

CAN COMPLEXITY BE PLANNED?

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ABSTRACT

The long accepted complexity invariance of human languages has become controversial within the last decade. In investigations of the problem, both creole and planned languages have often been neglected. After a presentation of the scope of the invariance problem and the proposition of the natural to planned language continuum, this article will discuss the contribution of planned languages. It will analyze the complexity of Esperanto at the phonological, morphological, syntactic and semantic levels, using linguistic data bases. The role of the L2 speech community and development of the language will also be taken into account when discussing the endurance of the same level of simplicity of this planned international language. The author argues that complexity can be variable and to some extent planned and maintained.

KEY WORDS

complexity, planned language, compositionality, phonology, morphology, syntax, semantics

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INTRODUCTION

In the case of natural languages, complexity invariance is mainly discussed in terms of innate language faculty and cultural influences (Hudson in [1]) in a context where pidgin, creole and planned languages have often been excluded. One example of an analysis of the complexity of creoles is McWhorter [2], who claims that “the world’s simplest grammars are creole grammars.” Chomsky posits an innate language capacity, and therefore the existence of a universal grammar. This assumption implies an equal level of complexity among languages, which differ only in their parameters. The cultural approach supposes the basic equality of cultures, therefore their equal complexity. Sampson is right in considering this approach to be ideologically motivated [1]: equal potential does not mean equal complexity.

But what is complexity? There are basic problems in how to define complexity and how to measure it; different authors have taken different approaches to its definition. Is it absolute or relative? Is the difficulty of learning a language a measure of complexity? What is the relation between complexity and regularity, transparency or computability? Can the complexity of a given language change? If languages can change, their subsystems can become simpler or more complex. How do we account for the results of the processes of complexification and simplification?

This paper investigates the planned language Esperanto in order to answer these questions. Since this study is an overview of different linguistic levels, only a few selected features will be examined. My goal is to illuminate how the simplicity and regularity of a planned language can undergo some changes, but still remain at a relatively low level of complexity while used in an L2 speech community.

COMPLEXITY

Complexity is often advanced as an intuitive notion without concrete measurement and is mainly treated at the grammatical level. A compensatory balance between complexity in morphology and syntax is often inferred. Nevertheless complexity’s range encompasses different levels of linguistic structure and use, from phonology to pragmatics, and involves the following fields:

- phonology (number of phonemes, their clusters, tones, etc),
- writing system (ideograms or alphabet) and orthography (sound–letter mapping),
- morphology (number of morphemes, their variability, number of rules controlling their combinations, compositionality, and so on),
- syntax (e.g. configuration, complexity of structures),
- lexicology (polysemy, phraseology),
- pragmatics (high or low context language, degrees of politeness).

We have excluded the question of writing system and orthography from the discussion of complexity, though these features can constitute a difficulty in language learning and in natural language processing, especially in speech synthesis (see [3]). The Chinese writing system is a bottleneck in mastering the language but it gives an insight into word meanings, and determines the linguistic worldview.

The absolute complexity of a given language embraces all of these fields, and a comparison of different languages can be carried out if similar measures are used for the languages to be compared.

Hengeveld and Leufkens [4] use “the amount of overt formal material and its depth” to define (*absolute*) complexity, according to McWhorter [2], leaving the question of “the difficulty of acquiring a linguistic (sub)system” to *relative* complexity.

Transparency, defined as “the degree to which a language maintains one-to-one correspondence between units at different levels of linguistic organization” [4] is also useful for characterizing linguistic systems. It is obvious that low complexity and high transparency make a language easy to learn.

In the following discussion, we will analyze complexity by examining (1) the number and transparency of rules working on a given linguistic level and (2) their productivity vs. lexicalization. Difficulty of learning will also be mentioned although this depends not only on the complexity and transparency of the given language, but also on the relation of the learner’s first language to the language in question.

INVARIANCE OR CHANGES OF LANGUAGE STRUCTURES

The invariance hypothesis, accepted by both descriptive and generative linguistics in the twentieth century, is encountering criticism and rejection in the twenty-first (e.g. [1, 5]). One of the earlier opponents of the idea is Tauli [6]. From the basic claim that every language can express everything, it does not follow that all languages have the same level of complexity. It is not obvious that the existence of a human language faculty would lead to equal complexity in their expression. There are two basic tendencies which contradict this claim:

- on the one hand, languages can become **more complex** during their development – in accordance with the needs of their users [1];
- on the other hand, structures can become **simpler** and irregularities can diminish due to expanded contacts, richer social networks and also more L2 learners [5].

For the first point, a conservative or etymological orthography is an example; for the second, the fact that new verbs follow fewer paradigms. Irregular verbs belong to the older layer of a language (e.g. in English, German, French) and many of the lexical affixes are no longer productive in different languages.

In Hungarian noun to verb (N > V) derivation, only the suffixes *-Vz(ik)* and *-Vl* are productive (*internetezik* ‘use the internet’, *chatel* ‘to chat’), and for professions *-(Vs)kOdik* (*nyelvészkedik* ‘deal with linguistics’) [7] but historically there are many more. Various verb tenses and the synthetic passive voice disappeared in Hungarian during the 19th century, so complexity in this regard diminished. Only some lexicalized passive forms have survived (such as *megadatik* ‘is given’), but another form (gerund + copula: *nyitva van* ‘is open’) has replaced it in some cases. Nothing compensated for this simplification.

Therefore it can be concluded only that different languages have the same *expressive power*. Equal degrees of complexity then is as much a myth as the naturalness of ethnic languages. Changes in languages are continuous, and can result in more or less complexity. Cultural, historical and political changes are reflected in language, mainly in vocabulary, but also in pronunciation and pragmatics. The use of English in the United States, in a different cultural and political context than Great Britain, resulted in American English, which differs in a number of ways from British English. And this is the same for the other varieties of English. After the collapse of Yugoslavia, owing to the political will of its speakers, the Serbo-Croatian language was divided into the Serbian and Croatian languages and their actual development is divergent. Interventions in the life of languages occur regularly. Simplification of writing systems occurred in Korean, Turkish and Japanese among other languages.

L2 speakers of English contribute to simplifications in EIL (English as an International Language). Jenkins [8] declares that non-native speakers of English, who outnumber native speakers, already play a greater role in the development of that language. Thus, simplification is a real tendency, as [5] suggests.

Creoles are also simpler than ethnic languages [2]. They came into being as pidgins, that is as L2-s. Their grammar is extremely simplified – a characteristic that is maintained in their use as a mother tongue.

Esperanto was created as a simple contact language (as Lindstedt [9] characterizes it) by Ludovic Zamenhof (first published in 1887 [10]), and functions in international contexts as a non-native language for most of its speakers. The small number of native speakers of Esperanto are not regarded as establishing norms [11]. Their language use is similar to that of their parents; therefore simplicity of Esperanto is maintained at the stage of nativization.

NATURALNESS AND LANGUAGE PLANNING: THE NATURAL – PLANNED LANGUAGE CONTINUUM

Natural languages and planned (also called artificial) languages do not form a dichotomy, but rather a continuum, because there have been different kinds of interventions in the life of almost every language. Figure 1 (based on [12]) shows the grade of artificiality (or naturalness – depending on the starting point) of selected languages.

Ideal natural language								Completely planned language
Japanese	Hungarian	Norwegian	Modern Hebrew	Interlingua	Esperanto	Volapük	Solresol	Program language
Korean		Indonesian						

Figure 1. Grade of artificiality/naturalness of selected languages.

Codified languages already manifest some artificiality because of the regulation of orthography and grammar (normally carried out by academies or similar language planning institutions). Language planning happens within ethnic languages at different levels, and also includes the planning of new languages. Its strategies include

- simplification of orthography (in many languages);
- regulation of grammar;
- standardization and modernization of vocabulary (e.g. the Hungarian language renewal in the 19th century, and also current terminological activity for many languages);
- revitalization of languages (Modern Hebrew);
- creation of a standard language on the basis of existing dialects (New Norwegian [*Nynorsk*], Indonesian);
- planning languages on the basis of existing languages and generalizing their features (e.g. Volapük, Esperanto, Ido).

As early as 1974 Tauli considered the planning of new languages in this line and therefore saw interlinguistics as a special branch of the theory of language planning [6; p.66]. He declared: “The ideal situation would be that all people all over the world who need to communicate with the people who have different mother tongues can learn the same interlanguage as a second language.” This is the basic goal behind Esperanto. Tauli is in favor of a constructed interlanguage simply because “the defects and especially the complexity of an ethnic language, which demand more time to master, make it less appropriate than a constructed interlanguage”. But, he concludes, the choice of the interlanguage is a political problem.

It should be mentioned that Eliezer Ben Yehuda who carried out the revitalization of Hebrew was a contemporary of Zamenhof who created Esperanto. Their language planning methods were similar and their work grew out of the same historical background [13].

Sanskrit is a very old example of the planning of a natural language: Pānini carried out its codification in his grammar around 300 BCE, and it became generally accepted as normative. Its invariable rules have been transmitted down to the present day, and Sanskrit is still widely used nowadays, mainly as a non-native language in India [14].

ESPERANTO AS A NATURAL (LIVING) LANGUAGE

BASED ON ROMANCE AND GERMANIC LANGUAGES

The basic vocabulary of Esperanto comes from existing languages, namely from the Romance (some words are taken directly from Latin) and Germanic languages, taking into account their use in several languages. These (Greek-Latin based) *international words* also occur in other European languages. The meanings of the original words are reduced to the main meanings. Sometimes the original word was split into several words (e.g. *tablo* < En, Fr table, but *tabelo* for table as a figure < De Tabelle, and *tabulo* for blackboard). For the principles of Esperanto etymology see [15].

This process can be considered as *decomplexification*. The same thing happens with loanwords borrowed by ethnic languages (compare the reduced meanings of *hardware* and many other words related to informatics in other languages).

On the other hand, Zamenhof worked out a simple and regular derivation system which can be considered as a *simplification and generalization* of the existing complicated derivation systems in different languages. The agglutinative forms in Esperanto always follow the same pattern; in other languages there are different rules or a lack of some forms as the following examples show:

Eo: *bela* – *beleco*, *inteligenta* – *inteligenteco*, *moderna* – *moderneco*, *natura* – *natureco*,
En: *beautiful* – *beauty*, *intelligent* – *intelligence*, *modern* – *modernity*, *natural* – *naturalness*,
De: *schön* – *Schönheit*, *klug* – *Klugheit*, *modern* – *Modernheit*, *natürlich* – *Natürlichkeit*,
Hu: *szép* – *szépség*, *okos* – *okosság*, *modern* – *modernség*, *természetes* – *természetesség*,
Pl: *piękny* – *piękność*, *mądry* – *mądrość*, *nowoczesny* – *nowoczesność*, *naturalny* – *naturalność*.

The derivation adjective → noun by means of a suffix is common for the above languages, but there are different forms in English, two possibilities in German, and a regular form in Polish and Hungarian (the difference of *-ság/ség* is due to vowel harmony). Nevertheless the Polish *piękność* means ‘beautiful girl’ and not ‘beauty’.

Esperanto is different in that the process can be generalized for every form as long as there is no semantic restriction, so *kvinsteleco* can be formed while speaking about the ‘five star quality’ of a TV-program or a hotel, but there is no similar form in English, German or Polish.

FUNCTIONING AS A NATURAL LANGUAGE

Esperanto is a planned language in terms of its birth and a natural language in terms of its current functioning and development [16-19]. Liu has also demonstrated by quantitative analysis that Esperanto is structurally a normal human language [20]. It is a sign system not only with well established morphology and syntax (see subsections *Morphology* and *Syntax* in this article), but also a natural tool for expressing thoughts and feelings in communication among people with different first languages in various settings. It is also a means of identification – as is shown by its many original literary works. The difference with other languages is that the Esperanto speech community is voluntary, non-ethnic and non-territorial [21]. Because of the last feature, it can be compared to minority languages in diaspora [22].

Additionally, Esperanto is the mother tongue of about a thousand people (see above). They are the so-called *denaskaj esperantistoj* ‘native speakers of Esperanto’ (see also [11, 18]). They are characterised by bi- or multilingualism and the use of Esperanto mainly at home.

PLANNED SIMPLICITY

The goal of Zamenhof was to provide a simple and regular language without exceptions, which would be easy to use for people with different language backgrounds. The *First Book* of Esperanto, a small pamphlet [10] (1887 in Russian, Polish, German, French, 1889 in English) contains an introduction, 16 basic grammatical rules, a basic vocabulary with fewer than one thousand word roots and some sample texts. Zamenhof explained his basic principle:

I established rules for the formation of new words, and at the same time, reduced to a very small compass the list of words absolutely necessary to be learned, without, however, depriving the language of the means of becoming a rich one. On the contrary, thanks to the possibility of forming from one root-word any number of compounds, expressive of every conceivable shade of idea, I made it the richest of the rich amongst modern tongues. This I accomplished by the introduction of numerous prefixes and suffixes, by whose aid the student is enabled to create new words for himself, without the necessity of having previously to learn them.

Zamenhof relinquished ownership of the new international language and handed it over to the speech community (“An international language, like every national one, is the property of society, and the author renounces all personal rights in it forever” appears on the inside of the front cover in the *First Book*). In order to conserve simplicity and stability, the basic rules and vocabulary of Esperanto (*Universala Vortaro*) with the Exercises (*Ekzercaro*) contained in the *Fundamento* (1905) were agreed to be *netuŝeblaj* ‘untouchable’. At an early stage in the development of the language, Zamenhof presented Esperanto with model texts which can be considered as a first corpus, a basis for further developments [23].

If we analyze the 127-year history of Esperanto, however, some changes can be demonstrated to have occurred (see further in the text), some displaying simplification, but some showing complexification. The vocabulary is growing according to the needs of the modern world. The ethnic languages have manifested many changes at the grammatical level during their long history, and have experienced huge cultural changes. According to Sampson [1], in the history of a language, complexity can increase, but in the age of globalization, a language used in international contexts tends to avoid this trap.

The simplicity of Esperanto can be maintained because of its international use: Esperanto is a L2 or even L3 or L4 for almost all its speakers, and most people learn it as adults. Trudgill [5] also claims that complexity decreases as a function of adult learning, as is the case with EIL.

What follows is a brief examination of the different linguistic levels of Esperanto, a comparison with ethnic languages (for the place of Esperanto among ethnic languages from the point of view of language typology see [19]) and an analysis of the tendencies of change.

PHONETICS AND ORTHOGRAPHY

Esperanto – with 27 phonemes – is well within the range of an average-sized sound inventory of natural languages (31 in [24]). The **5 cardinal vowels** (a e i o u) are the most commonly encountered in the world (with different variants, present in more than 80 per cent of all languages), and can be easily distinguished. By way of comparison, Hungarian has 14 and German 17 vowels.

The **22 consonants** (b ts tS d f g dZ h X j z k l m n p r s S t v z) – although frequent – contain voiced–unvoiced consonant pairs which are close in pronunciation; therefore their distinction is not easy for every speaker. Their pronunciation is stable, Zamenhof [25]

suggested pronouncing every sound separately. Nevertheless, coarticulation can change them in rapid speech. Still, there is no need for context-sensitive rules for the pronunciation. The letter–sound transformation is regular [3].

Later development of the language has tended to slightly reduce this sound inventory through the marginalization of the velar fricative *ĥ*, and its substitution by the velar plosive *k* (e.g. *ĥemio* > *kemio*).

The **regular stress** falls on the penultimate syllable. There are no tones. Prosody rules were not defined, therefore prosody patterns have little or no influence on meaning. Yes/no questions begin with the particle *ĉu* (similar to the Polish *czy*).

The **regular orthography**, i.e. the nearly exact mapping between sound and letter, offers a high level of simplicity and transparency (compared to English, for example). Every phoneme is written/coded by one and the same letter, which is why there are five consonant letters with diacritics. The semi-vowel *ŭ* [w], the 28th letter, functions almost exclusively as part of the two diphthongs of Esperanto: *aŭ* as in *aŭto* and *eŭ* as in *Eŭropo*.

The pronunciation of a letter is realized by the same sound, though coarticulation can sometimes produce changes (*ekzemple* [egzemple] ‘for example’). The different allophonic realizations of the phonemes rarely produce misunderstandings (for the phonetic processes see also [26]). Jansen found no opacity in the phonological system of Esperanto, which supports the idea that Esperanto is “an easily speakable and understandable language” [27].

MORPHOLOGY

Characteristic of Esperanto is the use of bound morphemes as lexical elements; only the grammatical particles and closed classes of other elements – such as numerals and pronouns – are free morphemes. An Esperanto word normally consists of one or several **bound lexical morphemes** and a word class ending:

N tabl- -o = *tablo* ‘table’, san- -o = *sano* ‘health’

Adj natur- -a = *natura* ‘natural’, san- -a = *sana* ‘healthy’

V parol- -as = *parolas* ‘speak’, san- -as = *sanas* ‘be/is healthy’

Adv rapid- -e = *rapide* ‘quickly’, san- -e = *sane* ‘in healthy manner’

Declension of nouns and adjectives operates with two cases, the nominative and the accusative (marked by the ending *-n*), and the plural grammatical suffix *-j*:

tablojn ‘tables+Acc’

English (apart from some pronouns) and isolating languages do without cases. Polish, on the other hand, has seven cases with different realizations (according to the gender, animacy and phonetic properties of the stem). Hungarian nouns can have up to one thousand forms. The following is just one example of such Hungarian complexity:

barátoméval – barát- -om- -é- -val

friend+my+that+with ‘with that of my friend’

Conjugation operates with three tenses and three moods; verbs are not marked for person or number. The verbal paradigm can be summarised as follows:

Indicative mood: *parolis, parolas, parolos* ‘spoke, speak(s), will speak’

Conditional mood: *parolus*, ‘would speak’

Imperative: *parolu!* ‘speak!’

Compared to agglutinative languages such as Hungarian, Esperanto shows a high degree of simplicity. The morphological complexity of Esperanto is also low because of its **invariable**

morphemes, which have clear-cut functions and are therefore always applicable when there is no semantic restriction.

The root (normally a bound morpheme) represents the notion, and a word class ending is needed for its realization in a given word class. The primary realization of a stem is often the same as in its source languages. This phenomenon leads some Esperantologists to posit a so-called grammatical character of stems – a view that is rejected by others (detailed discussion in [28]). However the basic meaning of the root does have an influence on the derivation.

The **agglutinative word formation** is regular and productive. About 40 affixes contribute to the formation of new words whose meaning is related to the stem. This morphological process reduces the investment of time needed to learn the vocabulary. From the root *lern-* ‘learn’ the following, among others, can be derived:

lernanto ‘pupil, learner’, *gelernantoj* ‘school boys and girls’, *lernejo* ‘school’, *lernema* ‘diligent’, *lernilo* ‘learning tool’, *lernigi* ‘make learn’, *lernebla* ‘learnable’, *lernenda* ‘required to be learned’, *lerninda* ‘worth learning’, *lernaĵo* ‘study material’.

This is similar to Hungarian word formation. But Hungarian goes back even more, and the root *tan*, approximately ‘study’, appears in *tanul* ‘learn’ and *tanít* ‘teach’, *tanár* ‘teacher’, *tanuló* ‘pupil’, and in many compound words:

nyelvtan ‘study of language = grammar’, *számtan* ‘study of numbers = mathematics’, etc.

The isolating Chinese language also has compounds similar to Esperanto (examples from [23]):

vesper+manĝo (evening+meal) = vespermanĝo (dinner)
wan+can (evening+food) = wancan (dinner)
fer+vojo (iron+road) = fervojo (railway)
tie+lu (iron+road) = tielu (railway)

But Chinese has a much more synthesized structure:

dianhua = ‘electric speech’ = telephone
diannao = ‘electric brain’ = computer

Piron [29] considers Esperanto an agglutinative language with isolating features because of some basic features it shares with Chinese. Esperanto affixes can be used as lexical roots (*ilo* as instrument or *ejo* as room) which is not true for affixes of agglutinative languages. The independence of affixes – not contradictory to the basic principles of Esperanto – is an interesting result of its language development.

Considering the number of derivational morphemes, the morphological structure of Esperanto words is relatively complex, but transparent. The agglutinative structure is not the simplest system, but when it is transparent, it is accessible to logical thought, therefore easy to learn also for speakers of Asian languages (see [23, 30]).

SYNTAX

The clear-cut endings of word classes (as above) in Esperanto make its **syntactic structure transparent** (also Liu [23] considers it more explicit):

la turistoj longe rigardis la faman bildon.

The tourist ‘for a long time’ looked (at) the famous picture+Acc.

Only the possible use of the accusative for a temporal adjunct can disturb the transparency:

la turistoj la tutan tempon rigardis la faman bildon.

The tourist the whole time+Acc looked at the famous picture+Acc.

Syntactic functions are expressed by the nominative (subject), the accusative case ending (direct object), and by prepositions (other complements and adjuncts):

Maria parolas pri la filmo en la salono kun kolegoj.

Mary speaks about the film in the room with colleagues.

The **word order** is basically free, though corpus research shows a strong tendency toward SVO order [31, 32]. The order Adjective + Noun is normal, but Noun + Adjective can also occur, although it is marked:

la facila lingvo internacia

the easy international language

Agreement in case and number extends to adjectives linked to nouns (faman bildon).

Jansen [27] also mentions the more complex – but transparent – syntactic structure, when agreement contributes to differentiation in number:

brunaj kato kaj hundo (a cat and a dog, both brown)

vs. *bruna kato kaj hundo* (a brown cat and a dog)

In the English equivalent (“brown cat and dog”) either the cat alone or both the cat and dog might be brown.

Subordinate clauses are right branching and they do not have time agreement.

Jansen [27] considers the lack of marking of the object role in the case of clauses as an example of non-transparency, but the object role is unambiguous because of the semantics of the verb, e.g. *diri* ‘to tell’ which is transitive. Compare:

diru al la patro la novaĵon! ‘Tell the news to father!’ and

diru al la patro ke li foriris! ‘Tell father that he’s left!’

In some languages a simple morphology is balanced by complicated syntax. In the case of Esperanto, however, the basic syntax is also relatively simple and transparent. The use of an accusative ending permits free word (constituent) order. Different syntactic structures can be used because of the flexible structure of the language and are acceptable in the speech community.

SEMANTICS

Semantic complexity prevails in English, compensating for the rudimentary morphology, so that English semantics is the most intricate part of the language: words have many meanings, and polysemy and idiomatic expressions are major complicating factors. Hungarian has a rather transparent, but very complicated morphology while the syntax and the semantics show an average level of complication.

While the initiator of Esperanto, Ludovic Zamenhof, based his language on the Romance, Germanic, and Slavic languages, he reduced complex meanings of the source language to their main meanings in the process of adapting these words, in order to have a non-ambiguous system. For other meanings, he borrowed other words (see the example of table > tablo, tabelo, tabulo, p.229 in this article).

Different meanings of words could be difficult to understand for users of different native languages and cultural backgrounds throughout the world. The prototypical meanings can be understood in an international context. This is also the case for English as an international language.

There was no precise definition of word meanings at the beginning, but the *First Book* (1887) and later the *Fundamento* (1905) offered translations into five languages – French, English, German, Russian and Polish – for Esperanto roots.

Nevertheless some ambiguity cannot be avoided at the semantic level:

- a) the linguistic system, the economy of words, combined with the fact that Esperanto words conserve their similarity with the original words, may produce ambiguity. So, the word *kolego* based on French, English, German etc. words (collègue, colleague, Kollege) could be misconstrued as containing the augmentative suffix *-eg* attached to the basic word *kolo* ‘neck’. Only context would establish the difference:

Petro havas kolegon ‘Peter has a *colleague* / big neck’.

Puns and word games making use of this kind of ambiguity are common in Esperanto.

- b) if a language is used in a speech community the process of metaphorical usage inevitably begins. Saussure’s suggestion (in [33]) that meanings would change in various ways has proved to be true. Consider the metaphoric use of *donkey* ‘stupid’ or *pig* ‘dirty’ or ‘obscene’:

Vi azeno / porko! ‘You donkey / pig!’

La preleganto tuŝis la problemon. ‘The lecturer touched the problem.’

A language begins its autonomous semantic life when it becomes commonly used. Nowadays Esperanto has cases of polysemy, metaphors, many synonyms and a (rather transparent) **phraseology** (described by Fiedler [34, 35]). Phraseology can be taken over from ethnic languages, for example *nigra merkato* ‘black market’ or be born within the speech community, for example *eterna komencanto* ‘eternal beginner’ or *ĝisosta esperantisto* ‘to-the-bone Esperantist’. One word can even incorporate a whole situation, e.g. *ellitiĝi* ‘get up from bed’ (el- -lit- -iĝ- -i, *lito* ‘bed’), *alvali* ‘go to the valley’ (valo ‘valley’).

The **compositionality of Esperanto** due to its morphological character is a determining factor at the semantic level, and makes it treatable also for computational processing [36]. The meaning of a derived word is normally regular, as in the case of the suffix *-il*, an instrument or tool:

manĝi ‘to eat’ > manĝilo ‘tool to eat’, i.e. a piece of cutlery

muziko ‘music’ > muzikilo ‘tool for music’, i.e. (musical) instrument

skribi ‘to write’ > skribilo ‘writing implement’,

Similarly the suffix *-ant* creates the person doing the basic activity expressed in the root:

lernanto ‘pupil, learner’, leganto ‘reader’, vizitanto ‘visitor’, muzikanto ‘musician’,

manĝanto ‘the person eating, eater’.

Even longer words used to be created (though this is less common today) such as *malindulino* ‘a woman not worthy of respect’ (mal- -ind- -ul- -in- -o).

Nevertheless it can be noted, that some derived words – beyond their general meaning – are lexicalized with particular meanings, for example *tranĉilo* ‘tool to cut’ especially refers to a knife. This shows the influence of the speech community.

Non-predictable meanings of direct verbal forms also occur (through a change of the noun ending to a verb ending) – a phenomenon that is very common in English (without formal change): *biciklo* > *bicikli* ‘to ride a bicycle, to bike’, *betono* ‘concrete’ > *betoni* ‘to concrete’, i.e. to provide something with concrete and *loko* ‘place’ > *loki* ‘to place’, i.e. to put something in a place. These meanings are normally unambiguous, but in the case of *loki* the meaning ‘to be at a place’ can also occur. Jansen [27] considers such semantic indeterminacy to be the price that is paid for freedom in word building.

In sum, the semantic complexity of Esperanto is lower than that of its source languages, but not its expressive power. The high degree of compositionality creates more possibilities for word creation than are present in ethnic languages, and the words so created are easily understandable also for speakers of Asian languages (cf. [23]).

This productivity and flexibility is characteristic of the linguistic picture/worldview of the planned language Esperanto [12]. Semantically related words are also often morphologically related, which facilitates learning words in the same semantic field. The mental lexicon of Esperanto speakers is deserving of further research.

PRAGMATICS

A language in international use by people with different cultural backgrounds can only be a low context language. In Esperanto there are no complicated politeness forms, and solidarity prevails among speakers, which results in a familiar level of interaction. There are no T/V forms among pronouns, and the personal name is the most common form of address. Nonetheless, the forms *sinjoro* and *sinjorino* ‘sir, Mr’ and ‘ma’am, Miss, Mrs’ can be used for more official contacts. The use of titles (such as *sinjoro profesoro*) is limited.

CONCLUSIONS

The investigation of planned languages with speech communities can provide another approach for examining complexity variance. As a language that came into existence as a result of conscious planning, Esperanto is meant to be simple and regular, i.e. with a low degree of complexity and a high degree of transparency compared to ethnic languages which have undergone many changes throughout their history. These are basic conditions for ease of learning and for the chance to spread as an international language. As for simplicity, it compares with pidgin and creoles, although there are differences in their origins and structures (see detailed comparison in [37]). McWhorter [2] may be right in suggesting that creoles have the simplest known grammars. Esperanto was aimed to be logical and precise; therefore some structures are relatively complex, although transparent.

The original language project of Esperanto, published in a concise pamphlet in 1887, matured into an autonomous linguistic system which continues to develop in an international speech community. Some changes – both simplifications and increases in complexity – have occurred and continue to take place in the language due to its use in a speech community. Therefore the sociological approach of Trudgill [5] can be applied to Esperanto as well.

Under the external Romance appearance (of the basic vocabulary) there is a more logical and generally accessible system [29] with relatively low complexity. The productive compositionality provides Esperanto with a simple, flexible, transparent and powerful tool to maximize its expressive possibilities. On the other hand, the frequency of use in a community can result in the lexicalization of some forms. The current Esperanto semantics are the result of ongoing negotiation in social interactions by speakers and through literary works.

The maintenance of relative simplicity in Esperanto is certified by the untouchable *Fundamento* (at the grammatical level), and also by its international use by second language users. This supports the theory of Trudgill, that the complexity of languages decreases as a function of acquiring adult second language learners.

Research on the ongoing development of Esperanto and on the mental lexicon of Esperanto speakers could reveal much about how a number of linguistic processes take place.

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