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NATURAL SYNTAX: ENGLISH RELATIVE CLAUSES[1]

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ABSTRACT

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 what are known as deductions, whose chief components are a pair of naturalness scales and the rules governing the alignment of corresponding naturalness values. Parallel and chiastic alignments are distinguished, in complementary distribution. Here almost only chiastic alignment is utilized, this being mandatory in derivations limited to unnatural environments. (This paper deals with relative clauses, which are dependent clauses, an area of low naturalness in Natural Syntax.)

The exemplification is taken from English. The chief aim is to solicit predictions about various aspects of relative clauses. For instance, the known fact is made predictable that more English relative clauses are finite than non-finite. The most frequent issues addressed in the deductions are acceptability judgements, the behaviour of subordinators, the difference between integrated and supplementary clauses, movement ex situ, etc.

Some related work: Orešnik (2003a, b; 2004; 2007 [with Varja Cvetko-Orešnik]; 2007).

KEYWORDS: naturalness; syntax; morphosyntax; English; relative clause.

Natural Syntax is a (developing) deductive linguistic theory that determines the presuppositions on the background of which a (morpho)syntactic state of affairs can be made predictable, and thus synchronically explained. The two basic kinds of presuppositions are what are known as naturalness scales and the 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.

[1] The author acknowledges helpful comments by an anonymous referee, which are addressed in the footnotes to this paper.

I 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 economize* (utilized first of all by the speaker) and *tendency to be accurate* (mainly in the hearer's interest).[2]

(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 clause. What is better integrated into its clause 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 vs. 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.[3]

(g) The process criterion. Any process is natural; only movement requires special comment. Given a construction, movement of a unit to the left is more natural for the speaker than movement of a unit to the right. (Movement to the left is

[2] It is a conceivable alternative that a theory of naturalness in the spirit of Mayerthaler (as well as in the spirit of Natural Syntax) could have both speaker-based and hearer-based axioms. However, the variant that Natural Syntax has actually adopted – that is, >nat (favourable for the speaker, favourable for the hearer) – is more constrained, and thus more prone to falsification than the variant with two types of axioms. I am interested in producing a constrained theory that can be falsified as easily as possible.

[3] Regarding the axiom that small classes more natural than large classes, as speakers compose utterances, they must make choices among various sets of items/properties step by step. The choice from a small set can be accomplished more quickly than the choice from a large(r) set. Thus, small classes are favourable for the speaker. In addition, all the functional words constitute small classes, and functional words are natural because of their high token frequency, among other things.

more natural than non-movement; movement to the right is less natural than non-movement.)[4]

(h) Acceptable vs. 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.[5]

(i) 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 realized in more languages.

The basic format of our naturalness scales is >nat (A, B), where A is favourable for the speaker and B is favourable for the hearer. A and B are the "values" of the scale. Two expanded scales are allowed, viz. >nat (A + B, B) and >nat (A, A + B); they are valid if the corresponding scale of the format >nat (A, B) is valid. Exemplification below.

The above criteria of naturalness (henceforth, axioms) are utilized to support our naturalness scales. Normally it suffices to substantiate any scale with one criterion that 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 what are known as 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: 270–271).

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[4] Regarding the axiom that movement is more natural than non-movement, I can refer to the mechanisms of generative syntax, in which there is considerably more movement to the left than non-movement within clauses and other structures. This has been adapted in Natural Syntax as >nat (+, −) / movement to the left. By way of example, note that the inversion of the subject and the finite verb is, technically speaking, the movement of the finite verb over the subject to the left.

[5] Regarding the axiom of acceptability, this is necessary for predictions such as the following: *In whose car?* is acceptable, whereas *Whose car in?* is not acceptable. The axiom of acceptability is not just a special case of the axiom of frequency. Some crucial cases show that acceptability cannot be equated with low token frequency. As for rarity or unacceptability being favourable for the hearer, consider the following. Suppose a written text contains *flower* where *flour* would be expected. Clearly *flower* meaning 'flour' is not acceptable. However, the reader is startled when he encounters *flower* 'flour'. In this sense *flower* 'flour' is "favourable" for the reader. There is no comparable effect on the writer of such a text.

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

1. The assumptions of Naturalness Theory:
   1.1. >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. >sem (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, 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*, 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 chiastic in most cases. Chiastic alignment is explained below.
   4.2. Natural Syntax cannot predict the cut-off point between low and non-low numerals.

This deduction maintains that the state of affairs cannot be the reverse; i.e., that numerals above *two* (or *three*) would be one-word formations and that the numerals under *three* (or *four*) would be two-word formations. All predictions of our Natural Syntax are restricted to such modest claims about the unlikelihood of the reverse situation.

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.[6]

[6] Regarding the rationale for the alignment process, without such a process the deductions would not be able to perform any computation leading to the Consequences. These are absolutely necessary as a source of possible (and desired) counterexamples, which can help develop the theory of Natural Syntax further.

The alignment can be parallel or chiastic. Suppose that the two scales are >nat (A, B) and >nat (C, D). Parallel alignment pairs value A with value C, and value B with value D. Chiastic alignment pairs A with D, and B with C.

A paramount question is when the alignment is parallel and when chiastic.[7] Parallel alignment is the default case. Chiastic alignment is necessary whenever a given deduction is limited to the language data obtaining within an "extremely unnatural" environment. This is defined as value B of the scale >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.

An example. In the scale >nat (main, dependent) / clause, the value "dependent clause" is an extremely unnatural environment because the scale cannot be extended to the right. This means: all deductions whose language data lie within the environment "dependent clause" require the implementation of chiastic alignment.

Chiastic alignment is prohibited when a naturalness scale is substantiated with an axiom. If, however, an axiom is engaged as one of the scales in a deduction, it obeys the usual distribution of the alignment rules.

In this paper, Natural Syntax is illustrated with aspects of English relative clauses. The exemplification is as simple and uncontroversial as possible. The language material and description has mostly been taken from Huddleston and Pullum (2002).

An important issue to be settled in order to improve the reliability of the ensuing deductions is the choice between parallel and chiastic alignment rules. Here are some details:

In my past work, counterexamples have quite often emerged and have contributed decisively to the present state of the theory. *Wissenschaftsgeschichtlich*, the alignment process has a parallel in markedness theory, in which Henning Andersen proposed (in the late 1960s and early 1970s) the alignment of an unmarked value with a corresponding unmarked value, and of a marked value with a corresponding marked value. Henning Andersen applied this idea in phonology. Its use in syntax is an original contribution of Natural Syntax.

[7] Regarding the basis for the parallel/chiastic distinction, this distinction has a counterpart in the distinction between markedness and well-known markedness reversal. However, the formalization of this distinction within Natural Syntax may have led to a distortion of the basic idea, and therefore I do not insist on such parallelism.

Although some readers may have the impression that the alignment type and the axiom in question were sometimes chosen to obtain the correct result (rather than on any principled basis), the alignment type has always been selected in accordance with strict principles. It is not my aim at all to obtain "correct" results. My aim is to see whether the strict implementation of alignment type produces counterexamples to the claims of Natural Syntax. Throughout my work I have looked forward to counterexamples, at the same time remaining fully conscious of the fact that at any stage the theory of Natural Syntax is still incomplete. (How could it be otherwise given the fact that we are dealing with a deductive theory?) Regarding the choice of the axioms, I assume (for the time being) that any of the axioms can be used to support a given naturalness scale. Some axioms are of course better suited (content-wise) than others to support a given scale. However, it is not the case (except by inadvertence) that a particular axiom is not utilized because, when applied, it would fail to guarantee the correct result.

(i) Relative clauses are (finite or non-finite) dependent clauses; the latter demarcate an extremely unnatural environment and thus require chiastic alignment.

(ii) Sometimes the language material encompasses the antecedent in addition to a relative clause; in such cases, the deduction cannot be said to be fully limited to dependent clauses, and so (default) parallel alignment applies.

(iii) Given the validity of the scale >nat (*that*/∅, *wh* relative) / introducing a relative clause, the *wh* relative forms an extremely unnatural environment; deductions restricted to *wh* relatives (and relative *wh* phrases) implement chiastic alignment.

(iv) Given the validity of the scale >nat (informal, formal) / language, the formal language defines an extremely unnatural environment; the deductions restricted to the formal language implement chiastic alignment. The naturalness scales mentioned in this paragraph are substantiated below.

The following subject matter is divided into 42 deductions. The paper ends with a conclusion.

(1) **English.**[8] Most relative clauses are finite, and some are non-finite (Huddleston & Pullum 2002: 1033).

The two variants: finite and non-finite relative clauses. The deduction proceeds in the extremely unnatural environment "dependent clause". The antecedent of the relative clause is not involved.

1. The assumptions of Natural Syntax:
   1.1. >nat (−, +) / finite dependent clause
   I.e., a non-finite dependent clause is more natural than a finite dependent clause. – On the average, non-finite clauses express their subject much less frequently than finite clauses. According to the criterion of least effort, item (b) in the list of axioms.

[8] Regarding the basis for making universal claims (i.e., beyond English), it is a stipulation of Natural Syntax that the claims adduced under item 3 ("The consequences") of each deduction are universal. If (some of) the universal claims turn out to be invalid, then the theory of Natural Syntax must be changed. If my claims were limited to only one language, the probability that they would become falsified would diminish. I am interested in as early falsification as possible, and therefore my insistence, at least for the time being, on the universal character of my claims. I do acknowledge a limitation in that in many cases the universal statements concern phenomena that only occur in the grammar of English. I have not yet succeeded in devising a format in which to couch my universal statements without referring, in certain cases, to language-particular material (e.g., to English).

1.2. >nat (more, less) / frequent
I.e., what is more frequent is more natural than what is less frequent. – This is the frequency criterion itself, item (e) 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 finite and non-finite relative clauses such that one option is more frequent and the other option is less frequent, then it is finite relative clauses that tend to be more frequent and it is non-finite relative clauses that tend to be less frequent. Q.E.D. (The reverse situation is not expected.)

(2) **English.** Supplementary relative clauses allow many more kinds of antecedents (for instance, adjective phrases, clauses, sentences, texts) than do integrated relative clauses (Huddleston & Pullum 2002: 1035).

The two variants: integrated and supplementary relative clauses. – The antecedent is also involved.

1. The assumptions of Natural Syntax:
1.1. >nat (integrated, supplementary) / relative clause
I.e., an integrated clause is more natural than a supplementary clause.[9] – An integrated clause is better integrated into its construction. According to the criterion of integration into construction, item (d) in the list of axioms.
1.2. >nat (fewer, more) / kinds of antecedents
I.e., fewer kinds of antecedents is more natural than more kinds of antecedents. – According to the criterion of small vs. large class, item (f) 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:

[9] The distinction "supplementary" vs. "integrated" relative clause was introduced by Huddleston and Pullum (2002). Other grammars use "(non-)restrictive relative clause", and further terms are also in use. I have retained Huddleston and Pullum's terminology for the sake of terminological consistency.

If a language distinguishes, within relative clauses, between integrated and supplementary clauses such that one option allows more kinds of antecedents and the other option allows fewer kinds of antecedents, then it is integrated clauses that tend to allow fewer kinds of antecedents and it is supplementary clauses that tend to allow more kinds of antecedents. Q.E.D. (The reverse situation is not expected.)

(3) **English.** When the integrated relative clause is introduced by ∅ or by *that*, the latter is obligatory if the subject of the relative clause is lacking; for instance, *this is the letter that drew our attention to the problem* (Huddleston & Pullum 2002: 1037).

The two variants: an integrated relative clause introduced by ∅ or *that*. – The deduction proceeds in the extremely unnatural environment "dependent clause". The antecedent is not involved.

1. The assumptions of Natural Syntax:
   1.1. >nat (∅, *that*) / introducing an integrated relative clause
   I.e., zero is more natural than *that* (introducing an integrated relative clause). – According to the criterion of least effort, item (b) in the list of axioms.
   A special case of 1.1:
   1.1.1. >nat (∅ & *that*, only *that*) / introducing an integrated relative clause
   Scale 1.1.1 assumes the permitted expanded format >nat (A + B, B) and is automatically valid because the corresponding basic scale 1.1 has been substantiated.
   1.2. >nat (−, +) / subject of integrated relative clause
   I.e., lack of a subject is more natural than the presence of a subject (in an integrated relative clause). – 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, within integrated relative clauses, between those having a subject and those lacking it such that one option can be introduced by ∅ or *that* and the other option must be introduced by *that*, then it is clauses having a subject that tend to be introduced by ∅ or by *that*, and it is clauses lacking any subject that tend to be introduced by *that*. Q.E.D. (The reverse situation is not expected.)

4. Note. Grammars (e.g., Quirk et al. 1985: 1251; Huddleston and Pullum 2002: 1055) "explain" the special situation involving the subject with the tendency to ease the decoding process. This "explanation" is hardly the whole truth: (1) A number of languages lack relatives altogether, and yet the decoding process is not impaired. (2) In informal English speech, the type with a lacking subject and simultaneously lacking relative flourishes, in some grammatical environments even systematically. (3) Most ambiguities (either in English or elsewhere) do not manifest any tendency to systematic disambiguation (stylistics apart).[10] (4) The problem assumes a similar form in related domains: (4.1) In English the +human antecedent favours *who* if it is a subject, and favours *that*/∅ it is a non-subject (Huddleston and Pullum 2002: 1054); given that the subject is the most natural clause element, we would expect it to prefer the combination with the more natural *that*/∅ rather than with the less natural *who*. (4.2) In (Germanic) Scandinavian languages, the relative is strengthened (with the particle *som* or an equivalent) only when it is the subject, and never outside the subject. – Item (4) suggests that a tendency is at work here transcending English; therefore an intra-English explanation cannot be sufficient. It is even astonishing that English grammars (almost unanimously) experiment with "explanations" precisely in this narrow field and not elsewhere (or nowhere, for that matter).

(4) **English.** Relative clauses containing a relative *wh* phrase feature this phrase either in the subject role or in front of it. For instance: (subject role) *this is the letter which drew our attention to the problem*, (pre-subject) *I accepted the advice which my neighbour gave me* (Huddleston and Pullum 2002: 1037–1038).

The two variants: the subject and the "other" clause elements. – The deduction proceeds in the extremely unnatural environment "dependent clause".

1. The assumptions of Natural Syntax:
   1.1. >nat (subject, "other" clause elements) / *wh*
   I.e., a *wh* subject is more natural than "other" *wh* clause elements. – The subject is the most natural clause element. In communication, the speaker

[10] Although every language of course has the means to disambiguate ambiguities, languages nonetheless tolerate constructions that are ambiguous. Ambiguous constructions are at speakers' disposal: they can freely use them when they find such usage desirable. For instance, when *We went to the pictures* refers to only two persons, the speaker could have resorted to *The two of us went to the pictures*, but it could have been in his or her interest to leave this tiny detail undisclosed. On the whole, it is not expected that a language will tend to create a dual in order to avoid the ambiguity of *we*.

is usually the subject.[11] According to the criterion of favourable for the speaker, item (a) in the list of axioms.

1.2. >nat (+, −) / movement of relative *wh* phrase beyond the subject
I.e., the movement of a relative *wh* phrase to the left is more natural than its non-movement. – According to the process criterion, item (g) 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 *wh* phrases, between subjects and "other" clause elements such that one option moves to the left and the other option does not move to the left, then it is subjects that tend not to move to the left and it is "other" clause elements that tend to move to the left. Q.E.D. (The reverse situation is not expected.)

(5) **English.** *Wh* relatives can occur in a *wh* phrase – for instance, *the people whose house we're renting*__ – whereas non-*wh* relatives cannot; for instance, **the people that's house we're renting* (Huddleston and Pullum 2002: 1039).

The two variants: *wh* and non-*wh* relatives. – The deduction treats the internal structure of the relative phrase, but not only *wh* relatives. Chiastic alignment is thus not indicated.

1. The assumptions of Natural Syntax:
1.1. >nat (non-*wh*, *wh*) / relative
I.e., a non-*wh* relative is more natural than a *wh* relative. – Non-*wh* relatives are a small class whereas *wh* relatives are a larger class. According to the criterion of small vs. large class, item (f) in the list of axioms.
1.2. >nat (–, +) / relative phrase
I.e., the lack of a relative phrase 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.

[11] The subject is the most natural clause element (barring the verb, of course); I subscribe to Mayerthaler (1981: 14). This can be supported with an appeal to the frequency (tokenwise). Recall that in non–pro-drop languages more or less every finite clause has an overt subject. Because the situation is the same in relative clauses, I see no reason to assume that the subject of relative clauses is less natural.

3. The consequences:
   If a language distinguishes between *wh* and non-*wh* relatives such that one option can occur in a relative phrase and the other option cannot, then it is *wh* relatives that tend to allow relative phrases and it is non-*wh* relatives that tend not to allow relative phrases. Q.E.D. (The reverse situation is not expected.)

(6) **English.** If the relative *wh* phrase is simple it is co-indexed with its antecedent; for instance, *the book$_1$ which$_1$ he recommended__*. If the relative *wh* phrase is complex, the co-indexation obtains in more than one pair; for instance, *the people$_1$ [whose$_1$ house]$_2$ we're renting__$_2$* (Huddleston and Pullum 2002: 1039).

The two variants: simple and complex relative *wh* phrase. – Chiastic alignment is not indicated because the antecedent is involved.

1. The assumptions of Natural Syntax:
   1.1. >nat (simple, complex) / *wh* phrase
      I.e., a simple *wh* phrase is more natural than a complex *wh* phrase. – According to the criterion of least effort, item (b) in the list of axioms.
   1.2. >nat (single, non-single) / pair(s) of co-indexation
      I.e., single pairs of co-indexation are more natural than non-single pairs of co-indexation. – The contrastive example-sentences *John$_1$ believes himself$_1$ to have seen his$_1$ house* and *John$_1$ believes Mary$_2$ to have seen her$_2$ house* witness (through the use of the pronoun/noun in object position) to the greater naturalness of single co-indexation. 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 simple and complex relative *wh* phrases such that one option involves a single co-indexed pair and the other option involves more than one co-indexed pair, then it is simple *wh* phrases that tend to involve a single co-indexed pair and it is complex *wh* phrases that tend to involve more than one co-indexed pair. Q.E.D. (The reverse situation is not expected.)

(7) **English.** Relative clauses allow more kinds of complex *wh* phrases than do interrogative clauses (Huddleston and Pullum 2002: 1040).

The two variants: complex interrogative and relative *wh* phrases.

1. The assumptions of Natural Syntax:
   1.1. >nat (interrogative, relative) / complex *wh* phrase
   I.e., an interrogative complex *wh* phrase is more natural than a relative complex *wh* phrase. – Some languages do not have relatives, so the typological criterion (item (i) in the list of axioms) applies.
   1.2. >nat (fewer, more) / kinds of complex *wh* phrases
   I.e., fewer kinds of complex *wh* phrases is more natural than more kinds of complex *wh* phrases. – According to the criterion of small vs. large class, item (f) 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 complex interrogative and relative *wh* phrases such that one option consists of fewer kinds of phrases and the other option consists of more kinds of phrases, then it is complex interrogative *wh* phrases that tend to consist of fewer kinds of phrases and it is complex relative *wh* phrases that tend to consist of more kinds of phrases. Q.E.D. (The reverse situation is not expected.)

(8) **English.** Heavy relative *wh* phrases are found in formal style; for instance, *problems the answers to which he already knows* (Huddleston and Pullum 2002: 1041).

The two variants: (heavy *wh* phrase in) formal and informal language. – The deduction proceeds in the extremely unnatural environment "*wh* relative".

1. The assumptions of Natural Syntax:
   1.1. >nat (−, +) / formal language
   I.e., informal language is more natural than formal language. – In many languages, communication is restricted to informal language. According to the typological criterion, item (i) in the list of axioms.
   1.2. >nat (+, −) / acceptable
   I.e., what is acceptable is more natural than what is not acceptable. – This is the acceptability criterion itself, item (h) 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 (with heavy *wh* phrases) between formal and informal language such that one option is acceptable and the other option is not acceptable, then it is formal language that tends to be acceptable and it is informal language that tends not to be acceptable. Q.E.D. (The reverse situation is not expected.)

(9) **English.** Examples of wholesale movement of complex relative *wh* phrases pertain to formal language; for instance, *problems the answers to which he already knows*. Examples of non-wholesale movement of complex *wh* phrases are not thus limited; for instance, *problems to which he already knows the answers* and *problems which he already knows the answers to* (Huddleston and Pullum 2002: 1041).

The two variants: wholesale and non-wholesale movement of complex *wh* phrases. – The deduction proceeds in the extremely unnatural environment "dependent clause".

1. The assumptions of Natural Syntax:
   1.1. >nat (+, −) / wholesale movement of complex *wh* phrases
      I.e., wholesale movement of complex *wh* phrases is more natural than non-wholesale movement of complex *wh* phrases. – According to the process criterion, item (g) in the list of axioms.
   1.2. >nat (−, +) / formal language
      I.e., informal language is more natural than formal language. – In many languages, communication is restricted to informal language. According to the typological criterion, item (i) in the list of axioms.
      A special case of 1.2:
      1.2.1. >nat (+/−, +) / formal language
         Scale 1.2.1 assumes the permitted expanded format >nat (A + B, B) and is automatically valid because the corresponding basic scale 1.1 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 wholesale and non-wholesale movement of complex *wh* phrases such that one option is restricted to formal language and the other option is not thus restricted, then it is wholesale movement of complex *wh* phrases that tends to be restricted to formal language and it is non-wholesale movement that tends not to be thus restricted. Q.E.D. (The reverse situation is not expected.)

(10) **English.** Complex relative *wh* phrases that are subjects do not tolerate preposition stranding. For instance, *a strange plan the purpose of which escapes me* and *a strange plan of which the purpose escapes me* are acceptable, whereas *a strange plan which the purpose of escapes me* is not acceptable (Huddleston and Pullum 2002: 1041).

The two variants: (within a complex *wh* phrase that is a subject) only the preposition in situ, more than the preposition in situ. – The deduction proceeds in the extremely unnatural environment "*wh* relative".

1. The assumptions of Natural Syntax:
   1.1. >nat (only the preposition, the preposition + additional material) / in situ
   I.e., only the preposition in situ is more natural than the preposition + additional material in situ. – According to the criterion of least effort, item (b) in the list of axioms. "In situ" here equals lack of movement to the left; the more material remains in situ, the less natural it is. According to the process criterion, item (g) in the list of axioms.
   1.2. >nat (+, −) / acceptable
   I.e., what is acceptable is more natural than what is not acceptable. – This is the acceptability criterion itself, item (h) 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 a complex *wh* phrase that is a subject) between bare prepositions in situ and prepositions + additional material in situ such that one option is acceptable and the other option is not acceptable, then it is bare prepositions in situ that tend not to be acceptable and it is prepositions + additional material in situ that tend to be acceptable. Q.E.D. (The reverse situation is not expected.)

(11) **English.** Complex relative *wh* phrases that are subjects do not tolerate preposition stranding. For instance, *a strange plan which the purpose of escapes me* is not acceptable. "Other" complex relative *wh* phrases do tolerate preposition stranding. For instance, *a strange plan which I don't understand the purpose of* is acceptable albeit inelegant (Huddleston and Pullum 2002: 1041).

The two variants: (preposition stranding within the complex relative *wh* phrase) the subject and "other" clause elements. – The deduction proceeds in the extremely unnatural environment "*wh* relative".

1. The assumptions of Natural Syntax:
   1.1. >nat (subject, "other" clause elements)
      I.e., the subject is more natural than "other" clause elements. – The subject is the most natural clause element. In communication, the speaker is usually the subject. According to the criterion of favourable for the speaker, item (a) in the list of axioms.
   1.2. >nat (+, −) / acceptable
      I.e., what is acceptable is more natural than what is not acceptable. – This is the acceptability criterion itself, item (h) 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 preposition stranding in the subject and preposition stranding in "other" clause elements such that one option is acceptable and the other option is not acceptable, then it is preposition stranding in the subject that tends not to be acceptable and it is preposition stranding in "other" clause elements that tends to be acceptable. Q.E.D. (The reverse situation is not expected.)

4. Note. For the special case of partitive *of*, see deduction (12).

(12) **English.** Complex relative *wh* phrases that contain partitive *of* do not tolerate preposition stranding. For instance, *her letters which he'd answered only five of* is not acceptable. "Other" complex relative *wh* phrases do tolerate preposition stranding. For instance, *a strange plan which I don't understand the purpose of* is acceptable albeit inelegant (Huddleston and Pullum 2002: 1041).

The two variants: (bare preposition in situ within the complex relative *wh* phrase) partitive *of* and "other" prepositions. – The deduction proceeds in the extremely unnatural environment "*wh* relative".

1. The assumptions of Natural Syntax:
   1.1. >nat (partitive *of*, "other" prepositions)
      I.e., partitive *of* is more natural than "other" prepositions. – According to the criterion of small vs. large class, item (f) in the list of axioms.
   1.2. >nat (+, −) / acceptable
      I.e., what is acceptable is more natural than what is not acceptable. – This is the acceptability criterion itself, item (h) 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 (given a bare preposition in situ within a complex relative *wh* phrase) between partitive *of* and "other" prepositions such that one option is acceptable and the other option is not acceptable, then it is partitive *of* that tends not to be acceptable and it is "other" prepositions that tend to be acceptable. Q.E.D. (The reverse situation is not expected.)

(13) **English.** Wholesale movement of a complex relative *wh* phrase does not take place if the remaining post-phrasal nucleus would be light; for instance, *phenomena little or no direct knowledge of which we have* is not acceptable or is at least infelicitous (Huddleston and Pullum 2002: 1042).

The two variants: light and heavy post-phrasal nucleus. – The deduction proceeds in the extremely unnatural environment "dependent clause".

1. The assumptions of Natural Syntax:
   1.1. >nat (light, heavy) / post-phrasal nucleus
      I.e., a light post-phrasal nucleus is more natural than a heavy post-phrasal nucleus. – According to the criterion of least effort, item (b) in the list of axioms.
   1.2. >nat (+, −) / acceptable
      I.e., what is acceptable is more natural than what is not acceptable. – This is the acceptability criterion itself, item (h) 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 light and heavy post-phrasal nuclei such that one is acceptable and the other is not acceptable, then it is heavy post-phrasal nuclei that tend to be acceptable and it is light post-phrasal nuclei that tend not to be acceptable. Q.E.D. (The reverse situation is not expected.)

(14) **English.** *Whose* as determiner can be used in integrated and supplementary relative clauses; for instance, *the student$_1$ whose$_1$ essay he plagiarised*; *Tom Roberts$_2$, an exhibition of whose$_2$ work can currently be seen in the National Art Gallery*. *Which* as determiner can only be used in supplementary clauses;

for instance, *[I may be late]$_3$, in [which case]$_3$ I suggest you start without me* (Huddleston and Pullum 2002: 1043–1044).

The two variants: relative *whose* and *which* as determiners. – The deduction proceeds in the extremely unnatural environment "dependent clause".

1. The assumptions of Natural Syntax:
   1.1. >nat (integrated, supplementary) / relative clause
   I.e., an integrated clause is more natural than a supplementary clause. – An integrated clause is better integrated into its construction. According to the criterion of integration into construction, item (d) in the list of axioms.
   A special case of 1.1:
   1.1.1. >nat (integrated & supplementary, only supplementary) / relative clause
   Scale 1.1.1 assumes the permitted expanded format >nat (A + B, B) and is automatically valid because the corresponding basic scale 1.1 has been substantiated.
   1.2. >nat (*which, whose*) / determiner in relative *wh* phrase
   I.e., (as a determiner in a relative *wh* phrase) *which* is more natural than *whose*. – *Which* is a better integrated determiner than *whose*; the latter functions as the relativized element whereas the determiner *which* is only part of the relativized element (see my co-indexation in the above examples). According to the criterion of integration into clause, item (d) 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 *whose* and *which* as determiners in the relative *wh* phrase such that one option is used in both integrated and supplementary clauses, and the other option is used only in supplementary clauses, then it is *whose* that tends to be used in both integrated and supplementary clauses, and it is *which* that tends to be used only in supplementary clauses. Q.E.D. (The reverse situation is not expected.)

(15) **English.** Relativized AdjP containing a PP. The head of an AdjP optionally joins a PP if the relative clause is supplementary; for instance, *functions, prominent among which is sexual attraction* and *functions, among which sexual attraction is prominent*. In integrated clauses the head of the AdjP

obligatorily remains in situ; for instance, *the business for which I am no longer responsible* (Huddleston amd Pullum 2002: 1042).

The two variants: the head of an AdjP in integrated and supplementary clauses. – The deduction proceeds in the extremely unnatural environment "dependent clause".

1. The assumptions of Natural Syntax:
   1.1. >nat (ex, in) / situ, head of AdjP
      I.e., the head of an AdjP ex situ is more natural than the head of an AdjP in situ. – The phrase ex situ has undergone movement to the left. This is natural according to the process criterion, item (g) in the list of axioms.
      A special case of 1.1:
      1.1.1. >nat (ex & in, only in) / situ, head of AdjP
         Scale 1.1.1 assumes the permitted expanded format >nat (A + B, B) and is automatically valid because the corresponding basic scale 1.1 has been substantiated.
   1.2. >nat (integrated, supplementary) / relative clause
      I.e., an integrated clause is more natural than a supplementary clause. – An integrated clause is better integrated into its construction. According to the criterion of integration into its construction, item (d) 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 head of an AdjP in integrated and supplementary clauses such that one option contains the head either in situ or ex situ and the other option contains the head only in situ, then it is integrated clauses that tend to contain the head only in situ and it is supplementary clauses that tend to contain the head either in situ or ex situ. Q.E.D. (The reverse situation is not expected.)

4. Note. The example *several MPs were interviewed, chief among whom was the Chancellor of the Exchequer, Douglas Durack* shows obligatory movement of the head of the AdjP (Huddleston and Pullum 2002: 1042) because the post-phrasal nucleus is heavy. Deduction (13) applies.

(16) **English.** Purpose and catenative non-finite relative clauses. Wholesale movement of a *wh* phrase is rare and restricted to supplementary clauses; for instance, *a 'higher criticism' of the Bible, to refute which I felt the need of a*

better knowledge of Hebrew (Huddleston and Pullum 2002: 1043). This deduction treats frequency. Restriction to supplementary clauses is dealt with in deduction (17). Acceptability is the subject matter of deduction (18).

The two variants: (within the type *to refute which*) wholesale and non-wholesale movement of a *wh* phrase. – The deduction proceeds in the extremely unnatural environment "dependent clause".

1. The assumptions of Natural Syntax:
   1.1. >nat (+, −) / wholesale movement of *wh* phrase
      I.e., wholesale movement of a *wh* phrase is more natural than non-wholesale movement of a *wh* phrase. – According to the process criterion, item (g) in the list of axioms.
   1.2. >nat (+, −) / frequent
      I.e., what is more frequent is more natural than what is less frequent. – This is the frequency criterion itself, item (e) 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 type *to refute which*) between wholesale and non-wholesale movement of *wh* phrases such that one option is frequent and the other option is infrequent, then it is wholesale movement that tends to be infrequent and it is non-wholesale movement that tends to be frequent. Q.E.D. (The reverse situation is not expected.)

(17) **English.** Purpose and catenative non-finite relative clauses. Wholesale movement of a *wh* phrase is rare and restricted to supplementary clauses; for instance, *a 'higher criticism' of the Bible, to refute which I felt the need of a better knowledge of Hebrew* (Huddleston and Pullum 2002: 1043). This deduction treats restriction to supplementary clauses. Frequency is dealt with in deduction (16). The acceptability is the subject matter of deduction (18).

The two variants: (within the type *to refute which*) wholesale and non-wholesale movement of a *wh* phrase. – The deduction proceeds in the extremely unnatural environment "dependent clause".

1. The assumptions of Natural Syntax:
   1.1. >nat (+, −) / wholesale movement of *wh* phrase

I.e., wholesale movement of a *wh* phrase is more natural than non-wholesale movement of a *wh* phrase. – According to the process criterion, item (g) in the list of axioms.

1.2. >nat (integrated, supplementary) / relative clause
I.e., an integrated clause is more natural than a supplementary clause. – An integrated clause is better integrated into its construction. According to the criterion of integration into construction, item (d) in the list of axioms.
A special case of 1.2:
1.2.1. >nat (integrated & supplementary, only supplementary) / relative clause
Scale 1.2.1 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 type *to refute which*) between wholesale and non-wholesale movement of *wh* phrases such that one option obtains only in supplementary clauses and the other option obtains in both integrated and supplementary clauses, then it is wholesale movement that tends to obtain only in supplementary clauses, and it is non-wholesale movement that tends to obtain in both integrated and supplementary clauses. Q.E.D. (The reverse situation is not expected.)

(18) **English.** Purpose and catenative non-finite relative clauses. Wholesale movement of a *wh* phrase is rare and restricted to supplementary clauses; for instance, *a 'higher criticism' of the Bible, to refute which I felt the need of a better knowledge of Hebrew* (Huddleston and Pullum 2002: 1043). This deduction treats acceptability. Frequency is the subject matter of deduction (16). Restriction to supplementary clauses is dealt with in deduction (17).

The two variants: (within wholesale movement of a *wh* phrase) purpose/catenative and "other" non-finite relative clauses. – To determine whether a clause is a purpose clause or a catenative clause, it is necessary to consider the respective matrix clause. Thus the deduction does not proceed in the extremely unnatural environment "dependent clause".

1. The assumptions of Natural Syntax:
1.1. >nat (purpose/catenative, "other") / non-finite relative clause

I.e., purpose/catenative non-finite relative clauses are more natural than "other" non-finite relative clauses. – According to the criterion of small vs. large class, item (f) in the list of axioms.

1.2. >nat (+, −) / acceptable

I.e., what is acceptable is more natural than what is not acceptable. – This is the acceptability criterion itself, item (h) in the list of axioms.

A special case of 1.2:

1.2.1. >nat (+/–, –) / acceptable

Scale 1.2.1 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 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 wholesale movement of a *wh* phrase, between purpose/catenative and "other" non-finite relative clauses such that with one option wholesale movement is possible and with the other option wholesale movement is not possible, then it is purpose/catenative non-finite relative clauses with which wholesale movement of a *wh* phrase tends to be possible and it is with "other" non-finite relative clauses that wholesale movement of a *wh* phrase tends not to be possible. Q.E.D. (The reverse situation is not expected.)

4. Note. Purpose clauses and catenative clauses are semantically related (Huddleston and Pullum 2002: 1043) and in this sense the connection between them is understandable.

(19) **English.** Gerund-participials in non-finite relative clauses. Wholesale movement of a *wh* phrase is obligatory, rare, and restricted to supplementary clauses and to formal style; for instance, *a rigorous examination, passing which confers on the student a virtual guarantee of a place at the university* (Huddleston and Pullum 2002: 1043). This deduction treats frequency. Restriction to supplementary clauses is dealt with in deduction (20). Restriction to formal usage is the subject matter of deduction (21).

The two variants: (within the type *passing which* displaying wholesale movement of the *wh* phrase) frequent and infrequent usage. – The deduction proceeds in the extremely unnatural environment "*wh* relative".

1. The assumptions of Natural Syntax:
   1.1. >nat (+, −) / frequent
      I.e., what is more frequent is more natural than what is less frequent. – This is the frequency criterion itself, item (e) in the list of axioms.
   1.2. >nat (+, −) / acceptable
      I.e., what is acceptable is more natural than what is not acceptable. – This is the acceptability criterion itself, item (h) 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 type *passing which*) between frequent and infrequent wholesale movement of *wh* phrases such that one option is acceptable and the other option is not acceptable, then it is frequent wholesale movement that tends not to be acceptable and it is infrequent wholesale movement that tends to be acceptable. Q.E.D. (The reverse situation is not expected.)

(20) **English.** Gerund-participials in non-finite relative clauses. Wholesale movement of a *wh* phrase is obligatory, rare, and restricted to supplementary clauses and to formal style; for instance, *a rigorous examination, passing which confers on the student a virtual guarantee of a place at the university* (Huddleston and Pullum 2002: 1043). This deduction deals with restriction to supplementary clauses. Deduction (19) treats frequency. Restriction to formal usage is the subject matter of deduction (21).

The two variants: (with the type *passing which*) integrated and supplementary clauses. – The deduction proceeds in the extremely unnatural environment "dependent clause".

1. The assumptions of Natural Syntax:
   1.1. >nat (integrated, supplementary) / relative clause
      I.e., an integrated clause is more natural than a supplementary clause. – An integrated clause is better integrated into its construction. According to the criterion of integration into construction, item (d) in the list of axioms.
   1.2. >nat (+, −) / acceptable
      I.e., what is acceptable is more natural than what is not acceptable. – This is the acceptability criterion itself, item (h) 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 (with the type *passing which*) integrated and supplementary clauses such that one option is acceptable and the other option is not acceptable, then it is integrated clauses that tend not to be acceptable and it is supplementary clauses that tend to be acceptable. Q.E.D. (The reverse situation is not expected.)

(21) **English.** Gerund-participials in non-finite relative clauses. Wholesale movement of a *wh* phrase is obligatory, rare, and restricted to supplementary clauses and to formal style; for instance, *a rigorous examination, passing which confers on the student a virtual guarantee of a place at the university* (Huddleston and Pullum 2002: 1043). Restriction to formal usage is the subject matter of this deduction. Deduction (19) treats frequency. Restriction to supplementary clauses is dealt with in deduction (20).

The two variants: (with the type *passing which*) formal and informal language. – The deduction proceeds in the extremely unnatural environment "dependent clause".

1. The assumptions of Natural Syntax:
   1.1. >nat (−, +) / formal language
      I.e., informal language is more natural than formal language. – In many languages, communication is restricted to informal language. According to the typological criterion, item (i) in the list of axioms.
   1.2. >nat (+, −) / acceptable
      I.e., what is acceptable is more natural than what is not acceptable. – This is the acceptability criterion itself, item (h) 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 (with the type *passing which*) between formal and informal language such that one option is acceptable and the other option is not acceptable, then it is formal language that tends to be acceptable and it is informal language that tends not to be acceptable. Q.E.D. (The reverse situation is not expected.)

(22) **English.** An indirect object cannot be relativized; for instance, **the student whom he showed the exam paper* (Huddleston and Pullum 2002: 1044). The corresponding construction *to* + NP is acceptable: *the student to whom he showed the exam paper*. The variant *the student who(m) he showed the exam paper to* is dealt with in deduction (23).

The two variants: indirect object and the corresponding PP. – The deduction proceeds in the extremely unnatural environment "dependent clause".

1. The assumptions of Natural Syntax:
   1.1. >nat (indirect object, corresponding PP) / as relative *wh* phrase
   I.e., as a relative *wh* phrase, an indirect object is more natural than a corresponding PP. – According to the criterion of least effort, item (b) in the list of axioms.
   1.2. >nat (+, −) / acceptable
   I.e., what is acceptable is more natural than what is not acceptable. – This is the acceptability criterion itself, item (h) 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 relative *wh* phrases, between indirect objects and corresponding prepositional phrases such that one option is acceptable and the other option is not acceptable, then it is indirect objects that tend not to be acceptable and it is prepositional phrases that tend to be acceptable. Q.E.D. (The reverse situation is not expected.)

(23) **English.** Relativized PP corresponding to the indirect object.

The two variants: the student to whom he showed the exam paper (preposition to located ex situ) and the student who(m) he showed the exam paper to (preposition to located in situ).

1. The assumptions of Natural Syntax:
   1.1. >nat (ex situ, in situ) / preposition *to*
   I.e., the preposition *to* located ex situ is more natural than the preposition *to* located in situ. – The phrase located ex situ has undergone movement to the left. This is natural according to the process criterion, item (g) in the list of axioms.
   1.2. >nat (−, +) / formal language

I.e., informal language is more natural than formal language. – In many languages, communication is restricted to informal language. According to the typological criterion, item (i) 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 formal and informal language such that one option contains the preposition *to* located in situ and the other option contains the preposition *to* located ex situ, then it is formal language that tends to contain *to* located ex situ and it is informal language that tends to contain *to* located in situ. Q.E.D. (The reverse situation is not expected.)

(24) **English.** A relativized subject complement is rare; for instance, *the scholar she is__* (Huddleston and Pullum 2002: 1045).

The two variants: (a relativized subject complement) frequent and infrequent. – The deduction proceeds in the extremely unnatural environment "dependent clause".

1. The assumptions of Natural Syntax:
   1.1. >nat (more, less) / frequent
      I.e., what is more frequent is more natural than what is less frequent. – This is the frequency criterion itself, item (e) in the list of axioms.
   1.2. >nat (+, −) / acceptable
      I.e., what is acceptable is more natural than what is not acceptable. – This is the acceptability criterion itself, item (h) 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 (with relativized subject complements) between frequent and infrequent usage such that one option is acceptable and the other option is not acceptable, then it is frequent usage that tends not to be acceptable and it is infrequent usage that tends to be acceptable. Q.E.D. (The reverse situation is not expected.)

4. Note. Compare deduction (25).

(25) **English.** A relativized object complement is hardly acceptable; it must be rephrased as a subject complement. Compare the unacceptable *I don't think it is the good investment [they consider it__]* and the acceptable *I don't think it is the good investment [they consider it to be__]* (Huddleston and Pullum 2002: 1045).

The two variants: the type *they consider it__* and the type *they consider it to be__*. – The deduction proceeds in the extremely unnatural environment "dependent clause".

1. The assumptions of Natural Syntax:
   1.1. >nat (the type *they consider it__*, the type *they consider it to be__*)
   I.e., the type *they consider it__* is more natural than the type *they consider it to be__*. – According to the criterion of least effort, item (b) in the list of axioms.
   1.2. >nat (+, −) / acceptable
   I.e., what is acceptable is more natural than what is not acceptable. – This is the acceptability criterion itself, item (h) 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 *they consider it__* and the type *they consider it to be__* such that one type is acceptable and the other type is not acceptable, then it is the type *they consider it to be__* that tends to be acceptable and it is the type *they consider it__* that tends not to be acceptable. Q.E.D. (The reverse situation is not expected.)

4. Note. Compare deduction (24), predicting that the acceptable type *they consider it to be__* is rare.

(26) **English.** Beside *I want a car which/that is safe* there is the unacceptable *I want a car __ is safe* (Huddleston and Pullum 2002: 1047).

The two variants: the acceptable type *I want a car which/that is safe* and the unacceptable type *I want a car __ is safe*. – The deduction proceeds in the extremely unnatural environment "dependent clause".

1. The assumptions of Natural Syntax:
   1.1. >nat (gap, *which/that*) / subject of relative clause

I.e., as the subject of a relative clause, a gap is more natural than *which/that*. – According to the criterion of least effort, item (b) in the list of axioms.

1.2. >nat (+, −) / acceptable
I.e., what is acceptable is more natural than what is not acceptable. – This is the acceptability criterion itself, item (h) 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 subject of a relative clause, between gaps and *which/that* such that one option is acceptable and the other option is not acceptable, then it is gaps that tend not to be acceptable and it is *which/that* that tends to be acceptable. Q.E.D. (The reverse situation is not expected.)

(27) **English.** Attraction in relative clauses. The examples *the people and books which had brought her the greatest pleasure* and *the books and people who had brought her the greatest pleasure* show attraction between the *wh* relative and its antecedent. The attraction vanishes if the relative clause is introduced by *that* (Huddleston and Pullum 2002: 1049). My interpretation: the attraction between *that* and its antecedent does obtain, but it is invisible.

The two variants: *that* and *wh* relative. – The antecedent is also involved.

1. The assumptions of Natural Syntax:
1.1. >nat (*that*, *wh* relative) / introducing relative clause
I.e., *that* introducing a relative clause is more natural than a *wh* relative. – *That* is the only member of its class, *wh* relatives are members of a larger class. According to the criterion of small vs. large class, item (f) in the list of axioms.
1.2. >nat (−, +) / visible attraction
I.e., invisible attraction is more natural than visible attraction. – The hearer is interested in visible attraction because this, being visible, eases decoding, and therefore visible attraction must be mentioned in slot B of the scale. According to the criterion of favourable for the hearer, item (a) 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 relative clauses, between *that* and *wh* relatives such that one option associates with visible attraction and the other option associates with invisible attraction, then it is *that* that tends to associate with invisible attraction and it is *wh* relatives that tend to associate with visible attraction. Q.E.D. (The reverse situation is not expected.)

(28) **English.** (a) With personal antecedents the type *a child whose parents were constantly quarrelling* is more likely than the types *a child the parents of whom were constantly quarrelling* and *a child of whom the parents were constantly quarrelling*. (b) With non-personal antecedents either the type *a house the roof of which had been damaged* or the type *a house of which the roof had been damaged* is more likely than the type *a house whose roof had been damaged* (Huddleston and Pullum 2002: 1049–1050). This deduction treats case (a). Case (b) is dealt with in deduction (29).

The two variants: (antecedent +human) relatives *whose* and *of whom*. – The antecedent is also involved.

1. The assumptions of Natural Syntax:
   1.1. >nat (*whose, of whom*) / relative
      I.e., the relative *whose* is more natural than the relative *of whom*. – According to the criterion of least effort, item (b) in the list of axioms.
   1.2. >nat (more, less) / frequent
      I.e., what is more frequent is more natural than what is less frequent. – This is the frequency criterion itself, item (e) 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 (with a +human antecedent) between the relatives *whose* and *of whom* such that one option is frequent and the other option is infrequent, then it is the relative *whose* that tends to be frequent and it is the relative *of whom* that tends to be infrequent. Q.E.D. (The reverse situation is not expected.)

4. Note. Notice that deductions (28–29) implement identical naturalness scales.

(29) **English.** (a) With personal antecedents the type *a child whose parents were constantly quarrelling* is more likely than the types *a child the parents of*

whom were constantly quarrelling and *a child of whom the parents were constantly quarrelling*. (b) With non-personal antecedents either the type *a house the roof of which had been damaged* or the type *a house of which the roof had been damaged* is more likely than the type *a house whose roof had been damaged* (Huddleston and Pullum 2002: 1049–1050). This deduction treats case (b). Case (a) is dealt with in deduction (28).

The two variants: (antecedent –human) relatives *whose* and *of whom*. – The deduction proceeds in the extremely unnatural environment "–human" culled from the scale >nat (+, −) / human.

1. The assumptions of Natural Syntax:
   1.1. >nat (*whose, of whom*) / relative
   I.e., the relative *whose* is more natural than the relative *of whom*. – According to the criterion of least effort, item (b) in the list of axioms.
   1.2. >nat (more, less) / frequent
   I.e., what is more frequent is more natural than what is less frequent. – This is the frequency criterion itself, item (e) 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 (with a –human antecedent) between the relatives *whose* and *of whom* such that one option is frequent and the other option is infrequent, then it is the relative *whose* that tends to be infrequent, and it is the relative *of whom* that tends to be frequent. Q.E.D. (The reverse situation is not expected.)

4. Note. Notice that deductions (28–29) implement identical naturalness scales.

(30) **English.** Relative *where*. If relative *where* expresses rest or direction it is usually not preceded by a preposition. If, however, *where* expresses the source it must be accompanied by a preposition; for instance, *the knoll from where she could look down* (Huddleston and Pullum 2002: 1050).

The two variants: *where* preceded and not preceded by a preposition. – The deduction proceeds in the extremely unnatural environment "dependent clause".

1. The assumptions of Natural Syntax:
   1.1. >nat (−, +) / preposition in front of *where*

I.e., in front of *where*, the lack of a preposition is more natural than its presence. – According to the criterion of least effort, item (b) in the list of axioms.

1.2. >nat ('source', 'rest/direction')
I.e., 'source' is more natural than 'rest/direction'. – It is easier for the hearer to perceive 'rest/direction' than 'source', and therefore 'rest/direction' must be mentioned in slot B of the scale. According to the criterion of favourable for the hearer, item (a) 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 relative clauses, between bare *where* and a preposition + *where* such that one option expresses 'rest/direction' and the other option expresses 'source', then it is bare *where* that tends to express 'rest/direction', and it is a preposition + *where* that tends to express 'source'. Q.E.D. (The reverse situation is not expected.)

(31) **English.** Relative *when*. If relative *when* expresses position or "forward span" it is usually not preceded by a preposition; for instance, *it happened at a time when I was living alone; in those days, when he was still a student*. If, however, *when* expresses the "backward span" (the source) it must be accompanied by a preposition; for instance, *in 1982, since when I've only seen him twice* (Huddleston and Pullum 2002: 1051). The terms "forward span" and "backward span" are taken from Quirk et al. (1985: 481).

The two variants: *when* preceded and not preceded by a preposition. – The deduction proceeds in the extremely unnatural environment "dependent clause".

1. The assumptions of Natural Syntax:
1.1. >nat (−, +) / preposition in front of *when*
I.e., in front of *when*, the lack of a preposition is more natural than its presence. – According to the criterion of least effort, item (b) in the list of axioms.
1.2. >nat ('backward span', 'position/forward span')
I.e., 'backward span' is more natural than 'position/forward span'. – It is easier for the hearer to decode what is present or imminent than what is past, and therefore 'position/forward span' must be mentioned in slot B of the scale. According to the criterion of favourable for the hearer, item (a) 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 relative clauses, between bare *when* and a preposition + *when* such that one option expresses 'position/forward span' and the other option expresses 'backward span', then it is bare *when* that tends to express 'position/forward span' and it is a preposition + *when* that tends to express 'backward span'. Q.E.D. (The reverse situation is not expected.)

(32) **English.** The relative *while* is used in supplementary clauses; for instance, *from 1981 to 1987, while his uncle lived with them*. Some speakers accept the relative *while* even in integrated clauses; for instance, *he wrote most of his poetry during the years while he was in Paris* (Huddleston and Pullum 2002: 1051).

The two variants: integrated and supplementary clauses. – The deduction proceeds in the extremely unnatural environment "dependent clause".

1. The assumptions of Natural Syntax:
   1.1. >nat (integrated, supplementary) / relative clause
      I.e., an integrated clause is more natural than a supplementary clause. – An integrated clause is better integrated into its construction. According to the criterion of integration into construction, item (d) in the list of axioms.
   1.2. >nat (+, −) / acceptable
      I.e., what is acceptable is more natural than what is not acceptable. – This is the acceptability criterion itself, item (h) in the list of axioms.
      A special case of 1.2:
      1.2.1. >nat (more, less) / acceptable
         I.e., what is more acceptable is more natural than what is less acceptable. – Scale 1.2.1 is a slightly loosened version of scale 1.2.

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 (with the relative *while*) between integrated and supplementary clauses such that one option is more acceptable and the other option is less acceptable, then it is integrated clauses that tend to be less ac-

ceptable and it is supplementary clauses that tend to be more acceptable. Q.E.D. (The reverse situation is not expected.)

(33) **English.** Relative *why* occurs only in integrated clauses and its single antecedent is *reason*; for instance, *that's the main reason why they won't help us* (Huddleston and Pullum 2002: 1051).

The two variants: *reason why* and "other" antecedents + *wh* relative. – The antecedent is also involved.

1. The assumptions of Natural Syntax:
   1.1. >nat (*reason why*, "other") / antecedents + *wh* relative
   I.e., *reason why* is more natural than "other" antecedents + *wh* relative. – *Reason why* is the only member of its class whereas "other" antecedents + *wh* relative form a larger class. – According to the criterion of small vs. large class, item (f) in the list of axioms.
   1.2. >nat (integrated, supplementary) / relative clause
   I.e., an integrated clause is more natural than a supplementary clause. – An integrated clause is better integrated into its construction. According to the criterion of integration into construction, item (d) in the list of axioms.
   A special case of 1.2:
   1.2.1. >nat (only integrated, integrated & supplementary) / relative clause
   Scale 1.2.1 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 between *reason why* and "other" antecedents + *wh* relative such that one option obtains only in integrated relative clauses and the other option obtains in both integrated and supplementary relative clauses, then it is *reason why* that tends to obtain only in integrated relative clauses and it is "other" antecedents + *wh* relative that tend to obtain in both integrated and supplementary relative clauses. Q.E.D. (The reverse situation is not expected.)

(34) **English.** Relative *whence* is used only in formal language, in two meanings: 'spatial source' and 'logical source'; for instance, *another congressman's*

house, whence they were spirited to a governor; the Taniyama-Shimura conjecture is true, whence it follows that Fermat's Last Theorem is true. The meaning 'logical source' obtains only in supplementary clauses (Huddleston and Pullum 2002: 1051). This deduction deals with distribution in integrated and supplementary clauses. Restriction to formal language is treated in deduction (35).

The two variants: (with relative *whence*) 'logical source' and 'spatial source'. – The deduction proceeds in the extremely unnatural environment "dependent clause".

1. The assumptions of Natural Syntax:
   1.1. >nat ('logical source', 'spatial source') / clause introduced by relative *whence*
   I.e., in clauses introduced by relative *whence*, 'logical source' is more natural than 'spatial source'. – 'Spatial source' is easier for the hearer to perceive and decode, and therefore 'spatial source' must be mentioned in slot B of the scale. According to the criterion of favourable for the hearer, item (a) in the list of axioms.
   1.2. >nat (integrated, supplementary) / relative clause
   I.e., an integrated clause is more natural than a supplementary clause. – An integrated clause is better integrated into its construction. According to the criterion of integration into construction, item (d) in the list of axioms.
   A special case of 1.2:
   1.2.1. >nat (integrated & supplementary, only supplementary) / relative clause
   Scale 1.2.1 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 (with relative *whence*) between 'logical source' and 'spatial source' such that one option obtains in both integrated and supplementary clauses and the other option obtains only in supplementary clauses, then it is 'logical source' that tends to obtain only in supplementary clauses and it is 'spatial source' that tends to obtain in both integrated and supplementary clauses. Q.E.D. (The reverse situation is not expected.)

(35) **English.** Relative *whence* is used only in formal language, in two meanings: 'spatial source' and 'logical source'; for instance, *another congressman's house, whence they were spirited to a governor; the Taniyama-Shimura conjecture is true, whence it follows that Fermat's Last Theorem is true*. The meaning 'logical source' obtains only in supplementary clauses (Huddleston and Pullum 2002: 1051). This deduction deals with restriction to formal language. Distribution in integrated and supplementary clauses is treated in deduction (34).

The two variants: relative *whence* and "other" *wh* relatives. – The deduction proceeds in the extremely unnatural environment "dependent clause".

1. The assumptions of Natural Syntax:
   1.1. >nat (*whence*, "other") / *wh* relatives
   I.e., *whence* is more natural than "other" *wh* relatives. – *Whence* is the only member of its class whereas "other" *wh* relatives form a larger class. According to the criterion of small vs. large class, item (f) in the list of axioms.
   1.2. >nat (−, +) / formal language
   I.e., informal language is more natural than formal language. – In many languages, communication is restricted to informal language. According to the typological criterion, item (i) in the list of axioms.
   A special case of 1.2:
   1.2.1. >nat (+/−, +) / formal language
   Scale 1.2.1 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 between relative *whence* and "other" *wh* relatives such that one option obtains in both formal and informal language and the other option obtains only in formal language, then it is relative *whence* that tends to obtain only in formal language and it is "other" *wh* relatives that tend to obtain in both formal and informal language. Q.E.D. (The reverse situation is not expected.)

(36) **English.** Supplementary relative clauses. Their relative is usually a *wh* phrase. Only if the antecedent is a noun phrase can the relative be *that*; for

instance, *the patas monkey, that spends almost all of its time in open grassland* (Huddleston and Pullum 2002: 1052).

The two variants: NP and "other" antecedents.

1. The assumptions of Natural Syntax:
   1.1. >nat (+, −) / NP as antecedent
   I.e., as an antecedent, an NP is more natural than a non-NP. – An NP is the most frequent antecedent, thus natural according to the frequency criterion, item (e) in the list of axioms. An NP forms a small class whereas non-NPs form a larger class. According to the criterion of small vs. large class, item (f) in the list of axioms.
   1.2. >nat (*that*, *wh* phrase) / as relative
   I.e., as a relative, *that* is more natural than a *wh* phrase. – *That* is a member of a small class, and *wh* phrases are members of a larger class. According to the criterion of small vs. large class, item (f) in the list of axioms.
   A special case of 1.2:
   1.2.1. >nat (*that* & *wh* phrase, only *wh* phrase) / as relative
   Scale 1.2.1 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 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 antecedents of supplementary clauses) between noun phrases and "other" antecedents such that one option allows a *wh* phrase or *that* and the other option allows only a *wh* phrase, then it is noun phrases that tend to allow a *wh* phrase or *that*, and it is "other" antecedents that tend to allow only a *wh* phrase. Q.E.D. (The reverse situation is not expected.)

(37) **English.** Integrated relative clauses. If the relative phrase is complex, it must be a *wh* phrase (Huddleston and Pullum 2002: 1052–53).

The two variants: (within integrated relative clauses) simple and complex relative phrase.

1. The assumptions of Natural Syntax:
   1.1. >nat (simple, complex) / relative phrase
   1.2. >nat (*that*/∅, *wh* phrase) / as relative
      I.e., as a relative, *that*/∅ is more natural than a *wh* phrase. – *That*/∅ is a member of a small class, and *wh* phrases are members of a larger class. According to the criterion of small vs. large class, item (f) in the list of axioms.
      A special case of 1.2:
      1.2.1. >nat (*that*/∅ & *wh* phrase, only *wh* phrase) / as relative
         Scale 1.2.1 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 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 integrated relative clauses) between simple and complex relative phrases such that one option is any relative and the other option is only a *wh* phrase, then it is simple relative phrases that tend to be any relative and it is complex relative phrases that tend to be only a *wh* phrase. Q.E.D. (The reverse situation is not expected.)

(38) **English.** The type *that which we so carefully created* contains only integrated clauses and is used only in formal language. The type *that that we so carefully created* is not acceptable (Huddleston and Pullum 2002: 1053).

The two variants: *that which* and **that that*. – The deduction proceeds in the extremely unnatural environment "formal language".

1. The assumptions of Natural Syntax:
   1.1. >nat (*that, which*) / *that* __
      I.e., *that* is more natural than *which*. – *Which* has fewer meanings than *that*, and therefore *which* is easier for the hearer to decode and must be mentioned in slot B of the scale. According to the criterion of favourable for the hearer, item (a) in the list of axioms.
   1.2. >nat (+, −) / acceptable
      I.e., what is acceptable is more natural than what is not acceptable. – This is the acceptability criterion itself, item (h) 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 *that which* and *that that* such that one option is acceptable and the other option is not acceptable, then it is *that which* that tends to be acceptable and it is *that that* that tends not to be acceptable. Q.E.D. (The reverse situation is not expected.)

(39) **English.** The bare antecedent *all* (rare and formal as a bare noun phrase, Carter and McCarthy 2006: 37) combines with the relative *who* when referring to +human; for instance, *all who heard her speak*. When bare *all* refers to –human it is followed by *that*/∅; for instance, *all (that) I ask for is a little peace and quiet* (Huddleston and Pullum 2002: 1053).

The two variants: relatives *who* and *that*/∅ with the bare antecedent *all*. – The deduction proceeds in the extremely unnatural environment "formal language".

1. The assumptions of Natural Syntax:
1.1. >nat (*that*/∅, *who*)
I.e., *that*/∅ is more natural than *who*. – *Who* has fewer meanings than *that*, and therefore *who* is easier for the hearer to decode and must be mentioned in slot B of the scale. According to the criterion of favourable for the hearer, item (a) in the list of axioms. ∅ is more natural than *who* according to the criterion of least effort, item (b) in the list of axioms.
1.2. >nat (+, −) / human
I.e., +human is more natural than −human. – The speaker (the centre of communication) is +human. According to the criterion of favourable for the speaker, item (a) 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 (with the bare antecedent *all*) between the relatives *that*/∅ and *who* such that one refers to +human and the other refers to –human, then it is the relative *that*/∅ that tends to refer to –human and it is the relative *who* that tends to refer to +human. Q.E.D. (The reverse situation is not expected.)

(40) **English.** Postposing of relative clauses. An integrated clause is more likely to be postposed than a supplementary clause; for instance, *a stranger came into the room who looked just like Uncle Oswald*; *only the flower is used, which is not poisonous* (Huddleston and Pullum 2002: 1066).

The two variants: integrated and supplementary clauses. – The deduction proceeds in the extremely unnatural environment "dependent clause".

1. The assumptions of Natural Syntax:
   1.1. >nat (integrated, supplementary) / relative clause
      I.e., an integrated clause is more natural than a supplementary clause. – An integrated clause is better integrated into its construction. According to the criterion of integration into construction, item (d) in the list of axioms.
   1.2. >nat (−, +) / postposing of relative clause
      I.e., lack of postposing is more natural than realized postposing. – Postposing is of little naturalness according to the process criterion, item (g) in the list of axioms.
      A special case of 1.2:
      1.2.1. >nat (less, more) / postposing of relative clause
         I.e., less postposing is more natural than more postposing. – Scale 1.2.1 is a slightly loosened version of scale 1.2.

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 integrated and supplementary clauses such that in one type there is more postposing of the relative clause and in the other type there is less postposing of the relative clause, then it is integrated relative clauses that tend to undergo more postposing and it is supplementary relative clauses that tend to undergo less postposing. Q.E.D. (The reverse situation is not expected.)

(41) **English.** A dependent clause containing an infinitive and (preposed) preposition + relativized object – for instance, *(she is the ideal person) in whom to confide*; the construction is used in formal language only. The alternative is *(she is the ideal person) to confide in*; this alternative is not limited to formal language. Both constructions are restricted to integrated clauses (Huddleston and Pullum 2002: 1067).

The two variants: the type *(the ideal person) in whom to confide* and the type *(the ideal person) to confide in*. – The deduction proceeds in the extremely unnatural environment "dependent clause".

1. The assumptions of Natural Syntax:
   1.1. >nat (−, +) / stranded preposition
   I.e., a non-stranded preposition is more natural than a stranded preposition. – A non-stranded preposition has been moved to the left. It is natural according to the process criterion, item (g) in the list of axioms. A stranded preposition is located in situ: it has not been moved.
   1.2. >nat (−, +) / relative *wh* phrase
   I.e., lack of a relative *wh* phrase 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, within infinitival relative clauses, between stranded and non-stranded prepositions such that one option is associated with a *wh* phrase and the other option is not associated with a *wh* phrase, then it is stranded prepositions that tend not to be associated with a *wh* phrase and it is non-stranded prepositions that tend to be associated with a *wh* phrase. Q.E.D. (The reverse situation is not expected.)

4. Note. For a treatment of the type *in whom to confide* in the spirit of generative grammar, see Gallego (2005).

(42) **English.** Infinitival relative clause introduced by a preposition + *wh* relative; for instance, *she is the ideal person in whom to confide*. The construction occurs in formal language only and is limited to integrated clauses (Huddleston and Pullum 2002: 1067).

The two variants: (the type *in whom to confide*) formal and informal language. – The construction is a (non-finite) dependent clause; thus the deduction proceeds in the extremely unnatural environment "dependent clause".

1. The assumptions of Natural Syntax:
   1.1. >nat (−, +) / formal language

I.e., informal language is more natural than formal language. – In many languages, communication is restricted to informal language. According to the typological criterion, item (i) in the list of axioms.

1.2. >nat (+, −) / acceptable
I.e., what is acceptable is more natural than what is not acceptable. – This is the acceptability criterion itself, item (h) 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 type *in whom to confide*, between formal and informal language such that one option is acceptable and the other option is not acceptable, then it is formal language that tends to be acceptable and it is informal language that tends not to be acceptable. Q.E.D. (The reverse situation is not expected.)

4. Note. Natural Syntax cannot predict that the type *in whom to confide* is limited to integral relative clauses.

Conclusion

The above illustration testifies that Natural Syntax is capable of predicting a significant amount of language situations, given a small number of presuppositions (i.e., the particular description of language data adopted, the choice of variants, the naturalness scales, the alignment rules) and a modest apparatus (namely, the deduction format). As mostly in morphology and unlike in generative syntax, the predictions are shallow in the sense that no prediction follows from any other prediction.

The development of Natural Syntax is to be continued exploiting as variegated language material as possible.

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