, mobility is a philosophy of life. Buying and selling the family home is the rule rather than an exception. Even the houses as such can be mobile. 14 shows typical examples of so-called mobile homes — they do not exist in Germany.

Рис. 14. *Figure: Typical American mobile homes*

Mobile homes are built on a chassis with wheels, they are actually trailers that can be pulled and moved by a tractor. Mobile homes can be very long and wide. Their sheer size would make it impossible to move them on German roads (15).

Рис. 15. *Figure: Long mobile home*

Not only the houses and homes as such are different, their details may differ as well. Let us look at some of the obviously different details.

The terms *Fallrohr* and *downspout* are, from a terminological point of view, 1:1 equivalents in the subject field of building construction. They refer to the vertical pipe (usually visible) that guides collected storm water from the rain gutter to the ground. Insofar, the concepts are identical. However, the properties of the objects differ from culture to culture. In Germany, downspouts are always tubular with a round cross section (usually 100 mm diameter). In Russia, they are also round, but with a larger diameter. In the U.S., however, downspouts are usually box-shaped. Whether the difference in cross-sectional shape is relevant in a translation depends on the context. If it is a German-style downspout, you can add a fitting to a downspout (like an inspection opening, an elbow, or a branch pipe) and you can conveniently rotate this in any desired orientation. With its American equivalent, you cannot do this. In a DIY book on home repairs this might well be a crucial point at some stage.

Рис. 16. *Figure: German Türklinke (left, top) vs. English doorknob (left, bottom)*

Another house detail are doorknobs. By definition, a knob is “a small rounded ornament or handle”[2], such as the typical Anglosaxon doorknobs. The main characteristic of a knob is that it is round. We could imagine a dramatic scene in a German novel or movie where the family dog opens a door by operating the door handle and rescues the family from a burning home. In Germany, this would work well, because the handle is relatively long (typically about six inches) and provides good leverage for turning the door latch mechanism (16). In fact, our own dog — shown in 16 with my wife — can easily open doors that way (but is not allowed to do so). If we were to translate a novel with that dog-opens-door scene from German into English, the words *Türklinke* (or *Türgriff*) and *doorknob* would refer to lexical as well as functional equivalents, but in the mind of an English speaker, the word *doorknob* would evoke a concept which would be incompatible with the idea that a dog could operate it. Therefore, instead of the idiomatically correct translation *doorknob* we could use *door handle*, as this term does not have the semantic implication that the object is round.

An interesting real example of this situation occurs in the novel *A Dog’s Purpose — Bailey’s Story* by W. Bruce Cameron, where the narrator is a dog. In one scene, the dog wants to escape from a kennel and looks at the gate:

> My gaze focused on the doorknob. [...] I remember how the man had put his hands on the metal doorknob, turned it, and pushed. Then the gate had opened. Could I do something like that?

[2] https://www.merriam-webster.com/dictionary/knob [2017.02.02].

So far, a reader would assume that the doorknob is the usual kind, i.e. round. To correct this typical assumption, the dog's narration continues as follows:

The doorknob was not round; it was a thin strip of metal.

While "thin strip of metal" is not a technically correct way of describing a (European-style) door handle, it is an acceptable description when seen through the eyes of a young dog. The story goes on as follows:

> I tried again, clambering on the table and grabbing the knob with my teeth. This time I put my front paws up on the handle to keep myself from falling down, and to my surprise, the handle fell away beneath me. I slipped, and my whole body hit the lever on my way down. [...] The gate was open!

The description would merit more comments, but we must leave it at that. However, it is interesting to note what happened in the German translation of the English source text. The translation differs substantially from the original, but one detail is of special interest in our context here:

> Dann reckte ich mich in die Höhe und nahm die Metallklinke ins Maul, bei der es sich nicht um einen runden Knauf handelte, sondern um ein längliches Metallstück[3].

This is on page 64 of the German translation, and so far there is nothing in the text itself that indicates that the setting of the story is the USA. So, for a German reader, there is no reason to assume that the door knob is round — and explaining the shape of the door handle is a bit strange.

These cultural differences are everywhere — but they are often hidden from view. You probably know the typical Anglo-Saxon windows, the so-called vertical sash windows. They are pushed up to open them. They might look similar to typical German or Russian windows, but their inside mechanism is radically different.

Рис. 17. *Figure: Typical traditional vertical sash window*

[3] Cameron, Bruce W. (2017): Bailey — Ein Freund fürs Leben. Aus dem Amerikanischen übersetzt von Edith Beleites. München: Wilhelm Heyne.

The prototypical Anglo-Saxon double-hung vertical sliding sash windows have complex internals (18). The important part is the internal pulley or spring mechanism (parts 3, 12 and 15) which counterbalances the heavy weight of the sash so that it is easy to push it up.

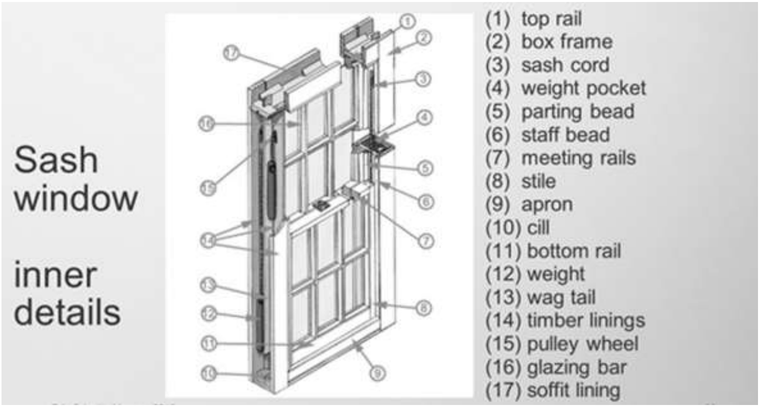

Рис. 18. *Figure: Sash window, parts and internals*

While it is possible to coin German terms to designate all parts of English sash windows, one should be aware that this type of window does not exist in Germany and that such terms would be neologisms (initially) and loan translations whose meaning would be unknown to practically all native Germans.

The same applies in the opposite translation direction, when trying to translate the technical details of European-style tilt-turn windows. They have two distinct functions: Swing it in like a door or tilt the top of the sash into the room for ventilation. Until very recently, this type of window was almost nonexistent in the USA, and the terms *tilt turn window* or *tilt and turn window* are still neologisms in English. Obviously, the dual ability of rotating around a lateral vertical axis as well as around a horizontal axis at the bottom is an engineering miracle, because it requires hinges which exclude each other: In the turn position, the window is hinged on the side, while in the tilt position, the window is hinged at the bottom. The mechanical miracle is achieved by some ingenious trickery which is hidden inside the window frame. So far, these hinge components have no established terms in English.

So we have a terminology problem here: Suppose a German window manufacturer wants to sell these energy-saving windows outside Europe and needs brochures and parts catalogs in English? As one cannot expect to find English terms for these window components in dictionaries, the translator may have to coin new terms in English.

Рис. 19. *Figure: Hinge details of European-style tilt turn windows*

Cultural differences in the building industries reach from the foundation, the existence and design of basements (cellars, crawl spaces), over architectural design, floor plans, room layout (and furniture), building materials, fire protection, roof types and roof construction up to the types of roofing materials. As we all know, such characteristics may vary from region to region and may even be specific to a particular city. A bird's eye view over the buildings of New York City shows us a typical characteristic: There are water tanks on each rooftop (20).

Рис. 20. *Figure: Water tanks on buildings in New York, as seen from the Empire State Building*

These archaic-looking water tanks provide a water reservoir for drinking water[4] as well as for fire fighting[5].

[4] "millions of residents get their drinking water from the tanks every day. [...] But inside these rustic-looking vessels, there are often thick layers of muddy sediment. Many have not been cleaned or inspected in years" https://www.nytimes.com/2014/01/27/nyregion/inside-citys-water-tanks-layers-of-neglect.html?_r=0

[5] http://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards?mode=code&code=22

Рис. 21. *Figure: Typical rooftop water tanks in New York City*

In Europe we do not have these water tanks, because we have different water supply systems, different laws, and different fire fighting technologies.

Let us move on from buildings and civil engineering to another engineering artefact with strong cultural elements: automotive vehicles. You know that some countries, not only Great Britain, but mainly in South-East Asia, adhere to driving on the left side of the road.

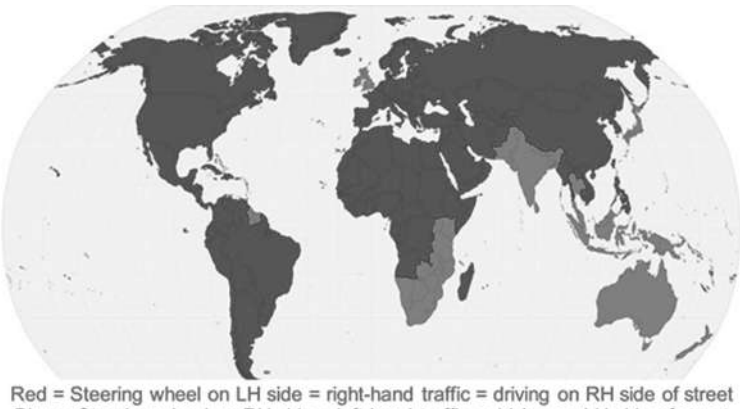

Рис. 22. *Figure: Right- and left-hand traffic*[6]

This means that road vehicles must be localized for this — which is by no means limited to the obvious location of the steering wheel on the right or left hand side of the instrument panel.

[6] https://upload.wikimedia.org/wikipedia/commons/thumb/3/32/Countries_driving_on_the_left_or_right.svg/400px-Countries_driving_on_the_left_or_right.svg.png

Рис. 23. *Figure: German car localized for the Japanese market*

23 shows that — in this example — not even the center console remains the same for LH and RH drive countries. Here the selector lever of the automatic transmission is positioned on the right, in Germany it sits on the left hand side of the console. Of course, the pedals (and their associated connections), too, are placed differently. While a foot-operated parking brake is always positioned so as to be operated by the left foot, a manual parking brake lever will be operated by the left hand or right hand in different traffic cultures and may be located in the center (in which case no localization is required for RH or LH drive markets), or at the outboard side of the driver's seat (as on certain Aston Martin models; an example is shown in 24 and 25) — which requires major localization efforts.

Of course, the localization effort is not limited to engineering, it concerns the technical documentation as well. Which means that images showing a product should verbally describe and visually show the product as it actually is on the target market. However, in real life this is not always the case. For example, the German version of the owner's manual of a famous English sports car shows the location of the handbrake lever on the RH side (24). This would be true for markets with left-hand traffic such as Great Britain, but on cars sold in Germany (with RH traffic) the lever is located on the opposite side, left of the driver's seat (25). So there is a discrepancy between the product (localized) and its documentation (only partially localized). Many, actually most, of these cultural adaptations are not visible to non-experts. But even non-experts can imagine that if steering wheel, accelerator, brake and clutch pedals are moved from one side of the vehicle to the opposite side, at least some of the related equipment must also move.

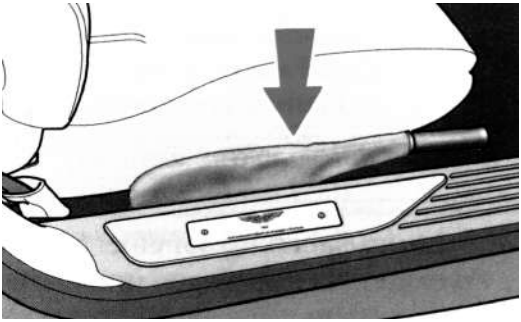

Рис. 24. *Figure: Handbrake lever on RH drive car*

Рис. 25. *Figure: Handbrake lever (Handbremshebel) on localized English car for LH drive markets*

In the case of trucks, the cultural differences are so fundamental that Daimler, the world‘s leading truck manufacturer, cannot sell its Actros trucks in the U.S.

Рис. 26. *Figure: Typical European truck (here: Actros)*[7]

[7] http://www.schunk-medien.de/wp-content/uploads/2012/01/Der-neue-Actros_4.jpeg

Рис. 27. *Figure: Typical American truck (here: Peterbilt)*

On the U.S. market, the Daimler group has its unique local brand of trucks, called Freightliner. Originally, they looked like the typical Peterbilt truck shown in 27, today they are streamlined but still maintain the typical look of American trucks (28). And it‘s not only looks — practically everything about this truck is different from trucks in Germany.

Рис. 28. *Figure: Freightliner Truck by Daimler of Germany*

Is this relevant when we translate texts? After all, there is nothing wrong with the lexical equivalence of German *Lastkraftwagen* and English *truck*. But remember our simple *hammer* example: Complex objects such as trucks have a multitude of features which may differ from culture to culture. Most of the components of trucks are designated by terms which can be easily translated by lexically equivalent terms in other languages. Such as *engine* or *front bumper* or *exhaust pipe* or *sleeper cabin*.

But the equivalent terms in the other language — for example German *Motor*, *Stopfinger*, *Auspuffrohr*, *Ruhekabine* — evoke different concepts or scenes in the minds of target language readers and the actual objects look different and have different properties.

There is a multitude of other automotive things that must be localized, both in terms of engineering and documentation. Think of the instruments, e.g. the speedometer (kilometers vs. miles), think of the different ways of calculating fuel economy (liters of fuel consumed per 100 km driving distance vs. miles driven per gallon of fuel). Think of the culturally specific ways of testing exhaust emissions, as shown in the "Dieselgate" scandal that affected the entire auto industry and already cost Volkswagen billions of dollars in damages.

While a hammer is, in terms of complexity, at the simple end of the spectrum, my favorite example for an extremely complex, complicated, sophisticated, and culturally specific technical artefact are nuclear power plants. Which is why I use this example here again. From a lexical or terminological point of view, translating the term *nuclear power plant* into another world language is no problem. But the cultural differences of local concepts and local implementations of that concept are fundamental.

Such as the differences between Russian and Western-style nuclear power plants: Here the conceptual differences (graphite-moderated vs. water-moderated design) are so fundamental that an accident of the kind that occurred in Chernobyl in 1986 (cf. http://www.chernobyl.co.uk/) is physically impossible in Western nuclear power plants: In Western light-water reactors (LWR) the chain reaction *cannot* run out of control — the worst possible accident is the loss-of-coolant accident (LOCA). Whereas in Russian RBMK-power plants of the Chernobyl type this can lead to a catastrophic explosion, a LOCA in Western LWR would imply a loss of moderator which would cause (without the need for any human or engineered interaction) an interruption of the chain reaction. Which is why Western-style nuclear power plants are called "inherently safe" or "fail-safe" — a concept understood by experts, but difficult to convey to the general public. Even the well-educated, intelligent readership of this volume might be reluctant to accept the notion that something like an atomic power plant could be "fail-safe".

In contrast to Chernobyl, the infamous reactors Fukushima Daiichi Units 1 and 3 are of a LWR-type (boiling water reactors) that does exist in Western countries. However, the design of these Fukushima reactors is radically different from and much less safe than nuclear power plants in Germany — it would not be granted an operating license under German nuclear safety regulations. The upper structure of the Japanese reactor buildings — in 29 called "secondary containment" — has no containment function whatsoever. It was merely a flimsy weather protection, and it is not at all surprising that it collapsed completely during the accident (30).

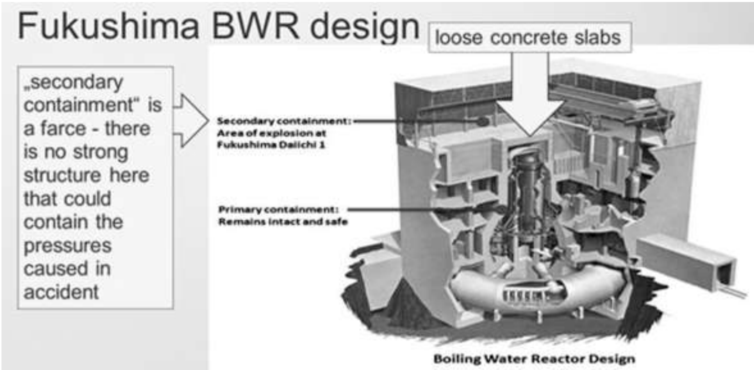

Рис. 29. *Figure: Nuclear power plant Fukushima Daiichi*

Рис. 30. *Figure: Collapsed reactor building of Fukushima*

In contrast to this, reactor buildings in Germany are built like bunkers, as solid as air-raid shelters.

Рис. 31. *Figure: Typical nuclear power plant in Germany*[8]

[8] http://www.regleo.de/Bilder/061130Philippsburg/061130Philippsburg04.jpg

The cross-sectional view (32) of a typical German reactor building shows that all components of the nuclear steam generating system are accommodated within a hermetically sealed spherical steel containment. This steel containment shell is surrounded by an outer shell of reinforced concrete — which does not exist in the Fukushima plants. The reactor building is designed to withstand any kind of accident that could occur within the system, including the worst possible accident, which is the loss of coolant accident (LOCA). In addition, it is designed to withstand any conceivable external effect, such as earthquakes, direct attack with bazookas, nearby explosion of a fuel or gas tank ship, as well as the impact of an airplane. And, of course, it is completely flood-proof. All of this is not the case in the Fukushima plants. The safest nuclear power plant would be a German plant. In the light of this, one might wonder why only a negligible number[9] of the 447 operating nuclear power plants worldwide[10] are of this safe type, given the public concern about safety of nuclear power. But these safety features add to the price tag: The current price for a German nuclear power plant is at least five billion Euros for one 1,200 Megawatt unit, which is about 30 percent more than for competing plants. Saving at least 1.5 billion Euros on each power plant unit (usually two are needed) is a strong argument for power plant operators.

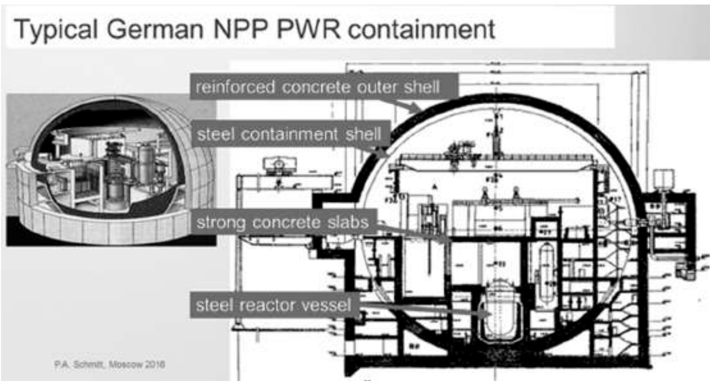

Рис. 32. *Figure: Typical safety barriers of German nuclear power plants*

Let us bear in mind that we are looking at this from our perspective: intercultural communication and translation. German politicians and media coverage of the Fukushima catastrophe never addressed the safe-

[9] Currently, only five (5) nuclear power plants are still operating in Germany. http://www.bmub.bund.de/themen/atomenergie-strahlenschutz/nukleare-sicherheit/aufsicht-ueber-kernkraftwerke/kernkraftwerke-in-deutschland/

[10] 61 are under construction (http://www.world-nuclear.org/nuclear-basics/global-number-of-nuclear-reactors.aspx) [2017.02.05]

ty-relevant cultural differences between Japanese and German nuclear power plants. All the reporting and the political discussion remained on the lexical (or, in this case, terminological) level, and on this level, the terms *nuclear power plant* and *Kernkraftwerk* are equivalents. The same applies to the multitude of systems and subsystems and components accommodated in these plants. On a term level, most of them have 1:1 equivalents. But the *concepts* designated by these terms and, in many cases, also the objects as such, differ dramatically from culture to culture. So radically, in fact, that the differences decide over life or death — as experienced in Chernobyl and Fukushima. And over entire economies, as in Germany.

A result of ignoring cultural differences in technology is that in June, 2011, the German government used the Fukushima accident as a reason to shut down several German nuclear power plants immediately and to abandon nuclear power generation in Germany completely by 2022[11]. This spontaneous decision may have been premature and technologically questionable, but pragmatically it was the best one in the face of a 30-year-old, unsurmountable communication barrier between experts in an extremely complex subject field on one side and the general public on the other side. Already today, high technology is too high to be understood by the majority, and this will get worse. In a growing number of technological fields, there is an intralingual sociocultural communication barrier between experts and non-experts in addition to interlingual communication problems.

For an engineer and expert in nuclear engineering, the frame *nuclear power plant* evokes a different scene than the frame *Kernkraftwerk* — because the objects have different properties. For most people, all terms with the attribute *nuclear* have the connotation „atomic“, as in *atomic bomb,* and evoke existential fear. So the general public in Germany ignores or does not believe that to date, including the TMI accident in 1986, not a single person has died in or as result of a nuclear power plant accident outside Russia or Asia, while several 100,000 people die each year due to other industries. In Germany alone, about 10,000 people die each year in household accidents — a death toll nobody talks about[12].

This was just a quick “tour d’horizon” over the spectrum of translation-relevant cultural aspects of technology. What we see is just a tiny fraction, the tip of an iceberg; the vast majority of cultural aspects in technology and engineering are hidden.

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[11] http://www.zeit.de/news-062011/30/HAUPTSTORY-ATOMAUSSTIEG-DONNERSTAG31168402xml

[12] http://www.focus.de/immobilien/wohnen/fensterputzen-stolpern-verbrennen-und-ersticken-fast-10-000-tote-jedes-jahr-zuhause-ist-es-viel-gefaehrlicher-als-auf-der-strasse_id_6600019.html

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