# Luxury in Natural Language

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### 1. Economy and Lexical Knowledge

The notion of economy has a central position in the Minimalist Program of Generative Grammar proposed a.o. in Chomsky (1995, 2002). The important point is that economy and its associates – parsimony, optimality, simplicity, perfection – are considered, over and above their general role as methodological or heuristic guidelines for the construction and evaluation of theories in all fields of inquiry, as properties of the language itself, i.e. of the subject matter of linguistic research. As Wilder and Gärtner (1997, p.1) put it: "At the core of the Minimalist Program lies the idea that economy is a central property of the system of language." If language is assumed to be economic, optimal, and perfect in principle, the emerging research strategy is this: "try to show that the apparent imperfections in fact have some computational function". (Chomsky, 2002, p. 118) In line with this orientation, Chomsky argues that imperfections like apparently redundant structural Case are in fact economic solutions to conditions arising from the need to reconcile deep and surface semantic relations.

One might wonder, whether, and if so, in which way, these considerations, explored primarily with respect to the computational system of syntax and morphology, would apply to the lexical system. Lexical items, on the one hand, are the ingredients the computational system is bound to work with, technically in terms of a "numeration" selected from the lexical repertoire. On the other hand, the lexical system is the place of all and only the idiosyncratic, arbitrary properties a given language might exhibit. This cannot mean, however, that lexical knowledge is just a heap of unstructured and unprincipled bits of information. As a matter of fact, rich and domain specific assumptions about the language organ must include prerequisites for "the acquisition of lexical items, which turn out to have rich and complex semantic structure, even the simplest of them. Knowledge of these properties becomes available on very limited evidence and, accordingly would be expected to be essentially uniform among languages; and is, as far as is known" as Chomsky (2002, p.86) observes.

That lexical items, combining semantic, morpho-syntactic, and phonetic features, must be subject to general principles of the Language Faculty, follows, among others, from the fact that otherwise the computational principles of linguistic knowledge could not operate an them, to build up complex linguistic expressions. The quest for economy in this respect leads to the assumption that lexical representations are subject to underspecification, such that lexical entries respect in one way or the other the conditions that make predictable specifications follow from more general rules or principles.

Now, underspecification controls the content of individual items with respect to general principles, avoiding unnecessary and hence sub-optimal specifications for each particular entry.[1] One might wonder, however, whether economy and parsimony are also relevant for the lexical system as a whole, i.e. with respect to the question which items may enter the system in the first place. For obvious reasons, there cannot be a language internal constraint on the set of admissible lexical items, as this is essentially a matter of language external conditions, facts, and distinctions a given language has to deal with. Hence economy and optimality in this respect seems to be a hopelessly vague and unclear condition: What is the optimal set of lexical items with respect to a given extralinguistic domain to be expressed? Such questions can hardly be answered by a reasonable linguistic theory, as the criterion is by definition not within the reach of linguistics. Suppose, however, we assume the reference domain to be fixed and ask, whether and in which way economy would determine an appropriate set of lexical items. With this proviso, a straightforward effect of economy seems to emerge.

### 2. The Principle of Contrast revisited

What economy principles with respect to sets of lexical items would apparently determine, namely "avoid unnecessary duplication", has become familiar as the Principle of Contrast. It has a remarkable tradition, which includes among others the claim expressed by Bloomfield (1933, p. 145) "If the forms

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[1] This is, by the way, exactly the reason why lexical items are essentially assemblies of idiosyncratic features: systematic properties of lexical entries are subject to underspecification.

[of words] are phonemically different, we suppose that their meanings also are different." This assumption has been turned by Eve Clark into one of the core principles by which the acquisition of lexical knowledge is organized (Clark, 1993, p. 64):

(1) *Contrast*: Speakers take every difference in form to mark a difference in meaning.

According to this principle, kids are looking for a separate meaning, presumably guided by general principles, in case they encounter a new lexical item.[2] As Clark (1993, p.65) furthermore assumes, "Contrast holds throughout the lexicon, for children and adults alike." This is a rather strong claim with important consequences for the organization of lexical knowledge. The most striking effect would be the strict exclusion of synonyms from the system of lexical knowledge.

Now, whether natural languages support or at least tolerate or whether they strictly exclude proper lexical synonyms is a matter of continuous debate. And the proper characterization of strict synonymy, together with the criteria by which it can be checked empirically is an equally controversial question. What motivates the non-synonymy of well known pairs like *oculist* and *eye doctor* or *mercury* and *quicksilver*? A frequent argument of those who deny the existence of strict synonyms is that in spite of their referential or denotational identity, the terms in question have different contexts or different connotations, like technical terminology vs. everyday language. Another type of argument acknowledges partial synonymy, that is synonymy on one reading, as in *the place is safe/secure*, but denies possible synonymy on all readings, especially on those that require different syntactic categorization, as in *that will *secure/save us a lot of trouble*.[3] In any case, synonymous pairs that can neither be referred to different contexts or different connotation nor explained as merely partial synonyms must be considered as exceptions and anomalies that are doomed to disappear by changing the meaning of one of them. A German case in point are the verbs *beginnen* and *anfangen* which differ neither in denotation (begin, start) nor in connotation (stylistically neutral)[4], neither in sub-readings nor syntactic properties. The only difference is the fact that *beginnen* is a prefix-verb, while *anfangen* has a separable particle, with all the regular syntactic consequences.[5] Instead of looking for reasons that account for the exceptional status of this example, I will take the opposite track, arguing that the synonymy of *anfangen/beginnen* is not an isolated, special case, but rather an instance of a rather common phenomenon, with all the consequences for the status of the Principle of Contrast.

## 3. Surprising Opulence

In this section, I will present a number of cases from German, which demonstrate the observation that natural languages do not just tolerate lexical synonyms in exceptional cases, but seem in fact to accumulate them in partially systematic ways, exhibiting a tendency one might call the principle of luxury.

In what follows, I will avoid cases of technical vs. normal vocabulary like *Hospital/Krankenhaus*, *Gynäkologe/Frauenarzt*, *Ophthalmologe/Augenarzt* etc. which are subject to obvious connotational distinctions, which I don't want to deal with in the present connection. The examples I want to consider are part of the standard vocabulary, with very little stylistic variation.

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[2] I will assume here that the Principle of Contrast is supposed to apply essentially to lexical items, not necessarily to phrases, such that for *the man waiting at the door* does not necessarily have a meaning different from that of *the man who's waiting at the door*. I will return to this aspect below.

[3] It might be noted that the unavoidable recognition of different readings for one lexical item – as in *bank*, *boot*, *bound*, *trial*, etc. – creates problems for this sort of argument with respect to the Principle of Contrast, because now it is unclear why in one case a reading should be influenced by alternative readings of the same item, while in others it is not. I cannot go further into these matters here.

[4] Judgements about synonymy are to some extent a matter of intuition. Hence I would like to add that I have won several bets to the effect that no reliable difference is to be found.

[5] Besides all their syntactic and semantic properties, these verbs share the morphological relation to a derived nominal – *Anfang* and *Beginn*, respectively – with the only difference that the former allows plural-formation (viz. *Anfänge*), while the latter idiosyncratically does not, although **Beginne* would be strictly parallel to the plural *Gewinne* of the noun *Gewinn* (gain), derived from the verb *gewinnen* (win). This is hardly the sort of difference in form referred to in the Principle of Contrast.

What seems to me remarkable, is the fact that besides standard examples of the sort already illustrated by *anfangen/beginnen* or cases like *Ferien/Urlaub* (vacation), *stark/kräftig* (strong), lexical items of a rather different sort seem to be prone to synonymy. To begin with, a whole set of adverbial quantifiers paraphrasing s*ometimes* is to be listed, with English glosses that need not be an incidental parallel:

| (2) | manchmal | sometimes |
| | gelegentlich | occasionally |
| | mitunter | |
| | dann und wann | now and then |
| | ab und zu | |
| | hin und wieder | |
| | je und je | |

A related domain – frequency of occurrences – but with different syntactic categorization are the cases in (3), where English seems to have (close) synonyms also for the corresponding antonyms, which don't exhibit synonyms in German:

| (3) | oft | often |
| | häufig | frequent(ly) |
| | | |
| | selten | seldom |
| | | rarely |

Another nest of more or less strict synonyms are adversative or concessive adverbials or conjunctions, again with English glosses of related type:

| (4) | obwohl | | although |
| | obgleich | ob ... gleich | even though |
| | obschon | | |
| | wiewohl | | |
| | | | |
| | gleichwohl | | albeit |
| | | | |
| | trotzdem | | (in spite of) |
| | | | |
| | indes | | however |
| | jedoch | | though |
| | aber | | |
| | | | |
| | nichtsdestoweniger | | nevertheless |
| | nichtsdestotrotz | | |

The relevant observation in cases like these is, that even though the different items are not strictly synonymous, their very close relatedness is not only at variance with the rationale behind the Principle of Contrast, but seems on the contrary to follow a kind of opposite orientation, namely to provide alternative means to realize the same semantic content. This consideration carries over to a similar nest of lexical joints between propositional structures:

| (5) | außerdem | besides |
| | zudem | moreover |
| | überdies | over and above |
| | darüber hinaus | |
| | obendrein | |

It also applies to items expressing gradual certainty like (6) and (7) or a kind of obviousness, as in (8):

3

| (6) | gewiß | certainly |
| | bestimmt | to be sure |

| (7) | sowieso | anyway |
| | ohnehin | anyhow |
| | ohnedies | |

| (8) | nachgerade | |
| | geradezu | |

Further consequences of the German inclination to use particles of "moderation" might include synonyms like (9):

| (9) | freilich | |
| | allerdings | |

The tendency to have varying means for causal connectives creates clusters like (10) and (11):

| (10) | weil | because |
| | da | as |
| | denn | since |

| (11) | mithin | hence |
| | demnach | therefore |
| | demzufolge | |

Minor clusters can be found at many places, such as (12) or (13):

| (12) | beinahe | almost |
| | fast | |

| (13) | bisher | |
| | bislang | |

The common property of the examples considered so far is that they do not belong to domains usually considered as subject to prohibition against synonymy due to the Principle of Contrast. Once the tendency for lexical variation is recognized as a possible option for lexical knowledge, however, other cases might be viewed in a different perspective. Clusters are usually less rich than those in (2) to (5), but they are still worth noticing in many cases, as illustrated in the following cases for domains to which arguments about synonymy traditionally apply:

| (14) | gelingen | vs. | mißlingen | succeed | vs. | fail |
| | glücken | vs. | mißglücken | | | |
| | (klappen) | | | | | |

| (15) | aufwachen | wake up |
| | erwachen | |
| | wach werden | |

(16)  $X_{Nom}$ bedauert $Y_{Acc}$
      $Y_{Nom}$ tut $X_{Dat}$ leid

(17)  $X_{Nom}$ begegnet $Y_{Dat}$    meet
      $X_{Nom}$ trifft $Y_{Acc}$

4

| (18) | horizontal | vs. | vertikal | | horizontal | vs. | vertical |
|------|------------|-----|----------|---|-----------|-----|----------|
| | waagerecht | vs. | senkrecht | | (level) | | perpendicular |

| (19) | Urlaub | | vacation |
|------|--------|---|----------|
| | Ferien | | holidays |

One might object that cases like (16) or (17) are not proper synonyms, as they are grammatically different, exhibiting different subcategorization (or Argument Structure). However, If one considers A as synonymous to B in case A and B have the same semantic representation associated with different forms, where subcategorization is part of their form, then these cases must naturally be classified as synonymous.

Another objection related to cases like (17) concerns the fact that *treffen* has readings not available for *begegnen*, hence the latter is not a synonym, but only a hyponym of the former. This observation raises a more general question, though: Why should the Principle of Contrast exclude synonyms, but tolerate proper hyponyms (except in cases of strictly taxonomic hierarchies)? In other words, why should *treffen* have the reading of *begegnen*, once a separate item for it is available?[6] The problem concerns the nature of Contrast, or more precisely, the way in which it exerts its effect.

Yet another condition that might prevent synonymy occurs in cases like (18). As noted earlier, the difference between native and non-native vocabulary is often assumed to yield different connotations. But besides the fact that there is not always an obvious separation of native from non-native items, as examples like (18) and (19) illustrate in different ways, the distinction would affect the synonymy-issue only, if it assigns the items to different registers or other systematic conditions. There is no evidence to that effect in (18) or (19).[7]

These deliberations notwithstanding, the collection of data considered in this section, which could easily be extended, should suffice to lead to the conclusion that the availability of more or less strictly synonymous (readings of) lexical items is not an exceptional phenomenon to be explained away, but rather a natural tendency of lexical knowledge. It thus seems reasonable to change the strategy. Instead of looking for ways to get rid of counterexamples to the Principle of Contrast, we probably should change the strategy and look for motivations and conditions that lead to the wealth of apparent counterexamples.

An obvious, but superficial and certainly not sufficient hint comes from the strong tendency to add new terms for already lexicalized concepts in certain domains. Money is a case in point in many languages. German has in addition to *Geld* among others *Moos*, *Piepen*, *Kies, Moneten*, *Penunze*, *Kröten* and others. All of these, except the neutral term *Geld*, are marked by stylistic connotation, and that is the rationale of their existence and usage. However, the variation does not indicate a corresponding variety of stylistic registers, but establishes rather variation as a stylistic means within (and as a characteristic property of) the same register. Similar conditions apply to other domains of general interest, positive and negative evaluation and sex being primary candidates.

## 4. Economy is not a Barrier for Synonymy

Summarizing the comments of the previous section, the following observations are to be made. First, besides or in spite of the Principle of Contrast, there is a systematic tendency to provide lexical synonyms in certain areas. The attempt to eliminate this phenomenon by restricting the concept of synonymy seems to be dubious and probably inappropriate. Second, synonyms are not scattered

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[6] The problem is that a superordinate term like *animal* is not left with a natural meaning, if one of its hyponyms like *dog* would be excluded, while *treffen* were perfectly natural with the meaning of *treffen* excluding that of *begegnen*. In other words, *treffen* is sort of homonymous between items that represent its different readings (as in *einen Freund treffen*, *das Ziel treffen*, *Vorbereitungen treffen*), while *animal* doesn't have different readings representing the meaning of *dog*, *cat*, *horse*, *frog*, etc.

[7] A striking bit of evidence for the connotational neutrality is the following personal observation of a 2,6 year old language learner, who created and used for a while the words *hochezal* and *liegerecht* instead of the items in (18), combining obviously parts of all of them with *hoch* and *liegen* to denote verticality and horizontality.

around arbitrarily, but tend to form clusters at specific semantic areas, such as modification of frequency, concessive coordination, quantification, phases of events. Another type of synonyms might be bound to connotational marking within certain areas of particular interest. Third, this doesn't seem to be an isolated peculiarity of German, but has parallel phenomena across languages.

If these observations are correct in principle, this raises the question whether and in which way the Principle of Contrast must be relativized, and whether this would be at variance with the principles of economy. Before we take a closer look at the relation between economy and lexical synonymy, we should notice that economy as assumed in the Minimalist Program is a matter of (optimal) design, i.e. the structure of knowledge, following the maxim "the structural condition X is met by means of Y in the most parsimonious way", while the Principle of Contrast is a matter of pragmatics and based on conditions of language use, following the maxim "if a different form is used, a difference in meaning must be intended". These two aspects are not independent of each other, but they are clearly distinct. Thus, depending on the condition X, it might be economic to admit synonymous expressions that violate the maxim underlying the Principle of Contrast.

Turning now to the relation between economy and synonymy, it might be useful to distinguish between synonymy of complex expressions and of lexical items, because the former might be due to combinatorial conditions, which should be excluded for the latter.[8] Whether a combinatorial system exhibits synonymy as an intrinsic condition that cannot be avoided in economical ways is an interesting question that need not be pursued here.[9] Suffice it to say that the combinatorial syntax and semantics of natural languages cannot economically avoid synonymous expressions like those the trivial case in (20) or the more complex case in (21):

(20)     Hans kennt Eva und Maria gleich gut ~ Hans kennt Maria und Eva gleich gut
(21)     Max ist kleiner als Eva ~ Max ist nicht so groß wie Eva

The synonymy of (21) depends, of course, on the systematic relation between antonyms like *groß* und *klein*, which is anything but trival, but need not concern us here. The point to be made is the uncontroversial observation, that natural languages do contain compositional synonymous expressions, due to their combinatorial structure. Nobody would require the Principle of Contrast to exclude these possibilities.

This leaves us with the question whether economy principles should exclude lexical synonyms. This question turns out to be a version of the quest for minimal repertoires of basic elements. As is well known, there is no reasonable answer to questions like these without fixing the conditions of minimality. Thus the absolute minimum of basic elements on the expression side leads to some version of the dual code, as actually used in all informational technology. The optimal repertoire of primitive elements, given the conditions of the articulatory and conceptual systems natural languages rely on, yield of course rather different solutions. See Bierwisch (2001) for some discussion of these matters. Now, lexical items are not primitive elements of linguistic knowledge, but irreducible combinations to the extent to which they cannot be predicted by general rules or principles. The question that arises at this point is this: What is the optimal, most parsimonious repertoire of lexical items, given the requirements the language system is assumed to satisfy?

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[8] The boundary is not quite that simple, because of pairs of synonyms like those in (i) and (ii), where one is lexical, while the other is compositional, but still subject to lexical idiosyncracies:

(i) aufwachen ~ wach werden          (ii) sterben ~ tot gehn/*werden
    erröten ~ rot werden                  steigen ~ höher *werden
    erkranken ~ krank werden              sich nähern ~ näher kommen/*werden
    wachsen ~ größer werden

[9] Thus the system of natural numbers with basic arithmetical operations cannot avoid identical denotations for expressions like $3 + 2$ and $7 - 2$, etc. Within the decimal code of natural numbers on the other hand, synonymous expressions of the sort that are easily available for the Roman Number system are just impossible: The notation MCCCC and MCD boil down to the same number 1400.

The obvious part of the answer to this question is: The lexical repertoire must be sufficient to cover the range of conceptual distinctions that need to be expressed with respect to a given domain of conceptual orientation. This would be a consequence of what is sometimes called the Principle of Effability of natural language, viz. the availability of a linguistic expression for any human thought. See e.g. Katz (1972, p.18 ff) for relevant discussion. Hence any addition of lexical entries is a move towards optimality, if it accounts for the completeness of conceptual coverage of the system as a whole – provided the addition is parsimonious, i.e. not redundant with respect to internal principles of the system. So far, amendments of lexical knowledge could still be subject to the Principle of Contrast, preventing unnecessary duplication of lexical expressions for the same concept.

Suppose now that the external conditions the lexical system has to satisfy include the variability of expression in particular respects. Such conditions might be subject to further specification, including for example the possibility to avoid repetition, to improve memorability, or simply to provide free expression. If language were subject to conditions of this sort, which I don't take to be exotic, but rather an elementary ingredient of human nature, then the Principle of Contrast couldn't stand without modification. Thus, in order to allow for synonymous expressions, the formulation quoted in (1) would have to be extended into something like the following:

(22) Speakers take every difference in form to mark a difference in meaning,
         unless there is reason to the opposite.

This formulation looks more arbitrary and less substantial then it actually is. As a matter of fact, the Principle of Contrast need not be reformulated, but only reinterpreted as a kind of Elsewhere-condition, which is operative if no hint towards paraphrase - or synonymy interpretation intervenes. Such hints might be associated with stylistic conditions, which provide, among others, the connotations observed in many, though by no means all, cases of denotational equivalence. Attempts to identify and characterize preferred conditions of lexical synonymy might turn out to provide additional insight into the principles underlying the organization of lexical knowledge.

**5. In Conclusion: Economy supports Luxury**
The present considerations are by no means meant to undermine the principles of economy and parsimony of the structure of language. What they lead to is rather a different view on the range and nature of economy, which does not exclude, but rather facilitate rich possibilities to express thoughts from different domains.

The observation that natural languages allow for stylistic variation, close paraphrases and synonymous expressions not only because of their combinatorial structure, but also with respect to their basic lexical inventory, is only apparently at variance with principles of economy and optimal design. The assumption that the effect of economy on lexical knowledge should be a maximally restrictive lexical inventory is a poor and actually misleading interpretation of parsimony. For one thing, lexical entries must in any case freely be added to the system, if denotational requirements are to be met. But lexical entries must furthermore be adducible if free alternatives to express a given conceptual structure are at issue.

It would in fact be an unnatural assumption that a system that systematically supports paraphrase relations for complex expressions excludes this possibility for basic, lexical expressions, even though these items are – for inherent, systematic reasons – subject to the same phonetic and semantic representational format as complex expressions. Hence the economy principles on which the computational system for complex expressions is based must just as well control the relation of phonetic and semantic form in lexical items. It is this underlying framework which supports the creation and gradual extension of the lexical system.

The conditions by which (clusters of) synonymous entries are incorporated may come into play if options of free variation and matters of additional effect are at issue. Viewed in this perspective, economy is not a barrier preventing the incorporation of synonymous items but rather a way to enable it. The free and indeed luxurious make up of the lexical system seems to be quite in line with the fact

that the language faculty is from the beginning a surprisingly luxurious evolutionary achievement, which provides the most characteristic trait of the human species.

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