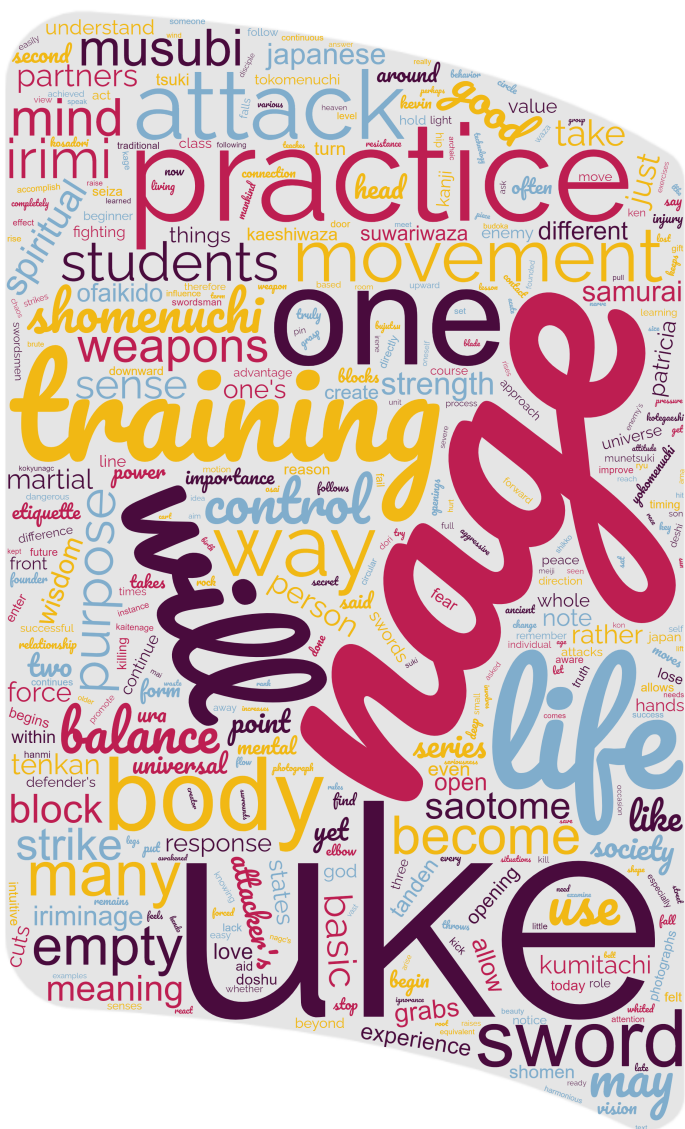# OLEG SOLOVIEV

AIKIDO AS A FOREIGN LANGUAGE

КАК БЕДЕН НАШ ЯЗЫК!

АФАНАСИЙ ФЕТ

HOW POOR OUR LANGUAGE IS!

AFANASY FET

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AIKIDO AS A FOREIGN LANGUAGE

Essay (Scripties) for the national aikido sandan exam, November 2023

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I
Introduction

HAVING practiced Aikido for some years, I often catch myself thinking that the conceptual system used by it is optimized for a person educated in another culture.

I grew up in the Soviet Union, with deep certainty (mainly thanks to the propaganda) that the success of science and technology would make possible in the very near future inter-planet flights and colonization of near space, a technogenic paradise on Earth, and prosperity of the whole humankind.

In this conceptual system, there was no place for the unexplainable. Even if there exist things that are not completely clear to the (Soviet) scientists, this is just a temporary issue. But concepts that cannot be validated experimentally, like the all-penetrating ether of physics of the late XIX-early XX century, should be discarded. Not measurable, although plausible explanation, should be replaced by a measurable model, and through experiments the principles of a system functioning should be refined and bring better results in its exploitation.

On the other hand, the conceptual system of an O Sensei's student is based on fuzzy concepts of concentration and direction of the vital energy, *ki,* and on some religious and philosophical concepts. While these terms do not fit into my description of the world, I needed either to accept them blindly or to translate (if it's only possible) them to the language of my conceptual system.

Somehow it is similar to my experience of 22 years living in the Netherlands. For some things, I can easily find an equivalent in the Russian culture, for others (*e.g.* the way birthdays are celebrated in the Netherlands), there is no matching and I should either accept or ignore it.

IN THIS ESSAY, I'm analyzing what is specific to the language of Aikido and share some experience of translating it to the language I understand the best, the language of exact sciences.

2

Models and systems

Before defining what I mean by the language of aikido, let us dwell for a moment on the concept of the language itself. Extremely simplified, language can be seen as a collection of abstract (except for the onomatopoeic words) labels attached to the objects, phenomena, animals and persons, to the relations between them and their development in time, and to the abstract concepts. These labels often serve in our mind as a replacement for the real world while sharing our own experience with others (consider an example of a recipe: *to make a dry Martini, stir with ice 5 parts of gin with 1 part of vermouth)*, and it works if the other communicant is familiar with the same system of labels. Moreover, we often execute the same replacements when communicating with ourselves, and when thinking "in words". Polyglots even often think in different languages depending on the context. But as the words are not equal to what they describe, we can see this as an example of a *model*, and this model appears to be extremely important to our brain.[1]

ACCORDING to neuroscientists, our brain does not perceive the world directly, but builds and updates continuously a model of it[2]. This is known to everyone who has seen an optical illusion, where one (2D or 3D) model suggested by a 2D representation of it can suddenly be triggered to a completely different object perceived by the brain. Obviously, the world model built by the brain is necessarily an oversimplified representation of it. The brain filters out unnecessary details, so we can operate effectively and do not sink in the endless abundance of audio, visual, and other stimuli.

The other reason why our brain does it is the economy of energy. When the model of a real-world phenomenon is already known to the brain, it can quickly substitute it in our perception with minimal energy expenses.[3]

Finally, as there is a small delay between the real-world phenomenon and its representation of the brain to our consciousness, the known models can be loaded without notifying the consciousness and we can (re)act much faster, skipping this delay and performing our actions automatically.

[1] and for the computer brain too, but not of the real world — ChatGPT and other sensational AI from the last year news fall under the category of LLM (Large Language Model), the model of a model
[2] C. Frith (2007). *Making up the Mind: How the Brain Creates Our Mental World*

[3] I think that's why with age we tend more and more to recognize a known type (or find a striking resemblance to someone we knew before) in the people we meet for the first time

HAVING learned this trick from our brain, humankind also builds and updates models of the real world. I don't want to touch here examples of the political or economic models, with their primary goal of manipulating the (other part of) humankind, but to dwell on the scientific models, whose goal is to manipulate the environment and our conditions in it. The difference between this model and the personal model built by everyone's brain is in its *inter-subjectivity*. If, for instance, I claim to have created a superconductor at room temperature, I should be able to describe it (provide a verbal model of it) in such a way that it can be repeated by other persons; I should provide a description of the experiment and the results of the measurements, and I should not claim something which effect cannot be measured and thus cannot be verified by another person. This concept of "inter-subjective testing"[4] is one of the key criteria of the development of scientific knowledge.

[4] K. Popper (2002). *The Logic of Scientific Discovery*

To be able to pass unambiguously its message, science has developed its specific language, the language of science. What's more interesting, a frequent user of this language can infer its properties on the everyday language[5] and on the other models of the world. That is actually what happened to me and other people educated under the strong influence of positivism. Especially in my childhood, I was strongly convinced that what cannot be measured (maybe even with my body sensors), mainly can be ignored or discarded. If the effect cannot be reproduced by other experimentalists, it should not be considered seriously.

[5] everyone has met a boring engineer at least once in his/her life, I guess

Another strong belief that was a consequence of my positivistic education and which I had was that it is possible, in principle, to learn everything from books. If the book is well written and contains enough examples and exercises, it's just a matter of time to adopt new knowledge.

AFTER gaining some experience in life, I have discovered that some things do not fit ideally or do not fit at all in this model. Two of them are aikido and music.

For instance, in music, it is difficult to characterize (maybe only now, but still) the degree of its emotional impact, or to connect this impact with the length and pitch of the sounds. A touching melody played by a midi-synthesizer may alienate a listener by its soulless and even hostile sound. The speed of the finger movement at the moment of its contact with a piano key, even if measured and expressed in some absolute figures, cannot be reproduced by another or even the same player based only on these values. But due to frequent practice and remembered experience, this speed, the feeling of doing it right, can be activated with the help of other factors (memory, template, feedback from the difference of the desired and actual sound) as an electrochemical reaction in the brain and body. And, as described above, after several repetitions, this brain model can be activated bypassing the player's consciousness.

Another difference between music and the scientific model is that it is difficult to learn it only by books. Not only without the teacher's correction the progress might be slow (this is similar to scientific learning), but if you have never heard how a *roll* should be done in an Irish reel, you cannot get it from its description. Music simply hasn't developed right language for it. Why should it, if you can just listen and repeat?

A similar situation can be seen in Aikido. It is not possible to learn aikido only by reading books. The other people and interaction with them are necessary. What makes it even more interesting, now we have the interaction of two systems, each with its own feedback. When we practice aikido, we represent one of these systems and have only an external representation of the other one. However, we can model the inner state of the other system based on our own experience as an uke.

Any model is not exact, and thus continuous correction is necessary accounting for the peculiarities of the other system. We need continuously to adjust our actions to the response of the uke.

As all this sounds (and is) very complicated, many things are generalized to some base principles, which can be applied in and adjusted to a particular situation.

A skill to see these principles and the based on previous experience (training) ability to apply them automatically, without the delay for the model update by our brain, defines the successful execution of aikido techniques or of a musical performance.

Many of these principles we hear from our senseis during the lessons. The total set of these words gives us a first understanding of what is the language of aikido.

Here is a short, incomplete list of the often heard[6] words:

- relax

- distance (*kamai*)

- centre (*hara*)

- disbalance (*Kuzushi*)

- extension

- use no force, Oleg!

- along his arm / in the direction of her fingers

- same height with partner

- let it fall / use the gravity

- sumi-otoshi/ mae-otoshi

- give no information to uke

- in one smooth motion

[6] as heard by me or addressed towards me, as my system and real-world model tend to do the same mistakes repeatedly and to note the same mistakes in the other people, whose full model I don't possess

- unbendable arm

- *ki* (break his *ki*, direct your *ki*, align you *ki* with uke's *ki*)

Of course, language is not defined by its vocabulary. So what is so specific in the aikido language?

3
Language of Aikido

I must admit that from the list of words at the end of the previous section, I fully understand just a couple. The biggest difficulties I have with "relax" and "*ki*". We'll pay more attention to "*ki*"[1] later, but what's wrong with the simple command "relax"? I hear it often from my piano teacher too, and in both cases, depending on my mood I either answer with a snarl that I *am* relaxed, or try again to understand how is it possible to have a "completely relaxed arm", for instance, that does not hang down as a rope.

Well, the more I thought about it, the less I understood it. One theory came in place of another. My last plausible explanation (both for music and aikido) is that you should have a *relaxed feeling* or feel no tension. Muscle tension, if you do not lift weights, that is in the absence of any significant load, means that you work against yourself. No tension thus means that from each pair of bending/unbending muscles, only one half is active. This in turn means that you can perform faster/longer. If you have no tension, you sound more natural and expressively, you do techniques more fluently and with proper timing. So nowadays, when I hear "relax", I internally translate it for myself as "don't work against yourself" or even more detailed "relax these and these muscles, they are working against".

One of the recommendations that is aimed to help a student to reach this state without tension and which can be heard from time to time on the tatami is to let one's *ki* flow unhindered through the arm, for instance, or direct one's *ki* towards the uke before performing some movement. But can recommendations like that be really helpful?

Well, maybe they work for someone, who knows what is *ki*. For me, unfortunately, it's an empty message. And this makes the language of aikido difficult for me sometimes.

3.1   Empty message or a broken puzzle? — Expressing the inexpressible

Fortunately, I'm not alone in my difficulties with *ki*, and there are resources[2] full of explanations and exercises that should convince

[1] there should be a purpose in the fact that it is actually used untranslated, in its native Japanese form

But isn't it just a consequence of a well-trained model that we discussed in the previous section? Don't we swap the cause and effect here?

[2] see, for instance, C. Shifflett (1997). *Ki in Aikido: A Sampler of Ki Exercises*

the reader of the existence of *ki*.

Indeed, one may perform a simple experiment by holding one's palms open and facing each other at some distance while focusing on the appearing feelings. Most of people begin to feel *something* for which there is no exact description in the common language. Then, depending on the experimenter's inclinations and the external conditions of the experiment (like presence/absence of audience with or without expectations), it is easy either to use the concept of *ki* or of "bundle of energy" in one case or to explain that our attention gets focused on the response of our temperature sensors and this results in a shift of the operational point of the thermo-regulation system of our body. But even in the first case, it is still difficult to apply this feeling of something to aikido techniques.

IT SEEMS that the concept of *ki* didn't represent any problem for O Sensei and his students. The word sounded as natural in their culture as remote work in our daily life or quantum entanglement in modern physics. I guess partly the concept of *ki* is an attempt to express the inexpressible in the common language. For a samurai not familiar with a scientific model of the world, such concepts probably helped to reduce an immense amount of explanations of different natures to some compact system, to a bounded vocabulary.

But let's look at an example from O Sensei's book "The Art of peace" and ask ourselves whether the *ki* we have felt in the open palms experiment was the ordinary *ki* or the true *ki*? Can we use this categorization of *ki* in our daily aikido practice? Or is it again an empty message, a sentence from which we learn no more than from the Phaistos Disc?

Here, I think, we can see the other aspect of *ki* concept. Due to its vagueness and not firmly codified meaning, any explanation using it might have served as a practical trick that allowed to gather a number of adepts. For in fuzzy and blurry advice, everyone can find something useful application for himself, as millions of people find it in astrological forecasts and daily horoscopes.

Finally, such messages are good for a general motivation and attention focus — not containing an answer, being a broken conundrum, a jig-saw puzzle with a missing part[3], — they encourage an adept to ask himself the same question again and again: *"What is, actually, the true ki? Have I reached the true ki or do I just fool myself and take my ordinary ki for the true one?*

THE BROKEN PUZZLES are well known in the Eastern culture and tradition as Zen koans. Whatever the answer of the student is, the main goal of it is to provoke doubt and stimulate the student to find the answer that is tailored to his needs.[4] Finally, the "true" *ki* will be something very personal for everyone, just a template kept in the memory that helps to shift the inner state to

THE ART OF PEACE

THERE are two types of *ki*: ordinary *ki* and true *ki*. Ordinary *ki* is coarse and heavy; true *ki* is light and versatile. In order to perform well, you have to liberate yourself from ordinary *ki* and permeate your organs with true *ki*. That is the basis of powerful technique.

A simple advice on how to empower your technique; from M. Ueshiba, J. Stevens, and L. James (2010). *The Art of Peace*

[3] in the excerpt from the "Art of Peace above", for instance, does it follow from the opposition "ordinary" vs. "true", that our ordinary *ki* is the false one? And that the "true" *ki* is extraordinary?

[4] Can we consider "Relax!" command as the shortest koan ever?

the point of the best performance, the right speed of the fingertip, the relaxation of the proper muscles, and the adequate update of the real-world model.

3.2 Language of science and language of tradition

In his famous mental experiment[5], Karl Popper states that even if all our tools and machines were destroyed, as well as our subjective knowledge of them, but if our ability to learn and our libraries would remain, then after some time we will be able to restore all our achievements. My statement is that under the same conditions[6], the art of Aikido would be either lost or would reappear as "something completely different".

How could it be, while there is a vast amount of books devoted to Aikido? Remember the example of a melody programmed for a Windows midi-player? While a lot of books contain hundreds of photos and drawings of the techniques, most of them do not use the inter-subjective language, but still the same vague language of the samurai tradition. If the true *ki* is different for everyone, how can we be sure only from the books (or even videos) that it is the same as it was meant by O Sensei?

To emphasize this difference, I propose to regard the language of Aikido as a language of tradition, which, unlike the language of science, requires alive native speakers. The same Irish reels played by performers from different counties sound differently, aikido practiced in different dojos feels differently, but their encoding in books will not differ. Music notation gives us just a hint of how the piece should be performed, it cannot teach us the "Russian touch" on piano or the old Doolin style common in Co. Clare. The vague concept of *ki* is just a placeholder that is used by a sensei in an attempt to pass her knowledge and experience to the students, and which, we hope, will be passed further down the line, forming a tradition.

T R A D I T I O N always leaves freedom for its participant to adjust or adapt itself according to her taste and needs. Tradition is thus difficult to codify, and books and recorded media can fix it only in an instant in its living development.

With the change of tradition, its language changes too. In the older books on aikido, we can meet other words (like *nage* instead of *tori*, *etc.*) for the same things, while the language of science tries to resist the changes.

Having said all this on the incompatibility of the language of Aikido and the language of Science, isn't my attempt at translation doomed to fail? Haven't we just discovered an excellent example of the impossibility of translation, a beloved subject of Benjamin and Derrida?

[5] K. Popper (1972). *Objective Knowledge: An Evolutionary Approach*

[6] 1972, so no Youtube or other multimedia in libraries

4
Attempt of translation

Untranslatability is a popular topic in philosophical conferences. Walter Benjamin, for instance, was convinced that the translation was impossible because the meaning could not be disassociated from the letter, and Jacques Derrida in his analysis went so far as he conclude that the word "Babel" means "confusion" and is one of the proper names of God, who, by mixing the languages, created at the same time both the need for translation and its impossibility.

However, a lot of people don't know this and do read translated texts or use automated translators in their daily lives. Maybe everyone realizes that 100 % accurate translation, especially when the language itself is an artistic means, is not possible, but for practical tasks, we can forget about the existing imperfection, just because it is convenient.

In what follows I only outline the possibilities, I don't set a goal to create a comprehensive theory here, but just share a couple of examples.[1]

[1] Maybe, my next essay will be called "Aikido as a mechanical system"

4.1   Aikido as mechanical system

My idea is that Aikido techniques can be considered as a collection of recipes (in the industrial meaning of this word, like a recipe for a lithographic machine) that are tuned for the interaction of two systems. Each of the systems (our body and built-in brain model of the real world) is subject to some anatomical, psychological, and electrochemical constraints, which are taken into account in the recipes.

To name a couple of examples: *tenkan* is tuned to the human anatomy and will not work against a mechanical arm; *atemi* uses our instinctive reaction to sudden stimuli to distract the attention and resources from the other parts of the systems.

Our joints and tendons define the degrees of freedom which are present in the mechanics of the body, some of which are overlapping. To control a system, we need either to control each of its degrees of freedom or to control some of them while delegating the others to well-behaved agents, which will result in a predictable trajectory. In Aikido, these reliable agents are the gravitational

force and the model of the real world built by the *uke*.

LET US CONSIDER *nikyo* as an illustrative example. Here, we want to control the trajectory of the *uke*'s center of gravity by manipulating only his hand. The hand, through arm joints, is connected to the shoulder, through which we can affect the center of gravity/heaps. But unfortunately, the arm has too many degrees of freedom. Even worse, its model is a classical example from mechanics, the double pendulum, whose behavior is unpredictable (chaotic).

The recipe called *nikyo* deals with this by eliminating the extra degrees of freedom. Using the joints and tendons' natural constraints, good *nikyo-ura* sets them to their extreme points, so the whole arm behaves as a whole, which makes it possible to pass our impact further to the shoulder.

Another way to remove the extra degrees of freedom and convert the double pendulum to a well-behaved predictable simple pendulum is the extension of the arm in its direction. This principle is used in *shiho-nage*, for instance.

Finally, as an example of using well-behaved agents, consider the final phases of *shiho-nage*, where, to avoid activation of the subsystem responsible for the side balance restoration, the movement should be aligned with the gravitational force, and ideally — along the spine, the axis of symmetry.
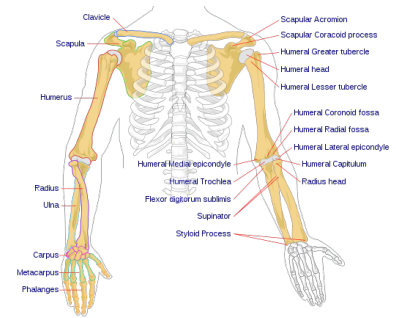
Bones of the human arm and shoulder
From Wikimedia Commons
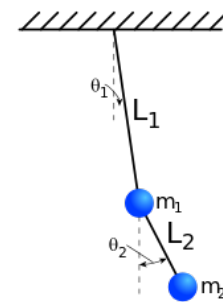
A double pendulum as a model of an arm consisting of the upper arm and forearm

Long exposure of double pendulum exhibiting chaotic motion
From https://en.wikipedia.org/wiki/Double_pendulum

4.2   Short Aikido-Mechanical Dictionary

To conclude this sketch of the translation I repeat the same list of the often heard words with their analogues in the proposed model.

Used abbreviations:
DoF : degree of freedom
CoG : center of gravity

Aikido	Mechanical system
relax	don't actuate the opposite actuators at the same time
distance (*kamai*)	distance, *e.g.* lever arm
centre (*hara*)	CoG
disbalance (*Kuzushi*)	reduce number of DoF of the opponent and use his subsystem of balance restoration to control other DoF
extension	reduce number of DoF by moving to the extreme point
use no force	don't activate the sensor subsystems of *uke*
along the arm / in the direction of fingers	don't introduce new DoF
same height with partner	CoG of two systems should move in the same horizontal plane
let it fall / use the gravity	reliable agent with predictable trajectory
sumi-otoshi/ mae-otoshi/ middle line	use symmetry constraints to reduce DoF
give no information to uke	don't activate the sensor subsystems of *uke*
in one smooth motion	don't activate additional subsystems of *uke* and use already activated ones as a reliable agent
unbendable arm	relax biceps
ki	sometimes: momentum, mostly: untranslatable, see the previous chapter

5
Conclusions

In this short essay, I tried to share my experience of internal translation of the language of aikido and my views on how I see the interaction of *tori* and *uke* on tatami. The main challenge, as I see it, is to create a reliable and easily activated model of our body and try to recognize a similar, but different model in the *uke*. This can be achieved by practice and by listening to the signals sent by both interacting systems.

What is not covered in this essay but is present there implicitly is that attention to the signals, being expressed in whatever language, of another system is of key importance for our successful existence. All these systems are people, actually. This should be never forgotten.

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