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125. Word-formation and planned languages

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Abstract

In planned languages, it is possible to investigate the principles of purposefully designed word-formation. The most rewarding objects of study are Volapük, Esperanto and Ido. The controversy resulting from a reform of Esperanto proposed under the name of Ido gave rise to a more profound scholarly interest in planned languages and to the discipline of interlinguistics. A central issue in the dispute was word-formation, to which the author of Ido, Couturat, had a prescriptive attitude, while the partisans of Esperanto took a descriptive stance. In the linguistic analysis of Esperanto, a specific theory of word-formation was suggested. It is based on (1) the complete compositionality of Esperanto words, (2) a semantic classification of morphemes (rather than words) out of context into inherently verbal, adjectival/adverbial or nominal morphemes and (3) the morpheme effect, a form of semantic induction, through which the meaning of a depend-

ent morpheme is added to the meaning of the compound as if the morpheme had undergone a word class transition. Compositionality is a design principle explicitly introduced by Zamenhof, the author of Esperanto. The semantic morpheme classification is a principle Zamenhof probably adopted intuitively, and the morpheme effect is a semantic mechanism which entered the language in a relatively unplanned way. These word-formation mechanisms have remained remarkably stable in more than a century's unreflected usage of Esperanto in its community.

1. Purposeful design

Planned languages are designer languages. Among many other useful things, they offer the opportunity to study the design principles of word-formation.

A planned language is a language purposefully designed by an author (rarely, a team) to serve human communication, normally in international or interethnic settings (Blanke 1985: 11; Back 1996: 881). The most widely known planned language is Esperanto. Planned languages are the object of interlinguistics, a subdiscipline of linguistics studying the optimization of international communication (Blanke 1985: 17). More elaborate definitions of the object, scope and objectives of interlinguistics are given by Duličenko (1982), Kuznecov (1987: 5–7), Schubert (1989b), Blanke (2006a), Sakaguchi (1998: 309–322) and Fiedler (1999: 18–22). The unrivalled standard work is Blanke (1985). An introduction to research literature can be found in Blanke (2006e). The term *planned language* includes neither secret languages, nor the invented languages in fictional literature, nor programming languages.

The objective of my analysis is to study the design principles of deliberately created word-formation systems and to examine what happens to such a system in unreflected use over a longer period. I thus examine both *langue* and *parole*, or system and usage.

2. Planned languages

More than 900 planned languages are known (Duličenko 1990), of which some 300 are documented in detail (Back 1996: 884). In his sociopragmatic classification Blanke assesses the degree of communicative realization that a planned language has achieved on a scale of 28 levels (Blanke 1985: 107–108 and Table 2, more elaborate 2006c: 64–71). He detects three clusters: the *language projects* which, if at all, have climbed only a few levels, the *planned semi-languages* which have come half-way and the *planned languages* proper at the top level (cf. Fiedler 2006: 69). The planned semi-languages include Volapük, Latino sine flexione, Ido, Occidental and possibly, as Blanke says, Basic English and Interlingua; the only planned language proper so far is Esperanto (Blanke 2006c: 73; cf. Back 1996: 884–885). To study usage, I can only consider these seven, as only these have (or have had) at least a small second-language community using the language unreflectedly over a certain period of time.

To choose among these seven those which are the most rewarding for this analysis, I use the etymological classification (Moch 1897: 44; Couturat and Leau 2001 [1903]:

XXVII–XXVIII; cf. Blanke 1985: 100). Rendered in my words, it places the planned languages between the poles “artificial” and “natural”, depending on how much of the lexical material is invented and how much is borrowed, calling the more artificial *a priori* and the more natural *a posteriori* languages. The *a priori* systems include the philosophical languages by Descartes, Comenius, Dalgarno, Wilkins, Leibniz and others which are completely made up of invented elements (Couturat and Leau 2001 [1903]: 11–28; Verloren van Themaat 1962; Blanke 1985: 125–139).

The vast majority of planned languages are *a posteriori* languages, built using lexical material from ethnic languages. (The term *ethnic languages* is used in interlinguistics for the “normal”, historically grown languages, cf. Tauli 1968: 168.) Volapük is labelled mixed, i.e. standing between *a priori* and *a posteriori*. The other six languages selected above belong to the *a posteriori* group. This group is subdivided into the more artificial *schematic* (or *autonomous*) languages and the more natural *naturalistic* ones. Esperanto and Ido are schematic and Latino sine flexione, Basic English, Occidental and Interlingua are naturalistic languages. *A posteriori* languages borrow lexical material from (several or many) ethnic languages. Latino sine flexione and Basic English are special in this group, as they have only a single source each, Latin and English, respectively. Simplified languages of this kind have a reductive (rather than constructive) design, in that they take the lexicon and grammar of the reference language as a prerequisite and forbid or modify some of its words and rules (Schubert 2008). They are forerunners of the controlled languages used in today’s technical documentation (Schubert 2009: 134). The distinction between schematic vs. naturalistic languages has direct consequences for word-formation and thus for the choice of the languages to be analysed here.

In order to facilitate reading, I discuss the shortlisted languages in the rest of this article without giving references for every single statement. My sources are listed here.

Volapük

Author	Johann Martin Schleyer
First publication	1879, first printed publication hardly accessible (cf. Blanke 2006d: 201), manuscript: Schleyer (1879)
Main grammar	Schleyer (1880), after a major reform: Jong (1931)
Interlinguistic analysis	Couturat and Leau (2001 [1903]: 128–163), Wüster (1970 [1931]: 326–327), Manders (1947: 67–71), Monnerot-Dumaine (1960: 86–90), Blanke (1985: 204–218, 2006d), Duličenko (1990: 98–99), Barandovská-Frank (1995: sec. 5.1 online version), Back (1996: 884)
Word-formation	Couturat and Leau (2001 [1903]: 128–163), Schmidt (1933), Blanke (2006d)

Esperanto

Author	L. L. Zamenhof
First publication	Zamenhof (1887)
Main grammar	Kalocsay and Waringhien (1985), Wennergren (2013)
Interlinguistic analysis	Selected titles from the prolific literature Wüster (1970 [1931]: 294–323), Janton (1989), Wells (1989), Blanke (1985: 219–292), Maxwell (1989), Schubert (1989a), Gledhill (2000), Willkommen (2007)

Word-formation Saussure (1910a, 1910b, 1914, 1915), Aymonier (1921), Kalocsay (1970 [1931], 1938), Wüster (1970 [1931]: 297–311), Ölberg (1976 [1955]), Blanke (1982, 2006d), Verloren van Themaat (1977, 1983: 293–299), Kalocsay and Waringhien (1985: 367–528), Schubert (1989c, 1993, 2010), Wennergren (2013: 551–670), Brosch (2009)

Latino sine flexione (sometimes called Interlingua)
 Author Giuseppe Peano
 First publication Peano (1903)
 Main grammar *Key to Interlingua* (1931)
 Interlinguistic analysis Couturat and Leau (2001 [1903]: 70–76), Wüster (1970 [1931]: 339–340), Blanke (1985: 143–145), Duličenko (1990: 154–155), Barandovská-Frank (1995: ch. 5.4 online version), Back (1996: 884), Vercillo (2004), Abadia (2014)
 Word-formation *Key to Interlingua* (1931)

Ido
 Author Authorship disputed, most probably Louis Couturat
 First publication 1907, unpublished brochure
 Main grammar Beaufront (2004 [1925])
 Interlinguistic analysis Wüster (1970 [1931]: 327–336), Manders (1947), Blanke (1985: 183–201, 2006b), Back (1996: 884)
 Word-formation Couturat (1910), Aymonier (1921), Ölberg (1976 [1955]), Jacob (1970)

Occidental (later called Interlingue)
 Author Edgar von Wahl (a.k.a. Edgar de Wahl)
 First publication 1922, publication hardly accessible (cf. Sakaguchi 1998: 474)
 Main grammar Haas (1956)
 Interlinguistic analysis Wüster (1970 [1931]: 336–338), Manders (1947), Monnerot-Dumaine (1960: 127–131), Gilbert (1962: 22–23), Blanke (1985: 161–167), Duličenko (1990: 219–220), Barandovská-Frank (1995: ch. 5.5 online version), Back (1996: 884), Sakaguchi (1998: 305)
 Word-formation Pigal (1930), Ölberg (1976 [1955])

Basic English
 Author Charles Kay Ogden
 First publication Ogden (1930)
 Main grammar Ogden (1930, 1968)
 Interlinguistic analysis Blanke (1985: 147–149), Duličenko (1990: 252–254)
 Word-formation Ogden (1930, 1968)

Interlingua

Author	Alexander Gode
First publication	Gode and Blair (1971 [1951])
Main grammar	Gode and Blair (1971 [1951])
Interlinguistic analysis	Monnerot-Dumaine (1960: 134–140), Blanke (1985: 174–183, 2006d), Duličenko (1990: 285–289), Barandovská-Frank (1995: ch. 5.7 online version), Back (1996: 884), Sakaguchi (1998: 305–306), Fiedler (1999: 35–39)
Word-formation	Verloren van Themaat (1977), Blanke (2006d)

3. Volapük

Positioned between *a priori* and *a posteriori*, Volapük is a special case, both in its system and its usage. It is the first planned language to achieve some communicative realization and thus has had a short period of usage. Like the *a posteriori* languages, it consists of borrowed material, but the material is transformed beyond recognition on the basis of rules and isolated decisions of the *a priori* type. Like the schematic *a posteriori* languages, Volapük has an autonomous, highly productive system of word-formation (Blanke 2006d: 203).

Verbs, adjectives and de-adjectival adverbs are marked with a word class-identifying ending. The same ending is used for word class transition: *mun* ‘moon’ → *mun-ik* ‘lunar; lit. moon + ADJECTIVE’, *pöf* ‘poverty’ → *pöf-ik* ‘poor; lit. poverty + ADJECTIVE’. (The morpheme token “-” is not written in ordinary Volapük.) Volapük has composition and derivation. Affix derivation is most frequent. The noun has four cases. Noun-noun compounds are normally linked by means of the genitive marker: *vol-a-pük* ‘world language; lit. world + GENITIVE + language’. Other case markers can be used for disambiguation: *men-a-löf* ‘love of humans; lit. [the] human + GENITIVE + love’ vs. *men-i-löf* ‘philanthropy; lit. [the] human + ACCUSATIVE + love’ (Blanke 2006d: 210). Volapük word-formation heavily draws on German patterns. For instance, Schleyer equates the prefix *fe-* with the highly ambiguous German prefix *ver-* as in *fe-giv-ön* ‘to forgive; lit. PREFIX + to give + INFINITIVE’, cf. German *ver-geb-en* (Schleyer 1880: 95). Jong’s reform after Schleyer’s death attempted to make Volapük more autonomous in word-formation among other features (Jong 1931).

4. Naturalistic languages

One of the most obvious objectives in the design of planned languages is ease of use. The distinction between schematic and naturalistic languages is directly relevant here, as it touches central design principles. The ease of use pursued in naturalistic languages is receptive, while that of schematic languages is productive. Receptive (or passive) ease of use is achieved by letting the elements of the language system resemble something with which the users are acquainted. An extreme form is the principle of immediate intelligibility (Szilágyi 1976 [1931]: 177–178). The stock of words directly understandable to the intended target group of educated Europeans is the so-called internationalisms

of Romance origin plus Latin and Greek loan words. Occidental makes ample use of this vocabulary, as does Interlingua. For these two languages, the sources have very little to say about word-formation. Some forms of affix derivation are shown. The principle seems to be that the resulting word as a whole should exist in the reference languages, so that the few rules have a descriptive character rather than providing guidance for active formation of new words. Composition is hardly mentioned. This preference for derivation mirrors the Latin-Romance models. For Latino sine flexione and Basic English, the grammar books do not give much explicit information either. Due to the reductive definition of these languages, the grammar of the reference language is always in the background.

The diagnosis is that the principle of receptive ease of use leads to borrowing the products of word-formation rather than designing coherent, actively applicable rules. The design principle of naturalistic languages is borrowing words, not morphemes. Many words thus adopted bear the traces of word-formational mechanisms active in the reference languages at quite disparate points in time. Although von Wahl tried to establish regularity in Occidental word-formation (Haas 1956: § 80 online version), Jespersen (1928: 97) criticizes the language for using many different suffixes for the same meaning. Ölberg (1976 [1955]: 267) and Tauli (1968: 168) quite generally note unsystematic word-formation as a major weakness of naturalistic languages (cf. Schubert 1989c: 252, 1993: 359 n. 4).

5. Schematic languages

While naturalistic languages pursue receptive ease of use, schematic languages aim at productive (or active) ease of use. Schematic languages borrow morphemes and assemble complex words by means of their own, purposefully designed and consistently applied rules. To an active user, a language of this kind offers an explicit mechanism of word-formation.

The two schematic languages are not independent designs. Ido is a modified form of Esperanto. Its appearance under controversial circumstances in 1907 caused enormously hard feelings in the planned-language community. It did not bring about a reform in Esperanto as intended, but a competing language with a break-away movement. (Details and references: Schubert 1993: 345–346, 2009: 113 n. 8.)

Word-formation was a central issue in the dispute. For a linguistic observer, the most interesting actor on the Ido side was Couturat, a mathematician and logician who, according to later research, was the main author of Ido, and on the Esperanto side René de Saussure, Ferdinand's brother, another mathematician (cf. Joseph 2012: 516–519). Couturat pursued a prescriptive approach to word-formation. He defined the principles of unambiguity and reversibility which he felt a planned language was to follow (Couturat 1910: 7; cf. Verloren van Themaat 1962: 325; Schubert 1993: 347). Couturat found that Esperanto violated his principles and wished to adapt it accordingly. Saussure, by contrast, had a descriptive attitude. It is through Saussure's share in these exchanges that interlinguistics emerged as a scholarly discipline (Kuznecov 1987: 138).

5.1. Esperanto: a new theory of word-formation

Out of the Ido controversy, an elaborate and quite original theory of Esperanto word-formation developed. It is based on three concepts: (1) the *compositionality* of words, (2) semantic *morpheme classes* and (3) the *morpheme effect*. Compositionality is Zamenhof's design principle. The morpheme classes were suggested by Boirac at the 1907 session as an alternative to Couturat's principles (Couturat and Leau 1910: 18–20) and systematized by Saussure (1910a, 1910b, 1914, 1915; cf. Schubert 1993: 326). The morpheme effect is a regular semantic pattern observed by Kalocsay (1970 [1931], 1938) and detailed in the most comprehensive scholarly grammar of Esperanto by Kalocsay and Waringhien (1985: 367–528).

5.2. Compositionality and agglutination in Esperanto

Schematic languages are not designed for immediate intelligibility, but Zamenhof had his own idea about understanding without learning: In his first thin brochure launching the language, Zamenhof tells us that each word appears in a single unalterable form throughout and that a person ignorant of Esperanto can understand a letter by simply looking up every word in a dictionary (Zamenhof 1887: 11–14, in English 1889: 11–15). Since this is very uncommon, Zamenhof continues, he shaped his language to resemble the European languages with inflections, etc., so that a learner unacquainted with his explanation will not even notice anything unfamiliar. In linguistic terms, what Zamenhof calls “words” are morphemes. Esperanto is completely agglutinative. The morphemes do not undergo any changes in word-formation. (Only the diminutive suffixes truncate the root.) The idea of complete compositionality traces back to Descartes and was elaborated by Leibniz who postulated that a word's meaning should be the sum of the meanings of its parts (Verloren van Themaat 1962: 322–323). Like other fields of grammar, word-formation has combinatorial rules on the form side and interpretive rules on the content side. Complete compositionality is indeed simple and straightforward on the combinatorial side, but the semantic “summing up” of the morpheme meanings is of a more intricate nature, which can be explained by means of semantic morpheme classes and the morpheme effect. In current Esperanto, words like *en-mal-san-ul-ej-iĝ-is* ‘into + ANTONYM + healthy + PERSON + PLACE + INCHOATIVE + VERB/PAST’ → ‘was hospitalized’ are common. For a competent speaker, this is not just the sum of seven morpheme meanings, but a nesting of conventionalized patterns: *mal-san-a* ‘sick’ plus *...-ul-o* ‘person characterized by the indicated property’ plus *...-ej-o* ‘usual place of ...’ plus *en...-iĝ-i* ‘to get into something’.

From a combinatorial (word-syntactic) point of view, the morphemes of Esperanto fall into seven types: roots, prefixes, prefixoids, suffixes, suffixoids, endings and declension morphemes (Schubert 1993: 322 Table 1; cf. Wüster 1970 [1931]: 296). Content words (verbs, adjectives, de-adjectival adverbs, nouns) consist of a root and a word class-identifying ending. In Zamenhof's understanding, roots and endings are independent morphemes, added by composition. Function words including basic adverbs bear no such ending.

5.3. Morpheme classes and word class transition in Esperanto

Saussure's central concept is the morpheme class. He saw that Esperanto word-formation can best be explained if one assumes that a content root carries a basic seme which qualifies it as either *action*, *qualité*, *manière* or *entité* (Saussure 1910a: 12). In common use, they are labelled with the name of the corresponding word class as verbal, adjectival, adverbial or nominal. (I will skip the discussion on whether the adjectival and the adverbial are separate classes.) Along with content roots, affixoids and endings have this common meaning element. Through this, Saussure explains why in words like *kur-i* 'to run + VERB' → 'to run', *bel-a* 'beautiful + ADJECTIVE' → 'beautiful' and *somer-o* 'summer + NOUN' → 'summer', the meaning of the complex word equals the meaning of the root so that the ending is semantically redundant, whereas the ending does change the meaning in words like *kur-o* 'to run + NOUN' → '[the] running', *bel-i* 'beautiful + VERB' → 'to be beautiful' or *somer-a* 'summer + ADJECTIVE' → 'summer [ATTRIBUTIVE]' as in *somer-a tag-o* 'summer day'. (The morpheme token "-" is not written in ordinary Esperanto.) The special feature of this form of word class transition in Esperanto is that it can be explained as the *composition* of two autosemantic morphemes (cf. Wüster 1970 [1931]: 297).

The community did not unanimously accept Saussure's explanations. Rather, the idea was popular that the famous sixteen rules in Zamenhof's first book were the complete grammar (Zamenhof 1887: 35–40, in English 1889: 35–40). But for a linguist it is obvious that grammars of this kind, which only specify the morphological forms, rely on a good deal of tacit assumptions through which patterns of syntactic combination and semantic interpretation are borrowed from ethnic languages (Schubert 2010).

There is evidence that the semantic morpheme classification is in accordance with Zamenhof's (certainly in part intuitive) design principles. First, Zamenhof (1929 [1910]) explicitly agreed with Saussure. Second, Boirac derived the idea of morpheme classes from Zamenhof's *Universala vortaro*. This is a basic Esperanto – French, English, German, Russian, Polish dictionary of 1893. It became part of the *Fundamento de Esperanto* (Zamenhof 2007 [1905]: 83–178), the "constitution" of Esperanto. The *Universala vortaro* lists on the Esperanto side morphemes, not words, and Zamenhof makes sure to gloss each content word root with either verbs or adjectives or nouns in all five languages alike. In cases of word class ambiguity in one of the target languages (mostly English), Zamenhof disambiguates this.

The semantic classes assumed by Saussure are not uncommon to ethnic languages. The obvious difference lies in the fact that, in ethnic languages, the objects of the classification are independent words that can be classified quite traditionally into syntactically defined word classes. In Esperanto, no content word root can stand alone as a word, so that the classification can only be found through a semantic analysis.

A word formed by word class transition can of course be the object of another transition. If the activity of running is expressed by the noun *kur-o* '[the] running', formed on the basis of the verb *kur-i* 'to run', why should it not be possible to form the noun *martel-o* *[the] hammering' from the verb *martel-i* 'to hammer'? Forming the word is possible; however, it does not denote the nominalization of the activity, but the instrument: *martel-o* '[the] hammer'. One thus has to resort to a suffixoid: *martel-ad-o* '[the] hammer + ACTIVITY + NOUN' → '[the] hammering'. For Couturat, the differences in the way the morphemes *kur-* and *martel-* function in these mechanisms is a violation of his

principles. By contrast, Saussure observes that *kur-* is verbal and *martel-* nominal, so that they follow different mechanisms. Would it not be more systematic then to form *all* nominalizations using the suffixoid *ad-*? Saussure's answer is that he did not observe such a usage in Esperanto, but that the language appears to follow a rule of necessity and sufficiency. In the example, this means using the suffixoid when needed, and it is needed for nominal roots.

For more complex words, word-formation relies heavily on affixation, in which the distinction between affixes and affixoids is crucial. An affixoid belongs to a morpheme class, while an affix does not. In its word-formational functionality, an affixoid thus does not differ from a root. Öberg (1976 [1955]: 269) points this out as a major feature in which Zamenhof's achievement exceeds the naturalistic languages and Ido. Affixoids have been called "doublets" of roots which have a sound pattern (vowel – consonant) that is easily combinable with whatever roots and endings. (Example: the suffixoid *an-* and the root *membr-* both mean 'member' → *parlament-an-o* 'member of parliament' is common, *parlament-membr-o* is clumsy, though correct.) An affixoid can function as a root: *an-o* 'member' is a frequently used word.

There is, however, an interesting combinatorial difference between roots and affixoids. In a compound of the type ROOT + ROOT + ENDING, a so-called latent ending may be inserted between the roots: ROOT + ENDING + ROOT + ENDING to ease the pronunciation (e.g., *manĝ-o-ĉambr-o* 'eat + NOUN + room + NOUN' → 'dining room' is preferred to *manĝ-ĉambr-o*; ĝ = [dʒ], ĉ = [tʃ]). Such a latent ending is not inserted in compounds of the type ROOT + SUFFIXOID + ENDING such as *lern-ej-o* 'learn + PLACE + NOUN' → 'school'. An interesting development which nobody has planned can be observed here: root-suffixoid compounds are often lexicalized and thereby narrowed in meaning. For instance, although the "sum of the meanings" of *lern-ej-o* would yield something denoting any place where people are learning, the actual meaning is 'school'. If, however, a latent ending is inserted (*lern-o-ej-o*), this violates the (empirical!) rule that such an ending cannot enter between root and suffixoid, with the effect that the suffixoid is understood as a root and the lexicalized meaning is deactivated. The compound *lern-o-ej-o* means any 'place of learning' (cf. Brosch 2009: 88; Prytz 2010: 393).

5.4. Morpheme effect in Esperanto

The most frequent compounding patterns are ROOT2 + ROOT1 + ENDING and ROOT + SUFFIXOID + ENDING. As in many ethnic languages, in Esperanto the right morpheme is the governor (or head) of the left morpheme, which is the dependent (or modifier). This pattern is repeated iteratively, so that for instance in the pattern ROOT2 + ROOT1 + ENDING the ENDING governs ROOT1 and ROOT1 governs ROOT2. The semantic interpretation of these compounds can make use of the concept of morpheme effect which is a form of semantic "induction" (cf. Schubert 1993: 316) exerted by morphemes which belong to one of the morpheme classes mentioned in section 5.3, thus roots, affixoids and endings. Due to the morpheme effect, in composition the meaning of a dependent morpheme is taken into the meaning of the word as if the morpheme had undergone a word class transition. In detail, a nominal or adjectival governor nominalizes its dependent, a verbal governor either adjectivizes or adverbializes its dependent and some suffix-

oids verbalize their dependent. (The verbalizing effect is my addition to Kalocsay's theory; Schubert 1989c: 265.) Examples:

- Nominal governor (*energi-*) nominalizing an adjectival dependent (*varm-*):
varm-energi-o 'warm [ADJECTIVAL] + energy [NOMINAL] + NOUN' – *varm-a* 'warm' transformed into *varm-o* 'warmth', then 'warmth + energy + NOUN' > lit. 'warmth energy' > 'thermal energy'.
- Adjectival governor (*pret-*) nominalizing a verbal dependent (*pres-*):
pres-pret-a 'to print [VERBAL] + ready [ADJECTIVAL] + ADJECTIVE' – *pres-i* 'to print' transformed into *pres-o* '[the] printing', then '[the] printing + ready + ADJECTIVE' > 'ready for printing'.
- Verbal governor (*paf-*) adjectivizes a verbal dependent (*mort-*):
mort-paf-i 'to die [VERBAL] + to shoot [VERBAL] + VERB' – *mort-i* 'to die' transformed into *mort-a* 'dead', then 'dead + to shoot + VERB' > 'to shoot dead'.
- Verbal governor (*ir-*) adverbializes an adjectival dependent (*rond-*):
rond-ir-i 'round [ADJECTIVAL] + to go [VERBAL] + VERB/INFINITIVE' – *rond-a* 'round [adjective]' transformed into *rond-e* 'in a round way', then 'in a round way + to go + VERB/INFINITIVE' > 'to walk around, circulate'.
- Governing suffixoid (*abl-*) verbalizes a nominal dependent (*martel-*):
martel-abl-a '[the] hammer [NOMINAL] + -able [ADJECTIVAL] + ADJECTIVE' – *martel-o* '[the] hammer' transformed into *martel-i* 'to hammer', then 'to hammer + -able + ADJECTIVE' > 'which can be hammered'.
- The verbalizing effect is particularly obvious in the six morphemes which form the active and passive participles, e.g.:
- *martel-ant-a* '[the] hammer [NOMINAL] + PRESENT ACTIVE PARTICIPLE + ADJECTIVE' – *martel-o* '[the] hammer' transformed into *martel-i* 'to hammer', then 'to hammer + PRESENT ACTIVE PARTICIPLE + ADJECTIVE' > 'hammering'.

As the morpheme effect described above operates from right to left, I call it the *regressive morpheme effect*. It is by far the most frequent case. A *progressive morpheme effect* is found in a few common patterns. It operates from left to right. The following example contains the preposition *sen* 'without' which is adjectival as all prepositions:

- *sen-fort-a* 'without [ADJECTIVAL] + strong [ADJECTIVAL] + ADJECTIVE' → *fort-a* 'strong' transformed into *fort-o* 'power' > 'powerless'.

In the regressive morpheme effect *sen* would be nominalized by the following morpheme *fort-*. But in *sen-fort-a* the progressive effect is active, so that *sen* nominalizes *fort-* yielding (*sen fort-o*)-*a* → *sen-fort-a* '(without power) + ADJECTIVE'.

It is the morpheme effect that makes the Esperanto word-formation theory so interesting to general linguistics. The rules are very schematic. Although they account for some productive patterns only in a clumsy way (Brosch 2009: 90), the mechanisms they describe are very stable in unreflected usage.

5.5. Ido

Ido resembles its reference language Esperanto to a large extent. As a whole, Ido is somewhat closer to the "natural" pole than Esperanto. The main differences lie in word-

formation (Blanke 1985: 192). Ido has more affixes/affixoids than Esperanto, so that some polysemous forms of Esperanto can be disambiguated in Ido. Based on Couturat's principled approach to word-formation, Ido uses its affixes for derivation only and not as independent roots, thus losing the compositionality of Esperanto to a large extent (Wüster 1970 [1931]: 330–331, Ölberg 1976 [1955]: 269). Ido has obligatory affixes where Esperanto makes do without, as described in Saussure's principle of necessity and sufficiency (see section 5.3). Unlike Esperanto, Ido to some extent restricts word class transition and, in these cases, needs a compound with an added root: e.g., Esperanto *martel-o* '[the] hammer' → *martel-i* 'to hammer' vs. Ido *martel-o* '[the] hammer' → *martel-ag-ar* '[the] hammer + to act + INFINITIVE' (Blanke 1985: 193; the morpheme token “-” is not written in ordinary Ido).

Wüster (1970 [1931]: 336), the originator of terminology and, with Saussure, a founding father of interlinguistics, summarizes Ido as a premature reform, since the language system of Esperanto had not been sufficiently investigated and understood.

6. Word-formation in usage

Wüster's judgement on Ido is striking, as he assumes that a planned language needs to be the object of research. It implies that research can reveal design principles tacitly underlying the language but not explicitly worded by its author. In Esperanto, compositionality is an explicit design principle, while the semantic morpheme classification is, as I see it, an implicit principle intuitively adopted from ethnic languages and the morpheme effect is a principle equally taken over from the ethnic languages, but much more “unplanned” (Schubert 1989c) than the other two.

How such a fairly complex system functions and develops in actual usage can best be observed in Esperanto, first because Esperanto is the most widely used planned language and second because its word-formation follows these three interwoven principles that are far beyond what an unreflecting language user is likely to be aware of while speaking or writing.

Three observations may shed light on Esperanto word-formation in practice. First, the word-formational system has remained in full function ever since the language was launched in 1887. Second, a few new suffixoids have grown into use. They fully fit into the system. Third, as in naturalistic languages, new loans can bring with them traces of the word-formational mechanisms of ethnic languages, so that there are naturalistic elements in Esperanto. However, the more frequent these words become, the more the community prefers regularly constructed words, e.g., the suggested forms *komputor-o* ‘computer’ and *komputer-o* ‘computer’ were used, but in the course of two or three decades they were slowly but steadily pushed out by *komput-il-o* ‘calculate + INSTRUMENT + NOUN’ > ‘computer’. Especially the third observation shows that the language quite strongly holds on to productive ease of use rather than gliding into some form of naturalistic design. This may mean that, once one has acquired command of the language, it is the productive system that is natural and no longer a resemblance of the ethnic source languages.

The Esperanto experience so far seems to be that the community follows the mechanism implicit in the language system. By using it over time it adapts the mechanism even

more to simple rules, while at the same time it makes ever freer use of the combinatorial possibilities, interpreting the resulting compounds in a regular way. If Esperanto is called the most successful planned language, a great deal of the success lies in its word-formational system and its inherent capacity to develop. This is the dynamics of regularity.

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126. Word-formation and sign languages

1. Introduction
2. General overview
3. Simultaneous and sequential morphology in sign languages
4. Composition
5. Derivation
6. Reduplication
7. Formation of new words
8. References

Abstract

Signs are composed of basic components: handshape, movement, orientation, location and the use of non-manuals (head/body/face). Root formation is primarily a simultaneous combination of these components, as is the derivation of new roots. Basic components can also be morphemic, with handshapes functioning as noun classifiers, movement as predicate roots, locations as argument indexes, mouth as adverbials, and so on. Inflectional processes may be simultaneous or sequential. Classifier-predicate formation, compounding and reduplication are very productive. Contact with spoken language leads to new word-formation through fingerspelling and mouthing.

1. Introduction

Sign languages display many varieties of word-formation; however, as a group they are understudied. Here American Sign Language (ASL) will be the primary representative for this group, with others mentioned in reference to selected problems. Because of the