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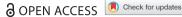
Sergey Tyulenev

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Translation as meaning negotiator

Sergey Tyulenev 🕒

School of Modern Languages and Cultures, Durham University, Durham, UK

ABSTRACT

The article engages with the meaning-making function of translation. Three case studies demonstrate how translation performs its work of counteracting semiotic-semantic entropy. The first two cases show that translation can combat this entropy by rendering the less familiar with the more familiar by oscillating between its terminological and impressionistic types. These two cases observe translation between music as a semiotic domain and biochemistry, on the one hand, and language, on the other. The third case study looks at how translation negotiates meaning between language and painting. In all these cases, translation performs its negentropic work, but it does so via more or less complex negotiations of meaning.

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Introduction

If translation is viewed as meaning making (Marais 2018), the fundamental question to ask is what exactly meaning is. It may be defined as "taking one thing to stand for something else" (Marais 2022, 6), so the next question would be about the relationship between these two "things". Applying Charles Peirce's semiotic theory to language, Roman Jakobson defines the meaning of a linguistic sign as its translation into another sign, "especially a sign 'in which it is more fully developed" ([1959] 2012, 127). Kobus Marais, whose theorization of translation as a meaning-making operation is also based on Peirce's theory, claims that translating means applying constraints that narrow down the initial pool of semantic potentialities. In other words, translation as meaning making is about moving from one sign to another by restricting the initial unclarity or complexity. This is apparently done so that the receiver of the translated sign/message is presented with something that they can comprehend by drawing on their knowledge or capacity.

The source domain is viewed as complex, perhaps even chaotic - that is, incomprehensible – by the receiver, which is why translation is needed. The translated product offers some clarification because, in the target sign, the original sign is made "more fully developed" (Jakobson [1959] 2012, 127). Or, according to Marais, translation constrains "the creation of interpretants" (2018, 157). By applying constraints, translation reduces the pool of semantic potentialities of the translated/defined sign, thereby indicating the meaning option(s) that is relevant to the situation. Ultimately, translation reduces the semantic complexity of the initial sign.

In his discussion of linguistic aspects of translation, Jakobson gives the example of translating a less developed sign – bachelor – into a sign that makes the original one more fully developed – unmarried man. One may not know the word bachelor, with its meaning "squeezed" and "hidden" inside the word, and there is no way to figure out the meaning (at least out of context); you either know the word or you do not. By translating bachelor intralinguistically as unmarried man, the translator/explainer is unpacking the meaning into words that are more likely to be known to the questioner. Man and unmarried are more basic and more frequently used words. Even if the questioner, or translation receiver, has never heard the form unmarried, they can easily figure out what it means thanks to its form – marry > married > unmarried. The unpacking presents the initial sign in a "more fully developed" fashion, i.e. in simpler terms and with a clearer and easily decipherable internal form. This is how translation functions as a meaning maker, according to Jakobson and Peirce.

One might take this direction of meaning making in/by translation beyond the linguistic realm. For instance, the word *plum* may be translated into a visual sign – a picture of a plum – or the word *thunder* may be translated into an aural sign – the sound of thunder, either recorded or real. Both the pictorial and auditory translations offer signs that make the initial signs more fully developed in the sense of presenting unknown word signs (*plum* or *thunder*) as picture/sound signs that are more likely to be familiar to the receiver.

In Marais (2022), there is a vivid and helpful illustration of translating as constraining and reducing, or even simplifying, the translated sign. The word *lion* may have a great deal of meaning possibilities, but when one sees the word on an advertising board in a zoo, the entire pool of potentialities is reduced to one – a large cat of the genus Panthera, kept in a cage in that zoo for observation. This is an example of how translation makes meaning by reducing the pool of potentialities to an actuality that fits a particular situation. If the word is introduced to a three-year-old visiting the zoo with their parents, a downright simplifying translation may be required: for example, *lion* may be translated as a very large cat in a cage. Or, once again, as with the word plum, translation may confer meaning on the word lion with the help of the visual or aural domain – with a picture (perhaps on the same board) or a lion's roar (perhaps heard in the distance).

So far, translation appears to make meaning by rendering a less specific sign with a more specific one, changing it from a sign with a large or even limitless pool of semantic potentialities to one with a reduced number of relevant options or even a single one apposite to the situation at hand. Much has been discovered about constraints in translation studies (although not necessarily in these terms) over the decades of extensive research into interlinguistic translation. Among other things, constraints may be regarded as differences between the involved languages and cultures, or briefs, whether elicited from the commissioner, formulated by the translator themself or somebody else having a say about the process/result of translation/interpreting, or the consequence of various norms, conventions, expectations, etc. In this article, I explore how translation makes meaning when it steps outside the linguistic semiotic domain.



Translating the less familiar with the more familiar

Musical timbres into words

In the first case study, I will examine translation's meaning making in the interaction of music and language. The analysis will focus on the textbook Fundamentals of Orchestration by Nikolai Rimsky-Korsakov ([1913] 1946), which is written in Russian (all translations of his Russian text are mine). In his book, Rimsky-Korsakov describes the timbres of musical instruments in the Western classical symphony orchestra and the combinability of these instruments. He may be said to have translated musical phenomena into the linguistic realm. This textbook will be compared with The Study of Orchestration by Samuel Adler (1989), which is written in English. Why the comparison is helpful will be explained below.

First, it is important to appreciate the target audience of Rimsky-Korsakov's textbook. As we have seen above in Marais's (2022) example of translating the notion lion, and as we know from decades-long studies of interlinguistic translation, the target audience is a factor influencing translation strategy and tactics. The clarity of the translation of musical phenomena into linguistic units is particularly important for books such as those of Rimsky-Korsakov and Adler because both are meant for students. Their genre is a constraint that requires the translation to render the initial phenomena's meanings relevant to the needs of the students who must learn the timbres of musical instruments and be able to write music for the classical symphony orchestra.

Importantly, when Rimsky-Korsakov wrote his textbook (the first edition of which was published in 1913), he could only rely on his linguistic explanations/translations. He provided musical samples from his own orchestral scores, but they meant little without the principal translational vehicle - his linguistic text. Adler had a significant advantage: his textbook describes the musical phenomena not only linguistically (in English) and with sheet music samples, but also with the help of recordings of the samples. In his introduction to the second edition (1989, xii), he explains that it is the first time that an orchestration textbook has provided CDs with recordings of the musical examples. Ideally, orchestration should be taught with access to an orchestra, but, in the absence of this ideal, the accompanying recordings were seen as a welcome aid in demonstrating the sound effects discussed in the linguistic text. Thus, the two textbooks offer an interesting comparison. Rimsky-Korsakov's translation is that of musical timbres into words only, whereas Adler's translation is into words and recorded timbres.

This reliance on language is another constraint on Rimsky-Korsakov's translation, as he could only use the type of sign that is referred to as a symbol. In the Peircean classification, this type of sign is said to be based on a conventional connection between the representamen and its object (Nöth 1995, 44). Rimsky-Korsakov's translation may be called a symbolic translation. Adler also uses symbolic (linguistic) translation, but he has the advantage of index-based translation, where the index, once again in Peircean semiotics, has some existential association with its object. Like recordings of thunder or a lion's roar, Adler's recordings of timbres and musical fragments are representamens for the objects making these sounds. Indexical translation is easier for the target audience to appreciate because it relies on the more basic human sense of sight or, in this case, hearing. For a symbolic translator, the task is to use linguistically expressed notions that would make the translated objects as easily comprehensible to the target audience

as possible. In both textbooks, there are also iconic signs that exploit the resemblance of the representamen to its object. Using the example discussed earlier, a picture of a plum would be an iconic translation of a plum. In the orchestration textbooks, iconic translations are drawings or photographs of instruments or orchestra seating charts. But iconic translations play a minor role in the textbooks, whose primary function is to explain how individual instruments, groups of instruments, and the entire orchestra sound. Therefore, the focus in the discussion below is on translation of the auditory realm into language.

What methods does Rimsky-Korsakov resort to in order to translate the different timbres into words? His main method is to describe the timbres using words that he believes are as clear as possible. For example, the timbres of the strings are introduced as follows: "The nobility, softness, warmth of timbre and evenness of sound throughout each member of the bowed group constitutes one of its main advantages over other orchestral groups" (Rimsky-Korsakov [1913] 1946, 14). Here the timbres are rendered using two types of linguistic translation. On the one hand, impressionistic words are used that have no direct relation to the physical properties of timbres: nobility, softness, warmth. These are essentially metaphors with a high degree of subjectivity. On the other hand, the word evenness to describe the sound of the strings as a group could be said to refer more to the actual physical property of their timbres - unlike the woodwind, the strings have virtually the same timbre across the entire group. The word acquires almost the status of a term, and it is likely to be understood by every reader: the word even when used to describe timbre means having the same quality of sound or, more technically, similar overtones. Another translator would probably use, if not the same, then at least a similar word. Indeed, Adler (1989, 9) uses the word "homogeneous" to describe the timbre of the strings, and he explains that the differences in tone colours within the group are "much more subtle [and therefore less perceptible] than in the winds or brasses".

Terminological translation renders a physical specification of the properties of the musical phenomenon described. The combinations even timbres and homogeneous timbres give a virtually unambiguous linguistic definition of the physical property of string sounds, and the orchestration student will know that the strings can be combined more freely than other instruments or groups less even or homogeneous in their timbres. Impressionistic translation conveys the translator's subjective perception of the musical phenomenon. When sounds are translated using words such as nobility, softness, or warmth, different people are likely to think of different physical characteristics. To understand what Rimsky-Korsakov means, one would need to have already learned how strings sound, i.e. it is only possible to move from the sound to the word (I know how the cello sounds, and I define its timbre as noble), not from the word to the sound (I know what the word noble means, so I can understand what the timbre of the cello is). The Russian word blagorodny (noble), used by Rimsky-Korsakov, means (1) distinguished by irreproachable honesty, selflessness, magnanimity; (2) distinguished by special qualities, elegance, exceptional; (3) distinguished by precious qualities (noble metals); (4) (in a historical sense) relating to nobility (http://gramota.ru). Reading that the timbre of a cello is noble, the reader has little hope of imagining what it might sound like because no dictionary meaning of the word noble describes how a noble timbre might sound beyond the fact that a noble timbre is some sort of timbre pleasant

to the ear. The reader can glean few hints at what physical parameters of the cello timbre they as a future composer could use in their compositions. Compared to Adler, Rimsky-Korsakov writes for a more prepared reader, one who has at least some auditory experience of orchestral timbres. For this reason, he shares his subjective perception of the instruments, and his textbook is dominated by impressionistic translations. Adler's textbook, on the other hand, is an introductory course in orchestration that includes the basics of instrumentation, i.e. he begins by introducing his readers to the instruments and refers them to recorded samples; therefore, his linguistic translations of timbres are more terminological.

Let us consider more examples. Rimsky-Korsakov groups the woodwinds according to the presence of the nasal or chest tone in their timbre:

The four generic representatives of the woodwind family can generally be divided into two groups: (a) instruments of the nasal timbre, as if dark sounding - oboes and bassoons (English horn and contrabassoon), and (b) instruments of the chest timbre, as if light sounding - flutes and clarinets (piccolos and alto flutes and piccolo and bass clarinets). ([1913] 1946, 18)

The words nasal and chest refer to what all humans would recognize as human voice timbres. These physiological characterizations help one to imagine, albeit only approximately, how the described instruments might sound. In addition to these corporeal associations, Rimsky-Korsakov relies on the universally familiar category of light/dark with "dark sounding" and "light sounding", where light in Russian - svetly - refers to the antonym of dark rather than heavy.

The full gamut of Rimsky-Korsakov's translations can be seen in other explanations: the harmonics on the strings are said to have a timbre that is "cold-transparent in piano and cold-shiny in forte" ([1913] 1946, 15; hereinafter, added italics); the timbre of the English horn "has [...] the tenderness [...] of a lazy-dreamy timbre"; "the bass clarinet, for all its resemblance to the standard clarinet, is darker and more sullen in the timbre of its low register"; the trumpets have a "clear and somewhat sharp, provocative sound in forte; in piano, the dense, silvery high sounds in contrast to the low sounds are somewhat compressed, as if fatal" ([1913] 1946, 23, 25). Here we see epithets denoting different degrees of temperature combined with colour/light characteristics - cold-transparent and cold-shiny about the strings and clear about the trumpets. A trumpet's loud sound is sharp, a characteristic that is familiar to each of us because a voice may sound sharp. Physical materials such as silver and the corresponding colour also, while impressionistic, prove helpful because they are universally familiar. Various degrees of such physical phenomenon as density are also used: sounds may be dense or compressed; the latter may also be interpreted as a reference to how a human voice can sound. Finally, human emotions serve as references: tenderness, lazy-dreamy, sullen, provocative, fatal. Once again, these would be understandable to all humans.

In all these examples (and there are many more), translation makes meaning by moving from the less familiar - the timbres of musical instruments in various registers - to the more and universally familiar - human emotions, human voice qualities and a variety of physical phenomena. These semiotic domains, of which every human has experience, allow Rimsky-Korsakov to explain, albeit approximately, what an orchestration student needs to know. Rimsky-Korsakov's intersemiotic translation works as follows: he uses a linguistic domain that relies on the reader's knowledge of the phenomena that the linguistic signs stand for. This is comparable to how the words *lion*, *plum* and thunder can be translated into linguistic definitions - from the less known/unknown to the more familiar, or more fully developed, signs. In using this translation method, Rimsky-Korsakov is careful to refer only to those phenomena that are likely to be universally familiar, phenomena that are basic or fundamental to human experience. This is how Jakobson translates the word bachelor as unmarried man - the sign in which the object is less developed is replaced/translated by a sign in which the object is more fully developed. However, there is a significant difference between the translations of Jakobson and Rimsky-Korsakov - where Jakobson's rendition deals with semantic equivalents, Rimsky-Korsakov can rely only on partial equivalents or approximations to the translated phenomenon. Indeed, an instrument's tenderness in timbre is not exactly human tenderness, and silvery sounds are not exactly made of silver or silvercoloured. Adler's translations are more akin to translating plum, lion and thunder using audio-visual iconic or indexical signs, the latter to render the meaning of the original signs more effectively because the original phenomena are semiotically more fully developed in these signs than in linguistic signs, even those that are universally recognizable.

To be sure, both in Rimsky-Korsakov's and Adler's textbook, translation works against informational entropy; it performs a "negentropic semiotic work" (Marais 2019, 137–142). If the terminological and impressionistic translations in the case of Rimsky-Korsakov's textbook are compared in terms of their negentropic properties, it seems that there are various degrees of translational negetropy. Terminological translation is more negentropic, while impressionistic translation is less negentropic. Both are within symbolic translation, which uses language as a translational vehicle. Within the symbols used, some are less ambiguous and offer the orchestration student a better description/translation, while others offer more options than one and the negentropic work such translations perform is less successful.

Comparing symbolic and indexical translations, the latter are clearly more negentropic than the former. Unsurprisingly, Adler, who leaves it to the reader to judge the timbres of the strings for themselves from the recorded samples on the accompanying CDs – indexical signs – resorts to subjective, impressionistic epithets more sparingly than Rimsky-Korsakov. When talking about strings, for example, he avoids describing timbres and concentrates on those features that lend themselves to objective characterization: their construction, string tuning, playing techniques, etc. His use of intersemiotic translation is comparable to translating the word *lion* by offering a recorded sample of a lion's roar; his descriptions rely on terminological translation. Rimsky-Korsakov has no other option but to exploit linguistic translation's meaning-making properties, which is why impressionism features more heavily in his acoustic-linguistic translation.

Rimsky-Korsakov is well aware of the imperfection of words to describe timbres, which is why he inserts "hedges". When describing the sounds of the individual strings, he says that the timbres are "barely describable in words" ([1913] 1946, 14). When he translates the timbre of a trumpet's low sounds, he uses "as if" – "as if *fatal*" ([1913] 1946, 25) – because it is obviously not "fatal". He is quite frank and open about his translatorial deficiencies. In one such statement, he says:

Linguistic definitions of the quality of timbres are extremely difficult and imprecise. We have to borrow them from the visual, tactile and even gustatory realms. The connection between representations from these supposedly alien areas to music and auditory representations is, however, unmistakable to me. Such borrowings are self-evident to all who wish to convey their musical impressions. In general, these linguistic definitions from the visual, tactile and gustatory areas, when applied to music, prove to be too crude. ([1913] 1946, 18)

The recourse to language is yet another constraint in Rimsky-Korsakov's translational negentropic work.

His translation has its value, which is why it is still read today: it is interesting for a young music student to learn what a composer of Rimsky-Korsakov's stature thought about musical instruments and their combinability. Yet it is advisable to read his textbook after studying others, such as the one by Adler. The reason for this is the ratio of translational negentropy. In Rimsky-Korsakov's case, it is lower than in Adler's because Rimsky-Korsakov relied on symbolic translation and could move only within it - from a less negentropic impressionistic translation to a more negentropic terminological translation. Yet even the terminological symbolic translation is less negentropic than Adler's indexical translation provided by the sound recordings. To cite Gordon Jacob, "no book has yet been invented which makes a noise like a double bass when opened at the appropriate page or blows a chord on four muted horns at the reader. Such things can only be experienced by the ear" (1955, 26). In other words, an indexical translation of timbres is preferable to even a terminological symbolic translation.

To conclude, if one were writing a textbook on musical instruments or something comparable in any other non-linguistic domain, one has to remember that they are translating from a less or unfamiliar area. Therefore, they have to write in the same way that Rimsky-Korsakov or Adler wrote – relying more on indexical, or even, if possible, iconic, translation. Symbolic translations are likely to lead to ambiguities because their negentropic properties are more deficient compared to indexical and iconic translations. If symbolic translations are inevitable, then the translator would be advised to draw on the most universally familiar signs (words/notions).

Non-human life forms into words

In this section, Merlin Sheldrake's book Entangled Life: How Fungi Make Our Worlds, Change Our Minds and Shape Our Futures (2020) will be discussed in terms of how the life of a non-human organism is explained/translated into words. Once again, as in the previous section, translation creates meaning for something its reader is less familiar with by using signs that make incipient signs more fully developed. Without this work, as we have seen above, the initial semiotic realm would make less sense or be (more) semantically entropic.

To begin with, the translator of popular science needs to convince the lay reader that they would benefit from learning something new. This is especially important when the object of pop-sci translation is something non-human (and therefore may seem irrelevant to the lay person). With textbooks, there is no such problem. The student taking a university orchestration course must use the recommended textbook(s). An amateur composer knows that, in order to write for an orchestra, they need to learn the techniques of orchestration, and textbooks such as those by Adler and Rimsky-Korsakov need no

further justification for their existence. The only problem is choosing which one better suits the reader's needs. A pop-sci book must convince the potential reader to read it.

The title of Sheldrake's book is intriguing and catches the potential reader's attention – Entangled Life (who/what is entangled and with whom/what?). The subtitle immediately presents the book's goal, which is for the reader to learn more about fungi - "how fungi make our worlds" (how indeed?), how they "change our minds" (even more interesting: how can my mind be changed by fungi? or is it already being changed?); and how they "shape our futures" (even my personal future, just one of the "our futures", depends on fungi!). Sheldrake's book has an eye-catching cover with a drawing of mushrooms in hallucinogenic colours. An appealing blurb complements the hook of the title and front cover. The reader is promised to be taken "on a mind-altering journey into [a] spectacular world" (Sheldrake 2020, blurb). By taking just one look at the book, the potential target reader is bombarded with three types of translation. There are the two most effective, as we saw above - iconic translation (the picture of mushrooms) and indexical translation (the colours hinting at their hallucinogenic properties and the title and text metonymically offering a glimpse of what awaits the reader in the body of the book). Finally, there is symbolic translation - the words in the title, subtitle and blurb resonate with readers who understand the language in which the book is written. In this case it is English, the language in which the book was originally written, but should the reader prefer a different language and its symbolic-semiotic sphere then they are informed in the front matter (2020, iii) that the book has been interlinguistically translated into twenty languages.

It will be noted that the title, subtitle and blurb are symbolic translations that follow the rule discussed in the previous section – they address the potential reader by using the most universally familiar linguistic signs. Sheldrake's book, which belongs to the genre of popular science, must and does use scientific terminology: "mycelium" (2020, 7), "nematode worm" (2020, 43), etc. However, these terms do not appear anywhere near the potential target audience's first points of contact with Sheldrake's translation of the fungi world into English. Later, if scientific terms must be introduced, every effort is made to make them meaningful to the lay readership. For instance, we read that.

most fungi form networks of many cells known as hyphae (pronounced *HY-fee*): fine tubular structures that branch, fuse and tangle into the anarchic filigree of mycelium. Mycelium describes the most common of fungal habits, better thought of not as a thing, but as a process – an exploratory, irregular tendency. (Sheldrake 2020, 7)

The term *hyphae* is not only described but its pronunciation is given in an easy transcription, and its description is worded so that any person with a secondary education would be able to understand. Sheldrake describes the shape of hyphae ("tubular structures"), their actions (they "branch, fuse and tangle") and the resulting mycelium, which is a kind of anarchic *filigree* – a thing that is likely to be known to many adult readers who have seen jewellery with delicate gold or silver wire ornamentation. The less familiar or unfamiliar is translated into symbolic language that evokes helpful associations with other signs via their English representamens. Mycelium is translated iconically with a drawing (with a clear one-word legend, a newly learned symbolic sign – "mycelium"). The iconic and symbolic translations make the meaning of the introduced terms sufficiently clear.

Why do terms need to be introduced? Is it not a contradiction that popular science, which takes great pains to speak to the lay reader on their own terms, nonetheless uses scientific "jargon"? Human language in its most common core part is not suitable for expressing non-human phenomena - its function is to equip its users with the signs that enable them to refer to their human experiences. Describing the non-human world is a major constraint on the pop-sci translator's work, and Sheldrake is no exception. This problem is also encountered by textbook authors who have to translate a particular subject area for their younger colleagues, but here the word colleagues makes all the difference. Students must learn terms in order to enrich themselves with a thorough understanding of what they are studying, and terminology offers a necessary set of representamens that stand for a new set of objects (in the Peircean definition of "object"). The terminology also widens a student's horizons to see new phenomena, a great many of which lie beyond the layperson's experience or interests. To help his readers find their way in the scientific terminology used in his book, Sheldrake decides to use another feature - a thematic index at the back. It is quite detailed at seventeen pages (341-358), and it is also generous in that it marks out, with italics, the pages on which images of the explained phenomena are provided. In this way, iconic translation is brought into prominence as a helpful prop for the reader.

Sheldrake guides the reader into the unfamiliar world of the non-human organism by describing it in human terms. A ripe truffle is said to "broadcast an unambiguous summons in chemical lingua franca", which is "a pop scent with mass appeal" that causes dogs, mice and people "to converge at a single point under a bramble bush on a muddy bank in Italy" (Sheldrake 2020, 39). The truffle is shown to send its message in a language. This language is compared to a lingua franca that is comprehensible to those who can help the truffle spread its spores – animals and humans.

The basic property of his translation is defined by Sheldrake as metaphor:

Back in a forest, hunting for truffles, I found myself once again searching for language to describe the lives of these remarkable organisms. Perfumers and wine tasters use metaphor to articulate differences in aromas. A chemical becomes "cut grass", "sweaty mango", "grapefruit and hot horses". Without these references, we would be unable to imagine it. Cis-3-hexenol smells like cut grass. Oxane smells like sweaty mango. Gardamide smells like grapefruit and hot horses. This is not to say oxane is sweaty mango, but if I were to pass you an open vial you'd almost certainly recognise the smell. (Sheldrake 2020, 48)

Rimsky-Korsakov also used impressionistic translation to describe musical instruments' timbres, and metaphor underlies impressionistic translation. Technically, to call a trumpet's sound "silvery" or the strings' timbres "noble" is to use adjectives in their rather trite metaphorical meanings. The metaphors used by Sheldrake are more original. They are meant to appeal to the reader in a novel and unexpected way. He has to keep the reader interested. Sheldrake compares his translations, which, in the above-cited passage, he refers to as "describ[ing] the lives of these remarkable organisms", to the way perfumers and wine tasters describe chemicals in perfumes or wines. These translations are made to impact the target audience (users of perfumes, wine connoisseurs) in as strong a manner as possible. Textbook translators, as we have seen in the previous section, operate in a "calmer" way; they translate to inform rather than to surprise, amaze or astonish. Even their impressionistic translations are academically restrained. Like perfumers and wine tasters, Sheldrake translates using bright and colourful words. The goal is completely different from that of intersemiotic translators such as Rimsky-Korsakov and Adler. Both types of translator rely on metaphors that are likely to be known to their readers, but the types of metaphors are markedly different. Thus, even impressionistic translation has degrees of novelty and originality.

What do truffles do to communicate their messages? Sheldrake describes the process as follows: they "articulate themselves using a chemical vocabulary", then they "arrange and rearrange" the items in their chemical vocabulary so that their message "might be interpreted by other organisms" (2020, 48). Then, Sheldrake discloses his metaphor by saying scientifically that the items of the truffles' vocabulary are molecules, and it is these molecules that "translate [the truffle's message] into a chemical language we can, in our way, understand" (2020, 48). Truffles translate molecules by reshuffling them in ways that might be understood by humans and other animals. Sheldrake translates the way that truffles live and communicate both scientifically and for his lay readers. His translation has more than one tier.

Intersemiotic translation in popular science is complex. How do Sheldrake and other biologists learn about the world of fungi? Certainly their knowledge of truffles goes beyond the knowledge necessary for truffle gatherers or truffle tasters. Mycologists study fungi scientifically by observing them, conducting experiments with them, measuring their various characteristics - all in all, by gathering data about all visible and non-visible aspects of the life of fungi. Sheldrake's popular science book is a result of his scientific learning and investigation: he has a PhD in Tropical Ecology from Cambridge University; he studied fungi in tropical forests in Panama; he did research in the Smithsonian Tropical Research Institute (2020, iii). If one were to read an article about this or that aspect of the world of fungi in a scientific journal, they would see a completely different type of translation. There would be a predominance of terminological translations with various data presented in the form of statistics, temperature and size measurements, etc. The text would be more likely to describe aromas not with metaphors ("cut grass", "sweaty mango", "grapefruit" and "hot horses") but with chemical formulae and terms (cis-3-hexenol, oxane, gardamide). This kind of datum is also a type of translation; it is the first tier of translating the non-human world of fungi for humans. Its target readers are specialists who know these terms. This type of translation is where the scientific discourse would normally stop.

At this juncture, Sheldrake puts on his second hat: he is not only a biologist but also a writer (2020, iii). He embarks on the second level of intersemiotically translating the initial, scientifically obtained data about fungi, moving into a realm of the human language that is understandable to the uninitiated. This is where impressionistic, metaphor-based translations reign supreme. This is where his translation becomes like that of Rimsky-Korsakov.

There is, however, a price to pay: when we humanize the non-human world, "we may prevent ourselves from understanding the lives of other organisms on their own terms" (Sheldrake 2020, 45). That is why scientists prefer to remain on the first tier when scientifically translating the non-human into the human.



Correlating human language with an odour involves judgement and prejudice. Our descriptions warp and deform the phenomena we describe, but sometimes this is the only way to talk about features of the world: to say what they are like, but are not. (Sheldrake 2020, 48)

Like Rimsky-Korsakov, Sheldrake is forced to admit the deficiency of his translatorial efforts. Yet this deficient and imprecise translation based on the familiar is the only way to make meaning of the unfamiliar.

In fact, even a first-tier scientific translation, as is well known from debates among professional scientists, is often subject to criticism because of alleged distortions and prejudices, whether intentional or not. Thus, translation's negentropic work is hardly ever perfect. Some part of the incipient sign system is proverbially and inevitably lost in translation.

Translating the more familiar with the less familiar

When, in its meaning making, translation uses the more familiar to explain the less familiar/unfamiliar, it is only natural. The more familiar is simpler for the target audience to appreciate, and we use simpler things to explain more difficult things (e.g. Jakobson's translation of bachelor as unmarried man and Marais's rendition of lion as a very large cat). Translation does its negentropic work, albeit never perfectly, at least satisfactorily enough to give a recognizable alternative representamen for an object that was initially represented by another, less clear sign. What if translation renders the more familiar by means of the less familiar? What about its negentropic functioning in such cases?

In the opening section, the visual realm was presented as a semiotic sphere in which signs from the linguistic sphere are usually more fully developed. The example given was the word plum, which may be drawn to help an English learner make sense of the word qua representamen by connecting it with its object. A realistic drawing of a plum was implied. But what if a plum is painted/drawn in such a way that not everyone is likely to recognize it as a representamen of an actual plum?

This is what happens with some abstract paintings. There are portraits of people and paintings of objects or scenes that, without their titles or other explanatory materials, would puzzle us as to what or who is depicted. Why did Joan Miró paint the head of a woman the way he did - to look like the head of a bird (Head of a Woman, 1938)? This is an interesting question and volumes have been written about abstract painting. Such raison d'être questions are, however, not the focus of the present discussion. Rather, the question being asked here is how translation acts in terms of meaning making. As far as the teleology of such translation is concerned, suffice it to say that, as compared to the previously described cases (textbooks, popular science), painters mostly try to explain less and to impress, surprise and challenge more. If there is a degree of didactics involved, it is less straightforward than in textbooks. This is perhaps what loosens the negentropic constraints, and the above-described situations may be turned upside down - the more familiar is paradoxically translated by means of the less familiar, and the easily recognizable representamens are surprisingly substituted by the less easily recognizable.

Translation may do that by broadening the scope of representing a phenomenon. Let us take as an example Peter Bruegel the Elder's Landscape with the Fall of Icarus (c. 1560).

The painting is a representation of the myth about Icarus, who attempted to reach the sun, but the wax in the wings his father had constructed melted and, as a result, Icarus fell into the sea over which they were both flying. The painting is quite busy. There is a sea with ships surrounded by mountains; a peasant ploughing a field; a shepherd with his flock; and a fisherman standing on the shore. The title guides the spectator to look for Icarus, but after a laborious search all that can be found is his leg - the only part of his body still visible above the surface of the sea that he fell into moments before. The translator/painter offers the viewer a pictorial translation of the myth that seems to be less focussed on representing the content of the story than all the linguistic variants of it one might find. The painter has seemingly chosen the wrong moment: he is late because Icarus has already fallen and is now barely visible. Bruegel also broadens the scope of his presentation by complicating our search for the protagonist: it is not only hard to find what remains of Icarus but there are also all sorts of seemingly distracting details in the landscape and more characters than would seem necessary if he wants the viewer to focus on Icarus. In this case, the painter is challenging his viewer because he wants them to realize that Icarus's death made little impression on anything or anyone in the world around him. The translation seems to have failed to perform its negentropic function of focussing on Icarus, telling us who he was and why he was important as the protagonist of the painting, but perhaps Bruegel succeeded in making a larger-scale meaning - his scepticism about the impact of the extraordinary and the heroic on people caught up in their everyday routines and mundane chores.

Hieronymus Bosch's painting style takes us a step further in our discussion. Some of his paintings may strike the viewer as "chaotic" (Bax [1949] 1979, 375). Bosch himself has been taken for "a neurasthenic, a schizophrenic personality who copied the hallucinations he dreaded, or an erotomaniac and sadist giving vent to his overheated imagination by creating pathological pictures" (372). Yet in his magnum opus Hieronymus Bosch: His Picture-Writing Deciphered, Dirk Bax argues convincingly that the painter's images were not baseless figments of his imagination. Rather, they had their sources. Even some of his phantasmagorical paintings were essentially translations.

Bax focusses on Bosch's triptych The Temptation of St Anthony (c. 1500-1525; National Museum, Lisbon). The triptych is loosely based on the story of St Anthony, a revered Christian saint who fled the secular world for a desert, where he was beaten and tempted by numerous diabolic forces. Bosch must have studied the life of St Anthony before painting the triptych; however, his pictorial representation of the literary source(s) (it is not quite clear which version of the saint's vita he used) is quite free. It is also highly puzzling and has baffled generations of lay viewers and art specialists alike. Bax claims that, to understand Bosch's visual language, one has to be familiar with the language, literature, folklore and cultural history of the Low Countries, France and Germany, as well as Western European fine art between the fourteenth and seventeenth centuries (Bax [1949] 1979, xv). Apparently, even his compatriots lost the ability to understand Bosch's pictorial language towards the beginning of the seventeenth century (375). Who Bosch's target audience were is a matter of speculation, yet, if his triptych has any meaning beyond the general vita of St Anthony, he must have aimed it at those who could understand his complicated representations. Bax argues that Bosch must have been addressing Dutch-speaking people and "taking into account the enigmatic play on words, presumably a community whose members were instructed in

the meaning of the depictions" (177). Apparently, the target audience were prepared to appreciate Bosch's complex translations.

What, besides St Anthony's experience in the desert, did Bosch translate? He rendered into painting various proverbs and sayings, among other things, especially those in circulation in the late fifteenth-early sixteenth centuries. This is how Bax describes his first discovery of Bosch's meaningful translations. Seeing Bosch's St Anthony triptych in an exhibition, the scholar noticed a thin, bare little bird stretching its neck towards a small boat. In the boat was a figure with a large, ball-shaped head and a silly smile (in the following passage, all the translations in the square brackets are by M.A. Bax-Botha):

Deliberating on whether this strange representation had a meaning, I was reminded of the combination of the following two names in a referein [line-repeating poem] incorrectly attributed to Anna Bijns, namely: dor vogelken [lean little bird] and licht schuitken [light little boat], meaning, respectively: spendthrift merrymaker and licentious fellow. These were what Bosch had painted, with the further addition inside the boat, of a sottebol [fathead, fool; lit: foolish ball]. A scrutiny of the painting in the museum led to the conviction that all devilish imps had a meaning. (Bax [1949] 1979, xv)

Simple phrases were translated by Bosch into (overly) complex paintings. His translation techniques were apparently inspired by rebuses and riddles (Bax [1949] 1979, 358). By way of such translations Bosch depicted various sins and sinners. His translations are interpreted as attempts to censure and castigate sins and ridicule and parody sinners: his "satire [...] has the intent of a severe penitentiary sermon full of frightful images" (174). His complex sermon could be appreciated only by "the educated public of his day [who] undoubtedly understood his riddles and must have thought them marvellously clever" (371).

Bosch's translation complexifies the initial simplicity. In this sense, it seemingly fails to act as a negentropic agent. His translation from language into painting is even less negentropic than Bruegel's. However, it would be wrong to say that his translation is entropic. That would mean to agree that his painting translations were meaningless whims and nonsensical fantasies. Bax demonstrates that they did have a meaning or, as translations, they did have their sources or incipient signs. Thus, it should be concluded that the translations of Bosch and Bruegel function as rebuses or riddles - that is, they preserve the original signs but encrypt them.

Such encryption is quite common in the arts. One might think of fables and fairy tales, where human protagonists or their qualities are hidden under the guise of animals or objects. One might say that fables and fairy tales obscure and obfuscate the initial clarity, thereby making their incipient signs more complex. Circumlocutory Old Norse kennings or similar poetic devices furnish more examples. In all such cases, translation is not a simplified or constrained rendition; it does not transfer the original sign into another in which the former would be more fully developed. On the contrary, translation uses more complex representamens for less complex ones. The reasons for such behaviour must perhaps be sought in aesthetics or in the human love of games, which is beyond the scope of the present discussion.

Paradoxically, translation in the cases of Bruegel and Bosch uses seemingly simpler iconic signs. Even Bosch's fantastic imps are constructs of parts borrowed from known objects and creatures. However, iconic signs, which usually seem to be the

most straightforward when compared with indexical or symbolic signs, function strangely. The simplest of signs encrypt or hide symbols - words in the illustrated proverbs or sayings. Translation engages in a kind of negotiation of meaning. On the one hand, it offers simple representamens - pictures that (if you have guessed or learned them) represent complex signs, since words of the proverbs are expressed in conventional linguistic symbols. On the other hand, the conventional linguistic symbols turn out to be considerably less complicated - and more meaningful - than the seemingly simple icons representing them. Translation negotiates between the more and less meaningful in intricate and far from universally understandable ways. It still performs its negentropic work, but this can only be appreciated by the initiated, such as Bosch's educated viewers and fellow Dutch speakers of his time. Translation, therefore, can seem (or be?) both negentropic and entropic for different audiences, some of which are targeted – according to the principle of *Verbum sapientibus sat est* ("A word to the knowing ones is sufficient") - while others are left to their own resources or even (intentionally?) excluded. Therefore, while some may see Bosch as a painter who speaks or even preaches via his painting translations, others perhaps less sophisticated or knowledgeable may see him as a painter whose works can be appreciated only as fantastic, skilled, yet meaningless, works of art.

Conclusion

In the present article, I examined meaning-making properties of translation. The focus of the discussion has been translations between the linguistic semiotic realm and other nonlinguistic semiotic domains - music (symphony orchestra timbres translated into words), biochemistry (the chemical life of fungi translated into scientific data and words) and, finally, painting.

Translation has been viewed as a means of one sign gaining meaning via, or in, another. The latter has been described as either creating the semiotic conditions in which the object and/or its incipient representamen would be more fully developed or the result of applying constraints that would allow translation to counteract the entropy of meaning.

It has been demonstrated that translation does its negentropic work differently in various scenarios. It may render less familiar phenomena by using more familiar ones. When doing so, it can be terminological, i.e. more straightforward in pointing to the object or the incipient sign, or it can be impressionistic, i.e. more subjective, more closely connected to the interpreting agent who, in their translation, establishes meaning of the object via (new) subjective, more or less universally familiar representamens. Translation may create meaning on more than one level. In science, translation establishes meaning via scientific data, but in popular science it establishes meaning differently: it uses scientifically obtained data but re-translates them into terms, including impressionistic, from the semiotic domains with which the target audience are (more) familiar.

In some scenarios, translation, paradoxically, renders the more familiar with the less familiar. Meaning making may be missed by the target audience or by those excluded from the target audience. Translation may be involved in a complex and (intentionally) confusing game or negotiation of meaning. It may present the simpler by means of the

more complex, obfuscating rather than clarifying the former's meaning. It can loosen and liberate its meaning making rather than constrain it. In this way, it risks being seen as anti-negentropic or entropic, as is the case with those who see Bosch's translations as chaotic. At the same time, for the initiated, translation retains its negentropic properties.

To conclude, observing translation outside the linguistic realm has offered a new way of looking at its negentropic work, I believe this kind of interdisciplinary research may bring new discoveries about translation and enrich our understanding of how it works. Something that cannot be seen within the linguistic realm may be made obvious elsewhere.

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Notes on contributor

Sergey Tyulenev is Professor of Translation Studies at the School of Modern Languages and Cultures, Durham University, the Editor of Routledge Introductions to Translation and Interpreting, and a member of the advisory boards of the journals Translation and Interpreting Studies and Translation in Society. He has published widely in leading translation and interpreting studies journals and among his major publications are Theory of Translation (2004); Applying Luhmann to Translation Studies (2011); Translation and the Westernization of Eighteenth-Century Russia (2012); Translation and Society: An Introduction (2014); Translation in the Public Sphere (2018). His personal website is tyulenev.org.

ORCID

Sergey Tyulenev http://orcid.org/0000-0001-7782-3038

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