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## Natural Syntax: Three-value naturalness scales

Naravna skladnja je deduktivna teorija v razvoju in veja teorije naravnosti. Sodbe o naravnosti so ubesedene v lestvicah naravnosti, ki sledijo iz osnovnih meril (ali »aksiomov«), naštetih v začetku sestavka. Napovedi teorije se izračunavajo v t. i. izpeljavah, katerih glavni sestavini sta par lestvic naravnosti in pravila o ujemanju med soodnosnimi vrednostmi naravnosti. Ločimo vzporedno in križno ujemanje, ki sta v dopolnjevalni razvrstitvi. Križno ujemanje je obvezno v izpeljavah, omejenih na skrajno nenaravno okolje.

Lestvice naravnosti vsebujejo zvečine po dve vrednosti, npr. >nat (+, –) / človeško; nekatere vsebujejo po tri vrednosti, npr. (za slovenščino) >nat (ednina, množina, dvojina), ali so še bolj zapletene. Ta sestavek obravnava lestvice s po tremi vrednostmi in prispeva tole: omejevanje okolja neke izpeljave na najbolj desno ali na najbolj desni vrednosti take lestvice naravnosti, ki vsebuje tri vrednosti, zahteva križno ujemanje. To je ponazorjeno s slovenskim, ruskim in angleškim jezikovnim gradivom.

Druge objave o naravni skladnji: Kavčič 2005a–b, Orešnik 1999, 2000a–b, 2001a–f, 2002, 2003a–c, 2002/03, 2004. V tem seznamu so samo dela, napisana v angleščini.

Natural Syntax is a developing deductive theory, a branch of Naturalness Theory. The naturalness judgements are couched in naturalness scales, which follow from the basic parameters (or “axioms”) listed at the beginning of the paper. The predictions of the theory are calculated in the deductions, whose chief components are a pair of naturalness scales and the rules governing the alignment of corresponding naturalness values. Parallel and chiasitic alignments are distinguished, in complementary distribution. Chiasitic alignment is mandatory in deductions limited to unnatural environments.

Naturalness scales are prevalingly two-value; for instance, >nat (+, –) / human. Some are three-value – for instance (for Slovenian), >nat (singular, plural, dual) – or even more complicated. This paper deals with three-value scales and features the following chief finding: the restriction of the environment of any deduction to the rightmost value or to the two rightmost values of a three-value naturalness scale requires chiasitic alignment. This is exemplified with Slovenian, Russian and English material.

Earlier publications on Natural Syntax: Kavčič 2005a–b, Orešnik 1999, 2000a–b, 2001a–f, 2002, 2003a–c, 2002/03, 2004. This list cites only works written in English.

Natural Syntax is a (developing) deductive linguistic theory that determines the presuppositions on the basis of which a (morpho)syntactic state of affairs can be made predictable, and thus synchronically explained. The two basic kinds of presuppositions are naturalness scales and rules of alignment among corresponding values of any two scales.

Every (morpho)syntactic state of affairs is represented by two comparable variants. Natural Syntax contains no generative component.

We begin by listing the criteria with which Natural Syntax substantiates naturalness scales:

- (a) The parameter of favourable for the speaker and of favourable for the hearer. What is favourable for the speaker is more natural, the speaker being the centre of communication. Expressed in a scale: >nat (favourable for the speaker, favourable for the hearer). This view of naturalness is commonplace in linguistics (Havers 1931: 171), under the names of tendency to economise (utilised first of all by the speaker) and tendency to be accurate (mainly in the hearer's interest).
- (b) The principle of least effort (Havers 1931: 171). What conforms better to this principle is more natural for the speaker. What is cognitively simple (for the speaker) is easy to produce, easy to retrieve from memory, etc.
- (c) Prototypicality. What is nearer to the prototype is more natural for the hearer. The speaker favours non-prototypicality.
- (d) Degree of integration into the construction. What is better integrated into its construction is more natural for the speaker.
- (e) Frequency. What is more frequent tokenwise is more natural for the speaker. What is cognitively simpler for the speaker is used more. (However, the reverse does not obtain: what is natural for the speaker is not necessarily more frequent.)
- (f) Small v. large class. The use of (a unit pertaining to) a small class is more natural for the speaker than the use of (a unit pertaining to) a large class. During speech small classes are easier for the speaker to choose from than are large classes.
- (g) Specialised v. non-specialised use. The specialised use of a category is more natural for the speaker than its non-specialised use. Suppose that a language has reflexive personal pronouns. These are specialised for expressing reflexivity (whereas other personal pronouns are not specialised for expressing reflexivity, although they do express it under certain conditions) and their use for expressing reflexivity is very natural for the speaker: >nat (+, -) / reflexive personal pronoun expressing reflexivity.
- (h) Given a construction, the movement of a unit to the left is more natural for the speaker than the movement of a unit to the right. (Movement to the left is more natural than non-movement; movement to the right is less natural than non-movement.)
- (i) Acceptable v. non-acceptable use. What is acceptable is more natural for the speaker than what is not acceptable. The very reason for the acceptability of a syntactic unit is its greater naturalness for the speaker with respect to any corresponding non-acceptable unit.
- (j) What is more widespread in the languages of the world is more natural for the speaker (the typological criterion). What is cognitively simpler for the speaker is realised in more languages.

The basic format of our naturalness scales is  $>\text{nat}(A, B)$ , in which A is favourable for the speaker and B is favourable for the hearer. A and B are the “values” of the scale. Whenever two basic scales are called for, the other assumes the shape  $>\text{nat}(C, D)$ . Two expanded scales are allowed, viz.  $>\text{nat}(A + B, B)$  and  $>\text{nat}(A, A + B)$ ; they are valid if the corresponding scale of the format  $>\text{nat}(A, B)$  is valid. Exemplification below.

The naturalness scales are supported by the above criteria of naturalness (henceforth, axioms). Normally it suffices to substantiate any scale with one criterion, which backs up either value A or value B of the scale; the non-supported value is allotted the only remaining position in the scale. Of course, a scale may be supported with more than one criterion. Any clash among the criteria applied to a scale is to be handled with constraints on the combinations of criteria. So far only a few constraints have been formulated; I have not yet encountered much useable crucial language data.

The naturalness scales are an essential part of deductions, in which Natural Syntax expresses its predictions about the state of affairs in language data. An example of a deduction:

English. The numerical indication of frequency normally consists of a cardinal number followed by the word *times* – e.g., *four times* – except that there are one-word expressions available for the lowest numbers: *once*, *twice* and archaic *thrice* (Collins Cobuild 1990: 270–71).

The two variants: the type *once* and the type *four times*.

**1. The assumptions of Natural Syntax:**

**1.1.**  $>\text{nat}$  (type *once*, type *four times*)

I.e., the type *once* is more natural than the type *four times*. – According to the criterion of least effort, item (b) in the list of axioms.

**1.2.**  $>\text{nat}$  (low, non-low) / number

I.e., any low number is more natural than any non-low number (Mayerthaler 1981: 15). – Low numbers are more easily accessible to the speaker. According to the criterion of favourable for the speaker and of favourable for the hearer, item (a) in the list of axioms.

**2. The rules of parallel alignment of corresponding values:**

**2.1.** value A tends to associate with value C,

**2.2.** value B tends to associate with value D. See Note 4.1 below.

**3. The consequences:**

If a language distinguishes between low and non-low numbers in numerical indications of frequency such that one kind of number uses the pattern *four times* and the other kind of number uses the pattern *once*, then it is the low numbers that tend to use the pattern *once* and it is the non-low numbers that tend to use the pattern *four times*. Q.E.D. (The reverse situation is not expected.)

**4. Notes**

**4.1.** Value A of scale 1.1 (= the type *once*) tends to combine with value C of scale 1.2 (= low number). Value B of scale 1.1 (= the type *four times*) tends to combine with value D of scale 1.2 (= non-low number); similarly in the remaining deductions, with

the proviso that the alignment (unlike here) is sometimes chiasitic. Chiasitic alignment will be explained below.

**4.2.** Natural Syntax cannot predict the cut-off point between low and non-low numerals.

In every deduction, the rules of alignment play a prominent role; compare item 2 in the above deduction. The alignment rules regulate the combinations of corresponding values of the two naturalness scales mentioned in the deduction. The alignment can be parallel or chiasitic. Suppose that the two scales are  $>\text{nat}(A, B)$  and  $>\text{nat}(C, D)$ . Parallel alignment pairs value A with value C, and value B with value D. Chiasitic alignment pairs A with D, and B with C.

A paramount question is when the alignment is parallel and when chiasitic. Parallel alignment is the default case. Experience based on work with a number of examples has shown that chiasitic alignment is necessary whenever a given deduction is limited to language data obtaining within an “extremely unnatural environment”. This is defined as value B of the scale  $>\text{nat}(A, B)$ , provided the scale cannot be extended to the right; i.e., if there is no such value that would be even less natural than value B. The question of “extremely unnatural environment” in three-value naturalness scales will be addressed below.

At the time of this writing, the state of the art cannot explain why there are two kinds of alignment and why they are distributed as they are.

This paper deals with naturalness scales that contain three values each instead of the usual only two values; for instance,  $>\text{nat}(\text{singular, plural, dual})$  (valid for Slovenian). We shall inquire whether chiasitic alignment obtains only within the (rightmost) dual or perhaps even within the (likewise rightmost) non-singular; i.e., the plural and the dual together.

The object of Natural Syntax is (morpho)syntax. Given the scarcity of suitable syntactic examples, here we shall extend Natural Syntax to encompass morphology and even morphonology, in which the axioms and mechanisms of Natural Syntax apply equally well as in syntax, to the best of our knowledge. However, we shall continue to use the label Natural Syntax.

It can be shown with Slovenian material that chiasitic alignment does apply within the dual, as in the following deduction:

**(1)** Slovenian. The dual of the noun *oko* ‘eye’ is *očesi*. Such a dual does not primarily mean ‘organ of sight’, but refers to corns (on a toe), eyes (on a potato), etc. Only if the dual is expanded with the numeral *dva/oba* ‘two/both’, does the noun phrase *dve/obe očesi* also mean ‘organ of sight’; for instance, *v vojni je izgubil obe očesi* ‘he lost both his eyes during the war’, *pri sinovih pustolovščinah zatisniti obe očesi* ‘to close both eyes to his son’s adventures’ (examples from SSKJ s.v. *oko*). This situation is restricted to the dual (SS00 272).

The two variants: *oko* meaning ‘organ of sight’ and having other meanings, within the dual. – The deduction proceeds in the extremely unnatural environment “dual”

**1.** The assumptions of Natural Syntax:

**1.1.** >nat (+, -) / *oko* ‘organ of sight’

I.e., the meaning ‘organ of sight’ is more natural than other meanings of *oko*. – The meaning ‘organ of sight’ is first of all associated with humans and higher animals, whereas the other meanings occur prevalingly in the physical world. According to the criterion of favourable for the speaker and of favourable for the hearer, item (a) in the list of axioms.

**1.2.** >nat (-, +) / *dva/oba* ‘two/both’

I.e., the absence of the numeral *dva/oba* ‘two/both’ is more natural than its presence. – According to the criterion of least effort, item (b) in the list of axioms.

A special case of 1.2:

**1.2.1.** >nat (+/-, +) / *dva/oba* ‘two/both’

I.e., optional presence of the numeral *dva/oba* ‘two/both’ is more natural than its obligatory presence. – The scale assumes the permitted expanded format >nat (A + B, B) and is automatically valid because the corresponding basic scale 1.2 has been substantiated.

**2.** The rules of chiastic alignment:

**2.1.** value A tends to associate with value D,

**2.2.** value B tends to associate with value C.

**3.** The consequences:

If a language distinguishes, within the dual, between *oko* meaning ‘organ of sight’ and *oko* having “other” meanings such that one meaning is obligatorily accompanied by *dva/oba* and the other meaning is not obligatorily accompanied by *dva/oba*, then it is the meaning ‘organ of sight’ that tends to be obligatorily accompanied by *dva/oba* and it is the “other” meanings that tend not to be obligatorily accompanied by *dva/oba*. Q.E.D. (The reverse situation is not expected.)

A similar situation in the plural requires parallel alignment:

**(2)** Slovenian. The plural of the noun *oko* is *oči* if the meaning is ‘organ of sight’, and *očesa* if the meaning is different (SS00 272).

The two variants: *oko* meaning ‘organ of sight’ and having other meanings, within the plural.

**1.** The assumptions of Natural Syntax:**1.1.** >nat (+, -) / *oko* ‘organ of sight’

I.e., the meaning ‘organ of sight’ is more natural than other meanings of *oko*. – The meaning ‘organ of sight’ is first of all associated with humans and higher animals whereas the other meanings occur prevalingly in the physical world. According to the criterion of favourable for the speaker and of favourable for the hearer, item (a) in the list of axioms.

**1.2.** >nat (*oč-i*, *oč-es-a*) / plural of *oko*

I.e., the plural *oči* is more natural than the plural *očesa*. – The plural *oči* contains two morphs, whereas the plural *očesa* contains three morphs. According to the criterion of least effort, item (b) in the list of axioms.

**2.** The rules of parallel alignment:

**2.1.** value A tends to associate with value C,

2.2. value B tends to associate with value D.

3. The consequences:

If a language distinguishes, within the plural, between *oko* meaning ‘organ of sight’ and *oko* having other meanings such that one meaning assumes the form *oči* and other meanings assume the form *očesa*, then it is the meaning ‘organ of sight’ that tends to assume the form *oči* and it is other meanings that tend to assume the form *očesa*. Q.E.D. (The reverse situation is not expected.)

A similar example follows in deductions (3) and (4):

(3) Slovenian. If the dual is used in reference to a pair (of objects), the noun is almost obligatorily preceded by the numeral *dva/oba* ‘two/both’; for instance, *obe roki* ‘both hands/arms’. Otherwise the dual does not refer to a pair (Derganc 2003: 172).

The two variants: the dual *roki* ‘hands/arms’ (not forming a pair) and the dual *obe roki* ‘both hands/arms’ (forming or not forming a pair). – The deduction proceeds in the extremely unnatural environment “dual”.

1. The assumptions of Natural Syntax:

1.1. >nat (*roki*, *obe roki*)

I.e., *roki* is more natural than *obe roki*. – According to the criterion of least effort, item (b) in the list of axioms.

1.2. >nat (+, –) / a pair

I.e., being a pair is more natural than not being a pair. – The pair has a special place in nature, not least of all with humans. According to the criterion of favourable for the speaker and of favourable for the hearer, item (a) in the list of axioms.

A special case of 1.2:

1.2.1. >nat (+/–, –) / a pair

I.e., not being a pair optionally is more natural than not being a pair obligatorily. – The scale assumes the permitted expanded format >nat (A + B, B) and is automatically valid because the corresponding basic scale 1.2 has been substantiated.

2. The rules of chiasitic alignment:

2.1. value A tends to associate with value D,

2.2. value B tends to associate with value C.

3. The consequences:

If a language distinguishes, within the dual, between the type *roki* and the type *obe roki* such that one type can mean a pair and the other type cannot mean a pair, then it is the type *obe roki* that tends to allow the meaning of a pair and it is the type *roki* that tends not to mean a pair. Q.E.D. (The reverse situation is not expected.)

(4) Slovenian. The plural *roke* can mean a pair unless it is preceded by a numeral (Derganc 2003: 172).

The two variants: the plural *roke* meaning a pair and not meaning a pair.

1. The assumptions of Natural Syntax:

1.1. >nat (+, –) / a pair

I.e., being a pair is more natural than not being a pair. – The pair has a special place in nature, not least of all with humans. According to the criterion of favourable for the speaker and of favourable for the hearer, item (a) in the list of axioms.

**1.2.** >nat (–, +) / numeral

I.e., the absence of a numeral is more natural than its presence. – According to the criterion of least effort, item (b) in the list of axioms.

A special case of 1.2:

**1.2.1.** >nat (–, +/-) / numeral

I.e., obligatory absence of a numeral is more natural than optional absence of a numeral. – The scale assumes the permitted expanded format >nat (A, A + B) and is automatically valid because the corresponding basic scale 1.2 has been substantiated.

**2.** The rules of parallel alignment:

**2.1.** value A tends to associate with value C,

**2.2.** value B tends to associate with value D.

**3.** The consequences:

If a language distinguishes, within the plural, between *roke* meaning a pair and *roke* not meaning a pair such that an accompanying numeral is allowed in one case and disallowed in the other case, then it is *roke* meaning a pair that tends to disallow an accompanying numeral and it is *roke* not meaning a pair that tends to allow an accompanying numeral. Q.E.D. (The reverse situation is not expected.)

We proceed to a few deductions whose language material encompasses both the plural and the dual. It turns out that these numbers together serve as an extremely unnatural environment, which of course demands chiasitic alignment. First we consider the plural and dual of the Slovenian noun *človek* ‘man’.

In the non-singular of the noun *človek* the suppletive stems *človek-* and *ljud-* are used. The plural contains only *ljud-*, whereas in the dual the genitive and the locative display *ljud-* and the remaining cases are based on *človek-*. This distribution exhausts the possible distribution of suppletive stems: there is regulated distribution (here in the plural) and non-regulated distribution (here in the dual). The corresponding naturalness scale is >nat (non-regulated, regulated) / suppletion. (Regulated suppletion is favourable for the hearer because of its regularity, hence it must be mentioned in position B of the scale.) Examples from various languages show that non-regulated suppletion prevails under more natural conditions than regulated suppletion. Consider the present tense of the Slovenian verb *biti* ‘be’: the singular displays non-regulated suppletion (*sem, si, je*), the non-singular displays regulated suppletion (*s-va, s-ta, s-mo, s-te, s-o*); the singular is more natural than the non-singular. (The personal pronouns of Slovenian – noun phrases of high naturalness – show only non-regulated suppletion in their declension; for instance, *jaz* ‘I’ – *mene* ‘me’, etc.) This makes it possible to formulate the following deduction involving suppletion:

**(5)** Slovenian. The plural of the noun *človek* uses only the suppletive stem *ljud-*, whereas the dual uses the suppletive stems *človek-* and *ljud-* in complementary distribution (SS00 271).

The two variants: the suppletive stems *človek-* and *ljud-* within the non-singular. – The deduction proceeds in the extremely unnatural environment “non-singular”.

**1.** The assumptions of Natural Syntax:

**1.1.** >nat (non-regulated, regulated) / suppletion

I.e., non-regulated suppletion is more natural than regulated suppletion. – Regulated suppletion is favourable for the hearer because of its regularity. According to the criterion of favourable for the speaker and of favourable for the hearer, item (a) in the list of axioms.

**1.2.** >nat (plural, dual)

I.e., the plural is more natural than the dual. – Many more languages use the plural than the dual. If a language has the dual it has the plural as well. According to the typological criterion, item (j) in the list of axioms.

**2.** The rules of chiastic alignment:

**2.1.** value A tends to associate with value D,

**2.2.** value B tends to associate with value C.

**3.** The consequences:

If a language distinguishes, within the declension of the noun *človek*, between the plural and the dual such that one number uses regulated suppletion and the other number uses non-regulated suppletion, then it is the dual that tends to use non-regulated suppletion and it is the plural that tends to use regulated suppletion. Q.E.D. (The reverse situation is not expected.)

**4.** Note. The stem *človek-* is also used in the singular. This is not included above because a deduction that would involve the stem *človek-* even in the singular cannot be formulated within Natural Syntax.

We add a similar Russian example:

**(6)** Russian. The 1st-person imperative *pojďem* means ‘let the two of us go’ (thus the dual), whereas the 1st-person imperative *pojďemte* means ‘let’s go’ (thus the plural) (Loporcaro 2006: 145, referring to the more basic study Xrakovskij & Birjulin 2001, which is not accessible to us).

The two variants: the 1st-person imperatives *pojďem* and *pojďemte*. – The deduction proceeds in the extremely unnatural environment “non-singular”.

**1.** The assumptions of Natural Syntax:

**1.1.** >nat (*pojď-ě-m*, *pojď-ě-m-te*)

I.e., the form *pojďem* is more natural than the form *pojďemte*. – The form *pojďem* contains three morphs, and the form *pojďemte* contains four morphs. According to the criterion of least effort, item (b) in the list of axioms.

**1.2.** >nat (plural, dual)

I.e., the plural is more natural than the dual. – Many more languages use the plural than the dual. If a language has the dual it has the plural as well. According to the typological criterion, item (j) in the list of axioms.

**2.** The rules of chiastic alignment:

**2.1.** value A tends to associate with value D,

**2.2.** value B tends to associate with value C.

**3.** The consequences:

If a language distinguishes between the hortatives *pojďem* and *pojďemte* such that one hortative expresses the dual and the other hortative expresses the plural, then it



is *pojđem* that tends to express the dual and it is *pojđemte* that tends to express the plural. Q.E.D. (The reverse situation is not expected.)

As can be seen, deduction (6) produces the expected predictions only if chiastic alignment is applied.

If we accept the above deductions as correct we must also consent to the following generalisation:

Generalisation A (valid for three-member naturalness scales). If the environment of a deduction consists either of the rightmost value or of the two rightmost values of a scale, the environment is classified as extremely unnatural and the alignment must be chiastic.

We will adhere to Generalisation A until some counterexample forces us to change it.

The naturalness scale covering the grammatical number is not the only three-value scale. Here we shall consider only the scale regulating the comparison of adjectives and adverbs; the scale deserves some attention because of Slovenian data.

The comparison scale is >nat (positive, comparative, superlative). According to Generalisation A we expect chiastic alignment in deductions whose environment is restricted to the rightmost value of the scale – i.e., to the superlative – as well as in deductions whose environment is limited to both rightmost values at once; i.e., both to the comparative and to the superlative. In the remaining cases we expect parallel alignment; we shall test a deduction within the comparative and (for special reasons) a few deductions encompassing all three grades.

We begin with deduction (7), restricted to the superlative and requiring chiastic alignment:

(7) English. The superlative. The adverb *very* is allowed only before the synthetic superlative; for instance, *it was the very best performance* (Huddleston & Pullum 2002: 1169).

The two variants: the synthetic and the analytic superlative. – The deduction proceeds in the extremely unnatural environment “superlative”.

1. The assumptions of Natural Syntax:

1.1. >nat (synthetic, analytic) / superlative

I.e., the synthetic superlative is more natural than the analytic superlative. – The synthetic superlative consists of one word, and the analytic superlative of two words. According to the criterion of least effort, item (b) in the list of axioms.

1.2. >nat (–, +) / *very*

I.e., the absence of *very* is more natural than its presence. – According to the criterion of least effort, item (b) in the list of axioms.

A special case of 1.2:

1.2.1. >nat (–, +/-) / *very*

I.e., obligatory absence of *very* is more natural than its optional absence. – The scale assumes the permitted expanded format >nat (A, A + B) and is automatically valid because the corresponding basic scale 1.2 has been substantiated.

2. The rules of chiastic alignment:

2.1. value A tends to associate with value D,

2.2. value B tends to associate with value C.

3. The consequences:

If a language distinguishes between the synthetic and the analytic superlative such that one superlative can combine with *very* and the other not, then it is the synthetic superlative that tends to allow combination with *very* and it is the analytic superlative that tends to disallow combination with *very*. Q.E.D. (The reverse situation is not expected.)

It can be seen in deduction (7) that the correct result is obtained only if chiastic alignment is applied.

The next deduction comprises the comparative and the superlative at the same time:

(8) English. In the comparative and superlative of the type *strong*, a [g] is inserted between the stem and the suffix; for instance, *stron[g]er*, *stron[g]est*. There is nothing comparable in the type *cunning*; for instance, the (rare) superlative *cunning-est* is pronounced without any [g] (Huddleston & Pullum 2002: 1581).

The two variants: the type *strong* and the type *cunning* in the comparative and the superlative. – The deduction proceeds in the extremely unnatural environment “comparative and superlative”.

1. The assumptions of Natural Syntax:

1.1. >nat (type *strong*, type *cunning*)

I.e., the type *strong* is more natural than the type *cunning*. – The type *strong* consists of one syllable, the type *cunning* of two syllables. According to the criterion of least effort, item (b) in the list of axioms.

1.2. >nat (–, +) / inserted [g]

I.e., the absence of the inserted [g] is more natural than its presence. – According to the criterion of least effort, item (b) in the list of axioms.

2. The rules of chiastic alignment:

2.1. value A tends to associate with value D,

2.2. value B tends to associate with value C.

3. The consequences:

If a language distinguishes between the type *strong* and the type *cunning* such that the comparative and the superlative of one type inserts a [g] whereas the comparative and the superlative of the other type does not insert a [g], then it is the type *strong* that tends to insert a [g] and it is the type *cunning* that tends not to insert a [g]. Q.E.D. (The reverse situation is not expected.)

It can be seen in deduction (8) that the correct result is obtained only if chiastic alignment is applied.

We proceed to the deductions involving all three grades simultaneously. A look at such deductions is necessary because of the somewhat special Slovenian conditions. However, we begin with an English example that is simpler than the corresponding Slovenian data. As mentioned above, the expected alignment is parallel.

**(9)** English. In the comparison of the type *strong*, a [g] is inserted in the comparative and the superlative; for instance, in the comparative *stron[g]er* (Huddleston & Pullum 2002: 1581).

The two variants: the positive *strong* (lacking a [g]) as against the non-positive *stronger*, *strongest* (both containing a [g]).

**1.** The assumptions of Natural Syntax:

**1.1.** >nat (positive, non-positive)

I.e., the positive is more natural than the non-positive. – The positive is zero coded in many languages. According to the criterion of least effort, item (b) in the list of axioms.

**1.2.** >nat (–, +) / inserted [g]

I.e., the absence of the inserted [g] is more natural than its presence. – According to the criterion of least effort, item (b) in the list of axioms.

**2.** The rules of parallel alignment:

**2.1.** value A tends to associate with value C,

**2.2.** value B tends to associate with value D.

**3.** The consequences:

If a language distinguishes, within the type *strong*, between the positive and the non-positive such that one grade contains [g] and the other grade lacks it, then it is the positive that tends to lack [g] and it is the non-positive that tends to contain [g]. Q.E.D. (The reverse situation is not expected.)

The reader will appreciate the tiny difference between deduction (8) involving the comparative and the superlative (and implementing chiasitic alignment) and deduction (9) involving all three grades (and applying parallel alignment).

Against this background let us inspect the Slovenian comparison *lep*, *lepši*, *najlepši* ‘beautiful, more beautiful, most beautiful’. Even here one would expect first of all a division into the positive and the non-positive. However, there is a complication because the difference between the positive and the comparative (i.e., in the suffix) is not the same as the difference between the comparative and the superlative (i.e., in the prefix). Natural Syntax is unable to encompass such a situation in a single scale. Rather, it needs two scales: one covering the positive and the comparative, the other covering the comparative and the superlative. However, even in the latter scale the alignment is parallel, against the spirit of deduction (8) above. The situation is an artefact of the theory, which is not yet able to cope with three-value scales in a straightforward manner. If the formalism of Natural Syntax were suitably changed, it is to be hoped that Slovenian comparison would be encompassed in one scale, and consequently there would be no difficulty with alignment.

**(10a)** Slovenian. Unlike the positive, the comparative contains a suffix; for instance, *lep* – *lep-ši* (SS00 325).

The two variants: the positive *lep* and the comparative *lepši*.

**1.** The assumptions of Natural Syntax:

**1.1.** >nat (positive, comparative)

I.e., the positive is more natural than the comparative. – In many languages the positive is zero-coded. According to the criterion of least effort, item (b) in the list of axioms.

**1.2.** >nat (–, +) / suffix

I.e., the absence of a suffix is more natural than its presence. – According to the criterion of least effort, item (b) in the list of axioms.

**2.** The rules of parallel alignment:

**2.1.** value A tends to associate with value C,

**2.2.** value B tends to associate with value D.

**3.** The consequences:

If a language distinguishes between the positive and the comparative such that one grade contains a suffix and the other grade lacks it, then it is the positive that tends to lack the suffix and it is the comparative that tends to contain the suffix. Q.E.D. (The reverse situation is not expected.)

**(10b)** Slovenian. Unlike the comparative, the superlative contains a prefix; for instance, *lepši – naj-lepši* (SS00 325).

The two variants: the comparative *lepši* and the superlative *najlepši*.

**1.** The assumptions of Natural Syntax:

**1.1.** >nat (comparative, superlative)

I.e., the comparative is more natural than the superlative. – The superlative is often coded as comparative + something. According to the criterion of least effort, item (b) in the list of axioms.

**1.2.** >nat (–, +) / prefix

I.e., the absence of a prefix is more natural than its presence. – According to the criterion of least effort, item (b) in the list of axioms.

**2.** The rules of parallel alignment:

**2.1.** value A tends to associate with value C,

**2.2.** value B tends to associate with value D.

**3.** The consequences:

If a language distinguishes between the comparative and the superlative such that one grade contains a prefix and the other grade lacks it, then it is the comparative that tends to lack the prefix and it is the superlative that tends to contain the prefix. Q.E.D. (The reverse situation is not expected.)

The clash between deduction (8) and deduction (10b) constitutes a counterexample to Natural Syntax. The counterexample can be neutralised by changing the theory. We suggest the introduction of the following constraint:

Constraint (provisional). Whenever the language material of a deduction is limited so as to require chiasmic alignment, this is replaced by parallel alignment just in case the narrowness of the language material is due to the narrowness of the formalism of Natural Syntax.

We shall adhere to this constraint until some counterexample forces us to change it.

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### Naravna skladnja – lestvice s po tremi vrednostmi naravnosti

V naravni skladnji vsebujejo nekatere lestvice naravnosti po tri vrednosti naravnosti, npr. (za slovenščino) >nat (ednina, množina, dvojina). Sestavek se ukvarja z naslednjim vprašanjem: če je neka izpeljava gradivsko omejena na eno ali več vrednosti naravnosti take lestvice – kakšno je tedaj ujemanje med lestvicama izpeljave, vzporedno ali križno?

Odgovor se glasi takole. Sama dvojina ali dvojina + množina kot okolje zahtevajo križno ujemanje. Vsa druga okolja, npr. samo množina, zahtevajo vzporedno ujemanje. Te možnosti so v sestavku ponazorjene z izpeljavami, katerih jezikovno gradivo je naslednje (številke se nanašajo na oštevilčenje izpeljav):

1. Dvojina slovenskega samostalnika *oko*, tj. *očesi*.
2. Množina slovenskega samostalnika *oko*, tj. *oči* in *očesa*.
3. Slovenska dvojina *obe roki*.
4. Slovenska množina *roke*.
5. Dvojina in množina slovenskega samostalnika *človek*.
6. Ruski hortativ *pojďem* 'pojdiva' in *pojďemte* 'pojdimo'.
7. Angleški presežnik, raba prislova *very* 'brezpogojno' pred njim.
8. Angleški primernik in presežnik, stopnjevanje.
9. Angleško stopnjevanje, vse tri stopnje.
- 10a. Slovensko stopnjevanje *lep* – *lepši*.
- 10b. Slovensko stopnjevanje *lepši* – *najlepši*.

Glavni namen naravne skladnje je določati pogoje, pod katerimi so razmere v nekem jezikovnem gradivu napovedljive.

### Natural Syntax: Three-Value Naturalness Scales

In Natural Syntax certain naturalness scales contain three naturalness values each; for instance, (for Slovenian) >nat (singular, dual, plural). The paper discusses the following question. If the language material of a deduction is restricted to one or several naturalness values of a three-value scale, what kind of alignment is used: parallel or chiasitic?

The answer is that, as an environment, the dual or the dual + the plural require chiasitic alignment. All other environments – for instance, the plural – require parallel alignment. These possibilities are exemplified in the paper with deductions whose language material is as follows (the figures refer to the numbering of the deductions):

- 1) The dual of the Slovenian noun *oko* ‘eye’; i.e., *očesi*.
- 2) The plural of the Slovenian noun *oko*; i.e., *oči* and *očesa*.
- 3) The Slovenian dual *obe roki* ‘both hands/arms’.
- 4) The Slovenian plural *roke*, literally ‘hands/arms’.
- 5) The dual and the plural of the Slovenian noun *človek* ‘man’.
- 6) The Russian hortative *pojďem* ‘let the two of us go’ and *pojďemte* ‘let’s go’.
- 7) The English superlative, the use of *very* before it.
- 8) The English comparative and superlative, their comparison.
- 9) The English comparison, all three grades.
- 10a) The Slovenian comparison *lep – lepši* ‘beautiful, more beautiful’
- 10b) The Slovenian comparison *lepši 7– najlepši* ‘more beautiful, most beautiful’

The chief aim of Natural Syntax is to determine the conditions under which the situation in some language material can be predicted.

