======= THE INTERNATIONAL DOBRUSHIN PRIZE =======

Common Language of All People: The Innate Language of Thought

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Anna Wierzbicka's Lecture

Esteemed Colleagues, Dear Friends!

I am so pleased to be able to meet with you that I want to take this opportunity to present to you a talk about what is for me the most important thing: the common human language, the innate semantic system shared by all people.

Russia is a country where semantics has traditionally been particularly strong (as has mathematics), and where scholars have always devoted themselves to the study of meaning more than elsewhere.

Russia is also a country of *obshchenie*—an essential and uniquely Russian concept which has no equivalents in other languages. (The anthropologist Dale Pesmen (2000) tried to explain it for English readers with the word *communion*, and in translating Bakhtin's frequent references to *obshchenie* alternated *dialogue* with *communion*.)

Russia is a country of close and strong personal relationships which often last a lifetime even when fate (*sud'ba*) disperses people to the furthest corners of the world.

And finally, Russia is a country of arguments, of intense arguments about abstract subjects. Of this, you may remember, Turgenev had something to say. I myself have written an article "Arguing in Russian," which was published in the most recent number of *The Russian Journal of Communication.*

It is with great joy that I am now returning to the "obshchenie," the discussions and arguments, in which I was fortunate to be able to participate in Moscow more than forty years ago.

1. GENETIC CODE OF THE HUMAN MIND

The great advantage of mathematics lies in the fact that it is, in principle, the same for all people, whereas there are five or six thousand languages, and they differ profoundly from one another, not only in form but also in meaning.

Despite the widespread practice of translation many bilingual people, especially bilingual writers, are convinced that the differences between languages are so deep that true translation is impossible. Nabokov, for example, regarded translation as fraud (*obman*). But the widespread conviction that each language is a separate closed monad represents only one perspective. Another perspective,

equally strong in the English tradition, is linked with a deep intuition that the striking diversity of languages conceals a profound unity. It is this intuition which sparked the never-ending search for an ideal common human language.

In the words of the well-known semiotician Umberto Eco [1], for a long time "the dream of a perfect language obsess[ed] European culture." Eco goes so far as to maintain that "the story of the confusion of tongues, and of the attempt to redeem the loss [of an original language] through the rediscovery or invention of a language common to all humanity, can be found in every culture."

I must say that personally, I was never attracted by the idea of *constructing* a language common to all humanity. But for nearly half a century I have been pursuing the goal of *discovering* such a language—that is, discovering a universal and innate language common to all people.

Improbable as it may seem to those unfamiliar with the work of my colleagues and my own over the last four decades, we believe that we have now discovered the contours of this innate mental language. We have discovered them in the course of extensive empirical investigations over many diverse languages, aimed at identifying their common core.

But although these investigations were empirical, the main idea behind them was mathematical, and it was put forward by a mathematician: Leibniz. As the author of the classic work "After Babel" George Steiner [2, p. 78] put it, "Leibniz was profoundly interested in the possibilities of a universal semantic system, immediately accessible to all people, and based on a set of pan-human conceptual primitives." It was this Leibnizian idea which provided a starting point, and the inspiration for my own and my colleagues' search for the common core of all languages and the innate language of the human mind.

2. ALPHABET OF HUMAN THOUGHTS

Leibniz believed that this language—"Lingua Naturae"—was based on what he called the alphabet of human thoughts, Alphabetum Cogitationum Humanarum. The human mind, he held, is equipped with a set of simple concepts which are as it were "letters" of an innate mental alphabet, and all human thoughts constitute combinations of those simplest concepts:

2.1. When thinking about these matters a long time ago, it was already clear to me that all human thoughts may be resolved into very few primitive notions [3, p. 182].

2.2. Although infinitely many concepts can be understood it is possible that only few can be understood in themselves. Because an infinite number can be constructed by combining a few elements. Indeed, it is not only possible but probable, because nature usually achieves as much as possible with as few elements as possible, that is to say, it usually operates in the simplest possible way [4, p. 430].

2.3. The alphabet of human thoughts is the catalogue of primitive concepts, that is, those concepts which cannot be made clearer by means of any definitions [4, p. 435].

2.4. The alphabet of human thoughts is the catalogue of those concepts which can be understood by themselves, and from whose combinations our other ideas arise [4, p. 430].

Leibniz maintained that these simplest concepts are the limit of human understanding of anything: they are inherently intelligible to human beings and everything else can be understood only through them. If there were no concepts which were self-explanatory, we could not understand anything at all.

2.5. If nothing could be understood in itself nothing at all could ever be understood. Because what can only be understood via something else can be understood only to the extent to which that other thing can be understood, and so on; accordingly, we can say that we

have understood something only when we have broken it down into parts which can be understood in themselves [4, p. 430].

Thus, people can understand an infinite number of ideas because they possess a small number of simple concepts which are understandable by themselves. Different combinations of these simple concepts can generate an infinite number of complex ones.

In Leibniz's view, if we want to understand anything, we should always proceed like this: we should reduce everything that is complex to what is simple, that is, present complex ideas as configurations of very simple ones which are absolutely necessary for the expression of thoughts.

2.6. All other concepts should be reduced to those which are absolutely necessary for expressing thoughts conceived by the human mind [4, p. 281].

How then can it be determined which concepts are absolutely necessary for articulating the full range of human thoughts? Leibniz's answer to this question was very simple: it can be determined only by trial and error, that is, by experimenting with various provisional explications.

2.7. The primary terms, the *indefinables*, cannot be easily recognized by us except in the way that the prime numbers are: we can only recognize them as such if we try to divide them (into smaller ones) [4, p. 187].

As we know from his unpublished manuscripts, Leibniz experimented in this way all his life, and sometimes despaired of the human capacity to ever identify the set of simple and necessary concepts.

Leibniz was convinced that the task of identifying those simplest, absolutely necessary concepts, is extremely important and he found it surprising that only very few people think about this.

2.8. This consideration [how some concepts arise from others] allows us to avoid vicious circles, which are constantly taken recourse to, and the mind can fasten to some firm and fixed concepts which can be decided upon. How very important this is, few people understand, because few people reflect how very important it might be to determine what the first elements in all things are [4, p. 160].

He thought that if these primary, simplest concepts were found, they could be of great practical importance, being a Remedy for Mind ("Maximum Menti Remedium"): they could save us not only from circular definitions but also from pseudo-explanations and a habit of speaking of what we do not understand.

2.9. The best Remedy for the Mind would be to invent a small number of concepts out of which an infinite number of other concepts can be derived. In this way, from a small number of numbers (from one to ten) all other numbers can be systematically derived. Whatever is conceived by us is either conceived by itself or involves some other concepts. Whatever is involved in another concept, too, is either conceived by itself or involves another concept. And so on. Therefore it either goes like this and infinitum, or all concepts can be resolved into those which can be conceived by themselves [4, p. 429].

As various commentators noted, Leibniz avoided "the obvious question as to the number and type of fundamental concepts" [5, p. 26]. From his own perspective, two conditions for a full success of his program were lacking during his lifetime: first, the absence of collaborators, and second, lack of data from many diverse languages of the world.

On the first point, his XIX century editor, Gerhardt, wrote: "Convinced that he would never be able to complete the great task alone, how often he yearned for help!" [6, vol. 7, p. 30].

Quotes which are particularly relevant to the second point include the following two: one, on languages as the best mirror of the human mind, and one on the need for extensive cross-linguistic studies.

2.10. Languages are the best mirror of the human mind, and (...) a precise analysis of the significations of words would tell us more than anything else about the operations of the understanding [7, p. 330].

2.11. It is true that someone who wanted to write a universal grammar would be well advised to move on from the essence of languages to their existence and to compare the grammars of various languages; just as an author seeking to write a universal jurisprudence, derived from reason, would do well to bring in parallels from the laws and customs of the nations. This would be useful not only in a practical way, but also theoretically, prompting the author himself to think of various considerations which would otherwise have escaped his notice [7, p. 302].

But wide-ranging typological cross-linguistic investigations were still in the distant future, and the longed-for collaborators did not materialize. In the end, Leibniz died without leaving so much as a sketch of the "alphabet of human thoughts," and subsequently, the whole program fell into oblivion.

It was revived half a century ago by a Polish linguist Andrzej Bogusławski [8]. I followed in his footsteps [9], and after my emigration to Australia, so did some of my Australian students and colleagues, above all, my closest collaborator and frequent co-author Cliff Goddard [10–12].

What was particularly distinctive about our approach was the fact that we were searching for this "alphabet of human thoughts" not only by means of experimental explications, but also by empirical investigations of many languages: we were looking for common words, that is, words with exactly the same meaning which can be found in all languages.

I believe that we completed this search last year and that we can now present the definitive list of elementary and indispensible human concepts. Two versions of this list, an English and a Russian one, are presented in Table 1 (see [13]).

The Leibniz scholar quoted earlier, Martin [5, p. 25] remarked, in relation to Leibniz's program, that "the approach would be more convincing if one could at least gain some clue as to what the table of fundamental concepts might look like." I believe that after decades of extensive cross-linguistic investigations by many linguists (see, e.g., [14–16]) we are now in a position to offer such a clue and, indeed, a complete table.

Equivalent versions have been presented for many other languages (see, e.g., [15–17]), and we contend that they can be developed for any language.

It is interesting to note that some of the elements listed in this table were put forward by Leibniz as candidates for the "alphabet of human thoughts." These elements include, inter alia, *one, many, the same, can* (possibility), *this, before, after* (see [18, p. 249; 1, p. 276]).

From the point of view of mathematics, it is particularly significant that the list of elementary concepts includes *one, two,* and *many*. There are of course many languages without numerals, but evidence suggests that all languages have words for *one, two,* and *many*. As is shown by Goddard [19], these basic numerical concepts provide a basis for the concept of "number" and the concepts of individual numbers (3, 4, 5, and so on).

In addition to the basic numerical concepts particularly worth noting is the presence in the set of elementary concepts of the words *part, all, some, more, after, if,* and *the same*. If anyone wants to teach mathematics in countries where there is practically no mathematics, he or she will have to start precisely from these words. As an example, I can mention here the Papuan language Koromu, where the problem of teaching mathematics to children was addressed, both theoretically and practically, by my colleague Carol Priestley (see [20]). As Goddard [19, p. 218] puts it,

Table 1. "The alphabet of human thoughts," in two versions, English and Russian

English version	Russian version	
I, YOU, SOMEONE, SOMETHING/THING, PEOPLE, BODY	Я, ТЫ, КТО-ТО, ЧТО-ТО/ВЕЩЬ, ЛЮДИ, ТЕЛО	Substantives
THIS, THE SAME, OTHER/ELSE	ЭТОТ, ТОТ ЖЕ, ДРУГОЙ	Determiners
ONE, TWO, MUCH/MANY, SOME, ALL	ОДИН, ДВА, МНОГО, НЕКОТОРЫЕ, ВСЕ	Quantifiers
GOOD, BAD	ХОРОШИЙ/ХОРОШО, ПЛОХОЙ/ПЛОХО	Evaluators
BIG, SMALL	БОЛЬШОЙ, МАЛЕНЬКИЙ	Descriptors
THINK, KNOW, WANT, FEEL, SEE, HEAR	ДУМАТЬ, ЗНАТЬ, ХОТЕТЬ, ЧУВ-СТВОВАТЬ, ВИДЕТЬ, СЛЫШАТЬ	Mental predicates
SAY, WORDS, TRUE	ГОВОРИТЬ/СКАЗАТЬ, СЛОВА, ПРАВДА	Speech
DO, HAPPEN, MOVE, TOUCH	ДЕЛАТЬ, ПРОИСХОДИТЬ/СЛУ-ЧИТЬСЯ, ДВИГАТЬСЯ, КАСАТЬСЯ	Actions, events, movements, contacts
BE [SOMEWHERE], THERE IS, HAVE, BE [SOMEONE/SOMETHING]	БЫТЬ [ГДЕ-ТО], БЫТЬ/ЕСТЬ [У КОГО-ТО], БЫТЬ/ЕСТЬ [ЧТО-ТО], БЫТЬ [КЕМ-ТО/ЧЕМ-ТО]	Location, existence, possession, specification
LIVE, DIE	ЖИТЬ, УМЕРЕТЬ	Life and death
WHEN/TIME, NOW, BEFORE, AFTER, A LONG TIME, A SHORT TIME, FOR SOME TIME, MOMENT	КОГДА/ВРЕМЯ, СЕЙЧАС, ДО, ПОСЛЕ, ДОЛГО, КОРОТКОЕ ВРЕМЯ, НЕКОТОРОЕ ВРЕМЯ, МОМЕНТ	Time
WHERE/PLACE, HERE, ABOVE, BELOW, FAR, NEAR, SIDE, INSIDE	ГДЕ/МЕСТО, ЗДЕСЬ, НАД, ПОД, ДАЛЕКО, БЛИЗКО, СТОРОНА, ВНУТРИ	Space
NOT, MAYBE, CAN, BECAUSE, IF	НЕ, МОЖЕТ БЫТЬ, МОЧЬ, ПОТОМУ ЧТО, ЕСЛИ	Logical concepts
VERY, MORE	ОЧЕНЬ, ЕЩЕ/БОЛЬШЕ	Intensifier, augmentor
KIND, PART	РОД/ВИД, ЧАСТЬ	Relational substantives
LIKE	КАК/ТАК, КАК	Similarity

In my view, numbers and number systems are culture-specific "cognitive tools." Having these tools at one's disposal, and having learnt and practised their use since childhood, no doubt expands a person's abilities to manipulate precise quantities, and routinizes certain cognitive operations which would be extremely taxing, if not impossible, to perform without these cognitive tools and skills. In other words, familiarity with numbers and with number operations facilitates "numeral cognition."

Goddard compares this routinization of cognitive operations based on numerical cognitive tools with the elaborated kinship vocabulary and kinship reckoning practices of the Aboriginal languages and cultures of Central Australia:

Having at one's disposal an elaborated inventory of kinship concepts, and having learnt and practised using it since childhood, enables Aboriginal people to perform kinship calculations ("kinship algebra") with a speed and sophistication well beyond most English speakers. This does not mean of course that English speakers are lacking any fundamental cognitive capabilities, and neither does the lack of highly elaborated numeral systems and arithmetical

practices in many of the world's languages and cultures attest to any deficit in cognitive capability. On the contrary, (...) it can be demonstrated by linguistic analysis that the semantic and cognitive fundamentals of number (...) are available in all languages.

3. GRAMMAR OF THE UNIVERSAL NATURAL LANGUAGE UNDERLYING ALL LANGUAGES

It goes without saying that the universal "natural language" (lingua naturae) which Leibniz envisaged and which NSM researchers have sought to pin down, must include not only a universal mental lexicon but also a universal mental grammar, that is, some universal rules for combining mental words into sentences. Our cross-linguistic investigations have led us to believe that just as the mental lexicon of elementary concepts is equivalent to the common part of the lexicons of all natural languages, so the mental grammar is equivalent to the common part of the grammatical systems of all natural languages.

I will illustrate this with an example.

Evidence suggests that the elementary concept expressed in Russian with the word *skazat'* and in English, with the word *to say*, is expressed by a distinct word (or a distinct sense of a polysemous word) in all languages. But this common human concept is not just an isolated semantic element; rather, it constitutes a small lexico-grammatical system.

Thus, one can find in any language not only an exact semantic equivalent of the Russian word *skazat'* but also combinations of words such as, first, "someone said something," "someone said something about something," "someone said something to someone else," and "someone said something like this [with a quotation]." This means that the elementary sense *say* has a universal system of valencies and a universal combinatory potential. It is worth noting here that contrary to what might be expected, the frame "to say that..." (e.g., "he said that he would come") is not included in this system, because not all languages have indirect speech.

Thus, "inside" all languages we can find a small shared lexicon and a small shared grammar. Together, this panhuman lexicon and the panhuman grammar linked with it represent a mini-language, apparently shared by the whole of humankind.

4. NSM—A NATURAL SEMANTIC METALANGUAGE

On the one hand, this mini-language is an intersection of all the languages of the world. On the other hand, it is, as we see it, the innate language of human thoughts, corresponding to what Leibniz called "lingua naturae." Obviously, this language has no sound system, but it can be incarnated in the sound system of any language.

Colleagues and I have been investigating this language for many years, and we call it NSM, which is an abbreviation of the English phrase "Natural Semantic Metalanguage." This name reflects our conviction that this language provides us with a neutral tool for describing all languages. The point is that if the meanings encoded in one language are described through the categories of another language (for example, Russian meanings through English words), these meanings often get distorted and an Anglo slant is imposed on them. For example, if someone describes the meaning of the Russian word *obshchenie* via the English word *communication*, or the meaning of the Russian word *sud'ba* via the English word *fate*, the meanings of these words are distorted and "anglicised" (see [21, 22]).

If, on the other hand, we use in describing such meanings the universal mini-language NSM, even in its English version, we can avoid such distortion. This means that NSM is an ideal mini-language for describing any language, that is, an ideal metalanguage. What is more, we see this

metalanguage as an ideal tool for expressing, precisely and intelligibly, any human thoughts, no matter how complex, as I will try to show with an extended example in Section 5.

In many respects, the notion of a "natural semantic metalanguage" corresponds to the concept of a "semantic language" ("semanticheskii yazyk") which linguists of the Moscow semantic school were putting forward in the 1970s, and NSM-based investigations are deeply indebted to the work of this school [23–27].

Particularly important, and worth highlighting, is the idea that a "semantic language" for describing meaning needs not only a lexicon but also a syntax. This idea was advanced by the semanticists of the Moscow school from the outset, and it also plays a central role in the NSM program.

The main distinctive feature of the NSM program is the fact that NSM researchers have sought to find the "semantic language"—both its lexicon and its syntax—by means of empirical investigations of many diverse languages of the world and have assumed that it could be found *within* these languages, as their intersection. As a result of this approach, texts formulated in NSM were always intended to be texts similar to texts formulated in natural languages and to be intelligible through "ordinary language."

In his essay "El idioma analytico de John Wilkins" the Argentinian writer Jorge Luis Borges [28, p. 61] writes that in 1629 Descartes "proposed the formation" of a common language "which would organize and contain all human thoughts," and that around 1664 John Wilkins started to seriously pursue this project.

From my point of view, however, it was not John Wilkins who started to seriously pursue this project but Leibniz, because Leibniz, and not anybody else, occupied himself with explicating many words, and tried to paraphrase complex concepts as combinations of simple (or simpler) ones, and because he formulated these explications in natural language (mainly, in Latin, as in his "Table de definitions," see [4, pp. 437–510]).

If explications are formulated in natural language, through universal concepts, they can be accessible, in principle, to all people, and within certain limits can serve as a medium of communication for people from different countries, and even for children. At the same time, they can be an effective means for explaining complex concepts and ideas, in any area of knowledge and thought.

As was already indicated, the main point is that, as Leibniz pointed out, all explanations have to stop somewhere, and they can be understood only to the extent to which their primitive concepts can be understood. The elementary concepts are self-explanatory, and for this reason they give us a foundation for all intelligible explanations.

I must say that I am particularly impressed by two of Leibniz's statements concerning the theme of "a language which could organize and contain all human thought":

4.1. The signs that express all our thoughts will constitute a new language, one which can be both written and pronounced: this language will be very difficult to create but very easy to learn. (...) What is more, this language will have this marvelous property that it will shut the mouth of the ignorant; because in this language one will not be able to say or to write anything other than what one understands [4, p. 156].

4.2. For their [i.e., Wilkins and his followers'] language or script only allows a convenient form of communication to be set up between people divided by language; but the true *Characteristica Realis*, as I conceive of it, ought to be considered one of the most apt tools of the human mind, as it would have unrivaled power with respect to the development of ideas, storing those ideas, and distinguishing between them [6, vol. 7, p. 7].

Thus, in Leibniz's view, a language based on simple and clear concepts can force the speakers to say only things that are fully understandable (and not only seemingly so), and be a tool for thinking and for comparing and elucidating ideas. These are also goals of the NSM program.

5. EXAMPLE: EXPLICATING THE JUDEO-CHRISTIAN CONCEPT OF GOD

I want to illustrate this with an example. My example is the Judeo-Christian concept of God. It goes without saying that this concept is far from universal. Nonetheless it can be readily explained in the language of simple concepts which can be found in any language, together with their simple inherent grammar.

This example is based on my forthcoming book for children entitled *The Story of God and People*. It consists of five versions of the first part of this "story," formulated in five languages: English, Tok Pisin (the lingua franca of Papua New Guinea and Oceania), Ewe (West Africa), Chinese, and Russian. The translation into Tok Pisin has been provided by my colleague Carol Priestley, into Ewe, by the distinguished Africanist Felix Ameka, and into Chinese, by a PhD candidate at the Australian National University, Emily Fong. The point is that unlike ordinary translations, these five versions are absolutely identical in meaning and isomorphic in their semantic structure.

5.1. English Version
(discussed with Felix Ameka, Mary Besemeres, Mark Durie, James Franklin, Cliff Goddard, Sandy Habib, Elizabeth Little, Douglas Porpora, and Jock Wong)

Who is God?

There is someone not like people.
There is no one else like this someone.
God is this someone.

People can't see God.
At the same time, they can know God.
God wants this.

God is someone good.
When God wants something, this something is something good.
When God says something, this something is true.
If God wants something to happen, it can happen because of this.

God knows everything.
God knows all people.

God wants to do good things for all people.
God feels something good towards all people.
At the same time, God wants people to want to do good things for other people.
God wants people to feel something good towards other people.

All people can live with God, God wants it.
At the same time, God wants all people to want it.
It is very good for people to live with God.
Nothing else is like this.

5.2. Tok Pisin
(prepared by Carol Priestley, discussed with Ruth Spriggs)

God em i husat? (Bikpela)

I gat wanpela i no olsem manmeri.
I no gat narapela i olsem dispela.
God em i dispela.

Manmeri i no inap lukim God.
Long sem taim, ol i ken save (long) God.
God em i gat laik long dispela.

God em i wanpela i gutpela.
Taim God i laikim samtin, dispel samtin em i samtin gutpela.
Taim God tokim samtin, dispel samtin em i tru.
Sapos God i laikim samtin i kamap, em inap kamap sapos em i laikim dispela.
Sapos God i laikim wokim samting, God em inap wokim dispela.

God i gat save long olgeta samtin.
God i gat save long olgeta manmeri.

God em i laik wokim gutpela samting long olgeta manmeri.
God e mi gat gutpela bel long olgeta manmeri.
Long sem taim, God em i laikim manmeri lo laikim lo wokim gutpela samtin long arapela manmeri.
God em i gat laik long manmeri i pilim samtin i gutpela long arapela manmeri.

Olgeta manmeri em inap i stap laip wantaim God, God laikim dispela.
Long wankain taim, God i laikim olgeta manmeri long laikim dispela.
Em i gutpela nogut tru long olgeta manmeri i stap laip wantaim God.
I nogat narapela samtin i olsem dispela.

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5.3. Ewe Version
(prepared by Felix Ameka)

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Ame kaé nyé Máwú

Ame áɖé li, méli abé amewó o.
Ame búbu áɖéké méli abé ame sia ené o.
Máwúé nyé ame sia.

Amewó maté ŋú ákpɔ́ Máwú o.
Amewó áté ŋú ányá Máwú.
Máwú dí nenémá.

Máwú nyé ame nyui (áɖé).
Né Máwú dí náné lá, nú sia nyé(á) nú nyuí.
Né Máwú gblɔ nya áɖé lá, nya sia nyé(á) nyatefé.
Né Máwú dí bé náné nádzɔ lá, até ŋú ádzɔ le esia ta.

Máwú nyá nú siáa nú.
Máwú nyá ame siáa ame.

Máwú dí bé yeawɔ nyui ná ame siáa ame / amewó kátã.
Máwú lɔa ame siáa ame.
Máwú dí bé amewó náwɔ nyui ná ame búbuwó.
Máwú dí bé amewó nálɔ̃ ame búbuwó.

Ame siáa ame até ŋú ázɔ kplé Máwú, Máwú dí nenémá.
Máwú dí bé ame síaa ame nádí nenémá.
Ényó ná amewó bé wóazɔ kplé Máwú.
Nú búbu áɖéké mé li áléá o.

5.4. Chinese Version

(prepared by Emily Fong, discussed with Zhengdao Ye)

神是谁？

有一个他，他跟人不一样。
没有人能像他。
神就是这个他。

人们看不见神。
同时，人们知道他存在。
神想要这样。

神是好的。
当神想什么，神所想的是好的。
当神说什么，神所说的话是真的。
如果神想要什么事情发生，这事情会因此而发生。

神知道一切。
神知道所有的人。

神想要为人们做好事。
神对人们有好的感觉。
同时，神要人们想为别人做好事。
神想要人们对别人有好的感觉。

所有人会生活在神的身边，这是神想要的。
同时神想要所有的人都想要这样。
在神身边生活是好的。
没有什么能像这样。

5.5. Russian Version

(discussed with Mikhail Epstein, Anna Gladkova, and Aleksei Shmelev)

Кто такой Бог?

Есть кто-то не такой, как люди.
Нет никого другого, такого как этот кто-то.
Бог – это этот кто-то.

Люди не могут видеть Бога.
В то же время они могут знать Бога.
Бог этого хочет.

Бог – это кто-то хороший.
Когда Бог чего-то хочет, это что-то – хорошее.
Когда Бог что-то говорит, это что-то – правда.
Когда Бог хочет, чтобы что-то произошло, это может произойти поэтому.

Бог все знает.
Бог знает всех людей.

Бог хочет делать хорошие вещи для всех людей.
Бог чувствует что-то хорошее ко всем людям.
В то же время Бог хочет, чтобы люди хотели делать хорошие вещи для других людей.
Бог хочет, чтобы люди чувствовали что-то хорошее к другим людям.

Все люди могут жить с Богом.

Бог этого хочет.

В то же время Бог хочет, чтобы все люди этого хотели.

Очень хорошо для людей жить с Богом.

Нет ничего другого такого, как это.

6. SURFACE DIFFERENCES BETWEEN THE DIFFERENT VERSIONS OF THE UNIVERSAL LANGUAGE

It is sufficient to look at the Russian and the English versions of this short text to notice many grammatical differences between them. For example, the Russian words *Bog* and *lyudi* occur in different inflectional forms whereas the English words *God* and *people* occur in only one form. The Russian word *khotet'* often needs to be accompanied by the conjunction *chtoby*, whereas the English word *want* is used in the same context without a conjunction; the Russian word *pravda* is, from a formal point of view, a noun, whereas the English word *true* is an adjective, and so on.

But all such formal differences do not affect the meaning: the meaning of the two versions, Russian and English, is identical.

The same applies to the tenses of the verb. Russian does not differ here very much from English in so far as the category of tense is obligatory in both these languages, but both Russian and English differ in this respect from Chinese.

For example, in the second section of my *Story of God and People*, referring to the creation of the world, we encounter the past tense: "A very long time ago something happened." The Chinese version of this section will not include a verb in the past tense such as "happened". It will, however, include a phrase corresponding to the English phrase *a long time ago* (a long time before). This shows that differences in the surface grammar of different languages do not prevent the full sameness of the sense in texts formulated in the universal language of NSM.

Of course grammatical elements of language may also carry meanings just as lexical elements do (this, too, was noted by Leibniz); but this meaning carried by the grammatical elements can be explicated in the same metalanguage as all other elements of meanings. At the level of the explications formulated in the metalanguage, morpho-syntactic peculiarities of different languages do not have any semantic implications: at this level it is a matter of cosmetics, not of semantics.

7. NSM—A UNIVERSAL SEMANTIC SYSTEM UNDERSTANDABLE TO ALL PEOPLE

As the explications of the Judeo-Christian idea of God in five languages presented here illustrate, NSM is a universal semiotic system, which all people can understand, through their own native language. This is possible because while NSM is a universal language, this language has as many embodiments as these are natural languages. This means that in a certain sense, everybody can read a text formulated in NSM in his or her own language.

Here again I would like to quote Leibniz. When he approached the Duke of Hanover for a long-term financial support for his project, Leibniz wrote:

If only God would again inspire your Highness, the idea which had the goodness to determine that I be granted 1200 ecus would become the idea of a perpetual revenue, and then I would be as happy as Raymond Lull, and perhaps with more reason. (...) For my invention uses reason in its entirety and is, in addition, a judge of controversies, an interpreter of notions, a balance of probabilities, a compass which will guide us over the ocean of experiences, an inventory of things, a table of thoughts, a microscope for scrutinizing present things, a telescope for predicting distant things, a general calculus, an innocent magic, a non-chimerical

cabal, a script which all will read in their own language; and even a language which one will be able to learn in a few weeks... (Leibniz, Letter to Duke of Hanover, 1679, quoted in [1, on the cover]).

While I do not claim that NSM can aspire to everything that Leibniz's project did, I believe that it coincides with it in some very important points. In particular, although NSM is a universal language, everyone can "read" texts formulated in NSM in his or her own language.

It can be asked: how does this differ from ordinary translations? After all, people who are fluent in two different languages, for example Russian and English, can read an English text and immediately translate it in their heads into Russian.

The difference is that in any "normal" translation the meaning of the original differs in some respects from that of the translation: always some elements of meaning are lost, and some are added, because, generally speaking, words in different languages do not coincide in meaning.

In the case of NSM, it is not like this. Since the words of the Russian version of the NSM fully coincide in meaning with the words of the English version, phrases and sentences can also fully coincide in meaning. One could say that, for example, the transition from one version of the NSM text *Who is God?* to another is not a translation, as usually understood, but indeed a "transition." In the case of such a transition, speakers of different languages can read the same text in their heads each in his or her own language.

8. NSM—A LANGUAGE IN WHICH ONE CAN WRITE A PROPER STORY

I hope that the five isomorphic explications of the idea of God presented here demonstrate that very complex ideas can be expressed in very simple words, and also, that very complex ideas can be expressed in different languages without adding or subtracting any elements of meaning.

But I would like to claim more: NSM is a language in which we can not only express, simply and clearly, complex ideas, but in which one can write a long text and tell a long story. As far as I know, no other systems of semantic representation proposed by linguists set themselves such goals. I have tried to illustrate this status of NSM as a language in the full sense of the word in my *Story of God and People* [29], part of which is shown in Appendix A.

9. SEMANTIC MOLECULES

If one looks at the first four chapters of this story, it is easy to see that they are couched exclusively in terms of universal semantic primes (that is, words included in Table 1). However, when one looks at chapter 5, one will see there are some words which are not included in the table of primes, such as *country*, *call*, and *father*.

This brings us to the very important idea of "intermediate words," which has been advanced for a long time by linguists of the Moscow semantic school. In the NSM-based research, we have tried at first to explicate all meanings and ideas directly in semantic primes. But we soon realized that it does not always make sense to do so, and that in some areas it is necessary to turn to such intermediate words as for example *country* in *The Story of God and People.*

In our own work we require, first, that recourse should be taken to such intermediate words only in cases where it is absolutely necessary for the clarity of the explication (especially, in the area of concrete vocabulary); and second, that these intermediate words should themselves be explicated either via elementary concepts or via simpler concepts reduced in turn to elementary ones.

For example, it is not the case that 'country' is an elementary concept, first, because it is not universal, and second, because it can be explicated via simpler concepts such as 'place' and 'people'.

The term "intermediate concepts" belongs to the Moscow semantic school. In NSM research, we prefer to speak of "semantic molecules," comparing elementary concepts with atoms, and more complex ones, with molecules, as these terms are used in chemistry.

From our point of view, it is very important that the distinction between "semantic atoms" and "semantic molecules" as we draw it is not arbitrary but corresponds to the nature of things.

For example, in the meaning of the word *to bite*, the concept of 'teeth' functions, evidently, as a unit of meaning, even though it can be decomposed into simpler concepts. Similarly, the concept of 'tongue' (as a part of the body) functions as a unit in the meaning of the word *to lick*, and the concept of 'legs' in the meaning of the word *to run*.

Different semantic molecules can be mutually connected by more or less complex chains of dependencies:

9.1. Chains of Dependencies between Molecules of Different Levels

hands ← primitives
legs ← *long* ← *hands* ← primitives
head ← *round* ← *hands* ← primitives
tree ← *grow* ← *ground* ← primitives
wood ← *hard* ← primitives
wood ← *sharp* ← primitives

To show how such chains of dependencies work, I will adduce here three explications: those of *legs*, *long*, and *hands*:

9.2. Legs (someone's legs)

a. two parts of someone's body
b. these two parts are below all the other parts of the body
c. these two parts are long (m)
d. these two parts of someone's body can move as this someone wants
e. because people's bodies have these two parts, people can move in many places as they want

It is easy to see that this explication includes, along with several primitive concepts, the molecule *long* (marked as a molecule with the letter "m"). Explication 9.3 below shows how this molecule can be reduced to a configuration of primitives.

9.3. Something Long (e.g., a tail, a stick)

a. when someone sees this something this someone can think about it like this:
b. "two parts of this something are not like many other parts, because one of these two parts is very far from the other"
c. if someone's hands (m) touch this something everywhere on all sides, this someone can think the same

In this explication, too, a molecule appears alongside several primes: *hands*. On the other hand, the explication of the word *hands* itself does not include any molecules, it can be done directly in primitive concepts:

9.4. Hands (someone's hands)

a. two parts of someone's body
b. they are parts of two parts of the body on both sides of the body
c. they can move as this someone wants
d. they have many parts, these parts can move as this someone wants

e. because people's bodies have these two parts, people can do many things with many things as they want

10. UNIVERSAL SEMANTIC MOLECULES

Among semantic molecules two types can be usefully distinguished: universal ones and more or less local ones. Some molecules are very wide spread even though they are not universal. The concept 'God' is a good example here, as is also one that is of special interest to mathematicians: 'number'. The concept 'God' enters, for example, into the semantic structure of words like *to pray, church, priest, sin, angel,* and many others. The concept 'number' enters into the structure of words like *thousand, million, calculate, arithmetic,* and many others.

We think that we have discovered a certain number (around twenty) of universal semantic molecules: concepts which can be found as words (or distinct meanings of words) in all languages.

Empirical investigations suggest that such universal molecules include terms for various categories of people such as 'men', 'women', and 'children', terms for human relations such as 'mother', 'father', 'wife', and 'husband', and also a word for the biological category 'to be born'. One of these molecules, 'father', appears in Chapter 5 of *The Story of God and People,* and in Chapter 8, devoted to the Virgin Mary, we find the universal molecules 'woman', 'mother', and 'to be born'.

Detailed semantic analysis of data from many languages suggests that the molecule 'hands' is indeed universal, even though in many languages, as in Russian, the word which is the exponent of this molecule is polysemous. For example, English distinguishes lexically between *hands* and *arms,* whereas Russian uses the same word, *ruki,* for both these meanings. Detailed semantic investigations show that the molecule 'hands' is a building block in the semantic structure of many words referring to the shape of things of different kinds, in particular, to the words corresponding to *round (kruglyi)* and *long (dlinnyi)* (see [30]).

11. EXAMPLE OF A VERY COMPLEX CULTURAL CONCEPT: "CROSS"

Apart from semantic atoms and semantic molecules, in all languages there are semantically complex concepts which don't enter into the meanings of many other words and which themselves are based on many molecules, as well as atoms. Some of these words carry with them whole chains of dependencies, reminiscent of Russian dolls *(matryoshki).* I will illustrate this with one example which is very important for my *Story of God and People,* the explication of a complex cultural concept: "Cross".

In the sphere of European culture the concept of Cross is so familiar that a real effort of "defamiliarization" is needed to imagine how difficult it is to explain this concept to people completely unfamiliar with it. It is very easy to say in any European language that Jesus died on the cross, but it is not so easy to say it, for example, in the Papuan language Koromu. The question arises: what is a "cross"? And what does it mean "to die on the cross"? (The concept of 'dying' as such does not raise any difficulties here, because it is universal.)

Trying to find solutions to these problems I came to the conclusion that, apart from elementary concepts, we will have to use the following molecules: 'wood' (a cross is made of wood), 'long' (a cross has two long parts), 'hands' and 'feet' (the hands and the feet of the crucified victim are to be attached to certain parts of the cross), and 'legs' (as a conceptual point of departure for 'feet') [31]. The following chains of dependencies are involved here:

feet ← *legs* ← *long* ← *hands* ← primitives
wood ← *grow* ← *ground* ← primitives

In addition, the concept of 'wood' is dependent on the concepts 'hard' and 'sharp', which are built directly out of primes (cf. [32]).

The full explication of the word *cross* is very long, because the concept embedded in it is very rich and complex: it is necessary to explain here the shape of the cross, the function of this shape (i.e., why this shape needed to be like this), the idea of a public execution, the long agony of the victim, the historical aspect of such an execution, and more. As a guide for the reader, I marked different parts of this explication with indicatory labels, which, however, are not parts of the explication as such.

Explication of a Complex Cultural Concept: "Cross"

Cross

WHEN, WHERE, WHY

something of one kind
at some times in some countries (m) some people died in places where there was something of
    this kind
these people died in these places because some other people wanted this

MATERIAL, CONSTRUCTION, POSITION

something of this kind was made of wood (m)
it had two long (m) parts
the bottom (m) part of one of these two long (m) parts was inside the ground (m)
because of this, this something could not move

HOW IT LOOKED

when people saw something of this kind somewhere they could think about it like this:
    "people can see something like this when they see someone somewhere if it is like this:
        this someone's feet (m) are touching the ground (m),
            one foot (m) is very close to the other
        this someone's hands (m) are on both sides of this someone's body,
            one hand (m) is very far from the other"

HUMAN BODY-POSITION

when someone was dying in a place where there was something of this kind,
    this someone's body was touching this something in many places

POSITION AND IMMOBILITY OF HANDS AND FEET

it was like this:
    this someone's feet (m) were touching the bottom (m) part of one of the two long (m) parts
        of this something, one foot (m) was very close to the other
    this someone's head was near the top (m) of the same long (m) part
    this someone's hands (m) were on both sides of the body, they were touching the other
        long (m) part of this something in two places, one hand (m) was very far from the other
    this someone's hands (m) could not move, this someone's feet (m) could not move,
        because of this, this someone's body could not move

LONG TORMENT, SPECTACLE FOR MANY PEOPLE

at the same time, it was like this:
    this someone's body could be there for a long time before this someone died
    many people could see this someone during this time
    because of this, many people could know that before this someone died,
        this someone felt something very bad for a long time

12. CONCLUDING REMARKS

To conclude, I would like to return, once more, to Leibniz. As is well known, Leibniz was interested in language throughout his life, and he saw in it a key to the understanding of the human mind. Many of his ideas about language were expressed in unpublished manuscripts, and what has come to us is not always clear. Nevertheless, some of his ideas—even if he did not always consistently adhere to them himself—seem to me both clear and extremely appealing.

I would summarize these ideas as follows:

1. All human thoughts can be decomposed into a relatively small number of elementary concepts;
2. All explanations depend on the existence of some concepts which are self-explanatory (otherwise, they would lead to an infinite regress);
3. The elementary concepts are common to all languages, and can be found by means of semantic analysis;
4. These concepts are the foundation of an innate language, "lingua naturae." Just as mathematics is, as Galileo said, the language of the physical world, so the innate "lingua naturae" is the language of the inner world, the language of thoughts;
5. This language can be identified;
6. This language can serve as an auxiliary means of mutual understanding for speakers of different languages;
7. This language can help us to reach a greater clarity in our thinking;
8. This language can serve as a means for clarifying, elucidating, storing and comparing ideas.

These are also the main ideas which lie at the basis of the NSM program and from which this program has derived and continues to derive its inspiration.

APPENDIX A

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