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## A SEMANTIC TYPOLOGY DERIVED FROM VARIATION IN GERMANIC

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## 1. Introduction

In his 1921 book Language Sapir drew attention to the 'drift' of the Germanic languages, by which he understood: the progressive reduction of inflectional morphology, including the loss of case inflections ('the drift towards the invariable word'); and the fixing of basic word order, eliminating earlier syntactic rearrangement possibilities. Modern English has gone the furthest in this direction, Modern High German is the most conservative, while languages like Modern Dutch and Danish occupy an intermediate position. This drift continuum is exemplified in the following tables:

Table 1 Morphological Distinctions on the Definite Article

German:	3 genders (in Sg:M/F/N);	2 numbers (Sg/Pl);	4 cases
Dutch:	2 genders (in Sg:M+F/N);	2 numbers (in Neut:Sg/Pl);	0 cases
Danish:	2 genders (in Sg:M+F/N);	2 numbers (Sg/Pl);	0 cases
English:	0 genders;	0 numbers;	0 cases

Table 2 Word Order Variation

German:	considerable	word	order	freedom	at the	sentence	level
Dutch:	less	"	"	"	"	"	"
Danish:	less	"	"	"	"	"	"
English:	least	"	"	"	"	"	"

German:	verb-subject	inversions	very	productive
Dutch:	"	"	"	"
Danish:	"	"	"	"
English:	"	"	less	"

German:	verb-final	structures	very	productive
Dutch:	"	"	"	slightly less
Danish:	"	"	"	not
English:	"	"	"	not

What Sapir did not discuss was the large set of additional syntactic changes that are also part of this drift, that now distinguish Modern English from Modern German, and that are also found in typically intermediate degrees in Modern Dutch and Danish. Nor did he discuss (apart from a few observations) the semantic consequences of the profound morphological and syntactic changes that constitute drift. This paper will accordingly consider semantic and pragmatic aspects of change and variation in Germanic. It will broaden the range of grammatical phenomena that need to be considered. And I will argue that there is a semantic generalization underlying the typological drift in Germanic with suggestive consequences for a semantic typology of languages in general.

The paper concentrates on Modern English and Modern German (the two most extreme languages in the drift continuum) and first summarizes the major contrasts between them. These contrasts turn out to be remarkably precise, with the set of relevant grammatical

forms or structures in the one language typically properly including the corresponding set in the other. It is then argued that there is a unity to all these contrasts, involving the degree of correspondence between semantic representation and surface form in the two languages.

## 2. Grammatical Morphology

German has richer inflectional morphology than English. In fact, all the grammatical distinctions that are drawn in English inflectional morphology are drawn in German as well, though not vice versa. For example, both English and German express a singular/plural distinction on their nouns (E. book/books; G. Buch/Bücher), and verbs carry a present/past tense distinction (E. say/said; G. sage/sagte). But German has inflectional morphemes distinguishing four cases within the noun phrase, nominative/accusative/genitive/dative (cf. der Mann/den Mann/des Mannes/dem Mann(e)), whereas English has collapsed its earlier nominative, accusative and dative forms into an invariable the man (though it still retains a separate genitive the man's). German still has an indicative/subjunctive distinction on its verb, whereas English employs (almost exclusively) a single form for both (G. gab/gäbe; E. gave). The German verb also carries person and number markings, whereas the bare stem in English is used for all persons and numbers except for the third person singular, and for both imperative and non-imperative forms.

In consequence, many semantic distinctions that are drawn in surface form in German are not drawn in English. E.g. the irrealis/realis and reported/non-reported speech status of clauses is carried by subjunctive/indicative marking in German. A directional/static distinction is carried by Acc/Dat marking (G. hinter den Tisch = directional, hinter dem Tisch = static; E. behind the table = both). As a result, English surface forms are that much more ambiguous (or vague) than their German counterparts, and semantic distinctions that are expressed formally in German must be recovered pragmatically in language use in English, by exploiting context plus real-world knowledge.

## 3. Word Order Freedom

It is often observed that word order in German is freer than in English. The greater productivity of the relevant German movement rules does not extend to rules crossing clause boundaries (cf. below) and hence we need to restrict our claim to clause-internal movements only. It is plausible to argue that the case system of German is responsible for this contrast, for across languages the existence of rich surface case marking typically correlates with extensive word order freedom (cf. Keenan 1978:120-1).

Notice in the present context that the relative rigidity of word order in Modern English has important consequences for the relationship between form and meaning. Languages whose morphology makes possible the kinds of word order permutations that exist in German can use these options for pragmatic purposes, marking old versus new information, topic, focus, etc. (cf. Comrie 1979, Firbas 1971, Hawkins 1986,

Lenerz 1977, Thompson 1978). If we assume that such pragmatic differences exist, it follows that the fixed word orders of English are correspondingly more ambiguous (or vague) with respect to these pragmatic functions. I.e. many pragmatic distinctions that receive their own distinct encoding in German or Russian do not receive distinct encoding in English, and one and the same syntactic form in English ranges over pragmatic differences in meaning which can be disambiguated in these languages.

#### 4. Basic Grammatical Relations and their Semantic Diversity

There is greater semantic diversity to the basic grammatical relations in English than in German. Consider first direct objects. The class of direct objects in English has expanded relative to German. German verbs which are two-place predicates most often take an accusative-marked direct object NP as their second, non-subject argument. But there are many verbs which take a dative- or genitive marked NP (which do not function as direct objects):

- 1) a) She loves the man/him.  
b) Sie liebt den Mann/ihn. (Acc)
- 2) a) She helped the man/him.  
b) Sie half dem Mann/ihm. (Dat)
- 3) a) She needs the man/him.  
b) Sie bedarf des Mannes/seiner. (Gen)

As a result, a larger class of semantic arguments can surface as direct objects in English.

The same holds true for subjects. Subjects can regularly be semantic agents in both languages. But English and German contrast over the extent to which non-agentive semantic roles can be mapped onto the subject relation. Rohdenburg (1974) argues (on the basis of an extensive empirical study) that the subject-forming possibilities of German are in general a proper subset of those in English. Wherever German has grammatical subjects expressing non-agentive semantic roles, so does English, but not vice versa.

- 4) a) The king visited his people. (SU = agent)  
b) Der König besuchte sein Volk.
- 5) a) The garden swarmed with bees. (SU = locative: in the garden)  
b) Der Garten wimmelte von Bienen.
- 6) a) This hotel forbids dogs. (SU = locative: in this hotel)  
b) Dieses Hotel verbietet Hunde.
- 7) a) My guitar broke a string. (SU = locative)  
b) \*Meine gitarre (zer)riss eine Saite.
- 8) a) A penny once bought 2 to 3 pins. (SU = instrumental)  
b) \*Ein Pfennig kaufte früher 2 bis 3 Stecknadeln.
- 9) a) This advertisement will sell us a lot. (SU = instrumental)  
b) \*Diese Anzeige verkauft uns viel.
- 10) a) The latest edition has added a chapter. (SU = ?)  
b) \*Die letzte Ausgabe hat ein Kapitel hinzugefügt.

- 11) a) I like the book. (SU = experiencer)  
 b) Mir gefällt das Buch. (mir = dative non-subject)  
 c) Ich habe das Buch gern. (ich = nominative subject)
- 12) a) Tomorrow will be rather cold in most places. (SU = time specification)  
 b) \*Morgen verspricht meistentorts ziemlich kalt zu sein. (SU = time specification)
- 13) a) John wounded his leg in the war. (SU = dative)  
 b) ?Johann hat sich im Krieg das Bein verwundet. (SU = dative)

Even where subject formation is fully grammatical in the two languages Rohdenburg's corpus of literature in translation shows that non-agentive roles are converted to subjects significantly less frequently than they are in English, and that English subjects correspond regularly to prepositional phrases or to dative-marked NPs in German (e.g. mit einem Pfennig kaufte man früher 2 bis 3 Stecknadeln 'with a penny one once bought 2 to 3 pins' for 8), in diesem Hotel sind Hunde verboten 'in this hotel dogs are forbidden' for 6)). Both in terms of grammaticality and in terms of frequency, therefore, the subject-forming possibilities of non-agentive arguments in English are greater than those of German.

I argue in Hawkins (1986) that the loss of the case system and the fixing of basic word order are plausibly responsible for this increased semantic diversity of basic grammatical relations in English. In the present context notice an important consequence of this contrast. Transitive and intransitive surface structures in English (i.e. SU-V-DO and SU-V) can now be mapped onto a considerable diversity of semantic propositions. SU-V-DO can be realized as I love him, he helped him, I like the book, this hotel forbids dogs, my guitar broke a string, a penny once bought 2 to 3 pins, John wounded his leg, etc., i.e. a variety of predicate types selecting argument types with different semantic roles. In any mapping, therefore, between surface structure and a semantic representation which specifies these semantic roles, the surface structure SU-V-DO is going to be potentially ambiguous between a variety of interpretations, and there is nothing in the surface structure itself to indicate the appropriate interpretation. The sentence interpreter has to rely on knowledge of the semantics of the verb and its arguments in order to assign the appropriate interpretation. By contrast, the German translations regularly force a disambiguation, either on the basis of case marking alone (mir gefällt das Buch/ich sehe das Buch versus I like/see the book), or by a structural rearrangement of the whole sentence in which the subject in English shows up as an oblique NP (an meiner Gitarre riss eine Saite versus my guitar broke a string, i.e. OBL-V-SU versus SU-V-DO). Hence, the German surface structures exhibit less ambiguity than English. There is greater differentiation between distinct predicate types in surface, and less collapsing of diverse semantic structures onto one and the same surface structure.

##### 5. Raising Structures

English has a productive rule of Subject-to-Subject (S-S) Raising, operating as illustrated in 14) and triggered by some sixty or more predicates according to Postal (1974:292). German, according to

König (1971), presents apparent S-S Raising in surface structure only for scheinen 'seem' and for a handful of other (obligatory) triggers which are exactly properly included in the corresponding English class.

14) John seems (△ to be ill) cf. it seems (that John is ill)

15)a) John seems to be ill.

b) John happens to be ill.

c) John continued to be ill.

16)a) Johann scheint krank zu sein.

b)\*Johann geschieht krank zu sein.

c)\*Johann fuhr fort krank zu sein.

Even for scheinen Ebert (1975) has argued that 16a) involves clause-union rather than raising since the 'raised' constituent need not always be a subject.

Postal (1974) has also argued, convincingly to my mind, for a rule of Subject-to-Object (S-O) Raising, operating as illustrated in 17) and triggered again by some sixty verbs. German has no translation equivalents here, and any attempt to construct them results in violent ungrammaticality.

17) I believe John (△ to be ill) cf. I believe (that John is ill)

18)a) I believe John to be ill.

b) I believe the farmer to have killed the cow.

c) I understand him to be stupid.

19)a)\*Ich glaube Johann krank zu sein.

b)\*Ich glaube den Bauer die Kuh geschlachtet zu haben.

c)\*Ich verstehe ihn dumm zu sein.

Tough Movement (or Object-to-Subject Raising), whose operation is illustrated in 20), is quite productive in English, but limited in German. The limitations involve the number of triggering predicates, the class of NPs which undergo the rule, and its boundedness versus unboundedness.

20) Linguistics is easy (to study △) cf. (to study Linguistics) is easy

21)a) He is easy to convince.

b) Linguistics is boring to study.

c) The boy is easy to help/to work with.

d) This book is easy for me to force Harry to read.

22)a) Er ist leicht zu überzeugen.

b)\*Die Linguistik ist langweilig zu studieren. (fewer triggers)

c)\*Der Junge ist leicht zu helfen/mitzuarbeiten. (raise DO only)

d)\*Dieses Buch ist leicht für mich Heinrich zu lesen zu zwingen. (bounded)

The net result is a precise proper inclusion relation between Tough Movement structures in the two languages: wherever German can tough-move, so can English, but not vice versa.

The three raising rules of English involve a change in grammatical relations whereby a subject or non-subject in one clause assumes

the subject or object relation in the higher clause. But the semantic interpretations of these surface sentences involve, in effect, undoing the relation-changing rule, by interpreting the derived subjects and objects as arguments of the lower, embedded clause out of which they have been raised, and not as arguments of the predicates within the clause that most immediately contains them. John in the S-S Raising structure did not continue in any sense (and he could scarcely happen or seem!), but he WAS ill and this whole event then continued in 15c). Similarly, in the S-O Raising structure it is not being claimed that I believed the farmer in any way, but rather that the farmer killed the cow, and this whole proposition then stands in the belief relation to me in 18b). And in the Tough structure of 21b) it is not necessarily claimed that Linguistics is boring - only that studying it is.

This situation contrasts with Equi-NP Deletion structures, in which the surface (matrix) subject or object IS interpreted as an argument of its immediate clause as well as of the embedded clause:

- 23)a) John wants to be ill.
- b) I persuaded John to be ill.
- c) John is eager to please.

In 23a) John does want something, and so is an argument of want, and his desires do not necessarily extend to anyone else being ill apart from himself, and hence he is also an argument of be ill. In 23b) John is the individual who is being persuaded, and hence he is an argument of persuade, and it is his rather than anyone else's illness that the matrix subject I is trying to bring about through persuasion and so John is also an argument of be ill, and similarly for 23c). German and English are, in general, equally rich in Equi-structures, but German is clearly resistant to raising.

As a result English now has regular syntactic ambiguities involving raisings and Equi-NP Deletion:

- |                    |             |                            |
|--------------------|-------------|----------------------------|
| 24)a) NP-V-to-VP   | S-S Raising | John continued to be ill   |
|                    | Equi        | John wanted to be ill      |
| b) NP-V-NP-to-VP   | S-O Raising | I believe John to be ill   |
|                    | Equi        | I persuaded John to be ill |
| c) NP-be-Adj-to-VP | S-S Raising | John is certain to please  |
|                    | Tough       | John is easy to please     |
|                    | Equi        | John is eager to please    |

This is reminiscent of the greater ambiguity of SU-V-DO and SU-V structures in English (i.e. NP-V-NP and NP-V), resulting from the semantic diversity of basic grammatical relations. The raising structures extend this semantic diversity even further by requiring the raised argument to be interpreted as belonging in an altogether different clause from the one in which it is physically situated in surface. But since the semantic diversity of subject and object has been considerably expanded in English quite independently, it is predictable that it should be English rather than German which has the productive raisings. By contrast, the structures corresponding to 24) in German are almost always assigned Equi interpretations only.

Once again, there is that much less structural ambiguity in German, and that much more of a one-to-one mapping between surface form and semantic representation.

## 6. Extractions and Deletions

Unbounded movement rules such as Relative Clause Formation, Cleft, Question Formation, etc. (i.e. Chomsky's 1977 WH-Movement) apply in more environments in English than in German. In fact, it is argued in Hawkins (1986) that the contrastive situation is as precise as in the raising examples: wherever German can extract, so can English, but not vice versa. In this context I will merely illustrate the direction of contrast with one or two examples.

Extractions out of finite (i.e. tensed) object complement clauses are possible in English, but typically impossible in German. 25a), which derives from 25b), is perfectly grammatical in English. Its counterpart in German, 26a), is ungrammatical.

25)a) The man who you believe that you saw is my friend.

b) the man  $S_1$  (who you believe  $S_2$  (that you saw  $\Delta$ )) is my friend

26)a)\*Der Mann, den du glaubst, dass du gesehen hast, ist mein Freund.

b) der Mann  $S_1$  (den du glaubst  $S_2$  (dass du  $\Delta$  gesehen hast)) ist mein Freund.

The effect of WH-Movement is similar to that of Raising and Tough Movement in an important respect: even though this rule does not create derived grammatical relations, it can still move an NP (the WH-element) into a clause in which it is not interpreted as an argument of that clause. Who is semantically an argument of saw in  $S_2$ , and is in no sense a semantic argument of believe in  $S_1$ . Thus, the WH-argument contracts no semantic relation with the predicate of the clause which most immediately contains it in surface structure, and the language interpreter must, in effect, skip over believe and assign who to the lower predicate saw. In a similar way, John must skip over seems and continued in raising structures such as 15).

The descriptive regularity which unites both bounded and unbounded clause-external movements is one of 'argument trespassing'. In all these contrasting structures, the moved NP is situated in a surface clause in which it contracts no semantic relation with its immediate predicate. We will say that an NP "contracts no semantic relation with" its immediate predicate, iff "the argument to which the NP corresponds in semantic representation is not an argument of" this immediate predicate. And an "immediate predicate" can be defined as "that predicate separated from the NP constituent in question by fewer branches than any other predicate in the surface structure tree". We can now define the contrastive Argument Trespassing Generalization as follows:

27) The set of German surface structures in which an NP c(onstituent) -commands an immediate predicate with which it contracts no semantic relation is properly included in the corresponding English set.

Another precise contrast between English and German which is related to these extraction contrasts involves Pied Piping rules. This time it is German that is more productive: wherever English can pied pipe, so can German, but not vice versa. For example, German has a rule of VP Pied Piping, which is without parallel in English.

28)a) der Mann, den zu töten ich öfters versucht habe, ...

'the man whom to kill I often tried have'

b) der Mann <sub>vp</sub> (den zu töten) ich  $\Delta$  öfters versucht habe

29) \*the man to kill whom I have tried ...

In terms of the Argument Trespassing Generalization it is no accident that it should be German rather than English which has the rule of VP Pied Piping. For this rule enables moved NPs to keep as their immediate predicate that predicate of which they are an argument. And it is consistently German that is reluctant to move its NPs into positions where they contract no semantic relation with their immediate predicates.

Hawkins (1986) suggests that the greater tolerance for argument trespassing in English may result from the loss of the case system. The absence of a rich morphological case system facilitates the extraction of surface NPs out of their immediately dominating categories. More generally, it is argued (following Lightfoot 1981) that the number of morphological case distinctions drawn in a language correlates negatively with the possibility of removing NPs from the c-command domains that assign case.

This negative correlation can be extended to cover NP deletions as well, which are also more restricted in German compared to English. For example, differently case-marked NPs typically cannot undergo conjunction reduction where in English they can (cf. 30)-31)), and the deletion of case-marked NPs is frequently blocked in environments such as PPs from which extraction is also blocked (cf. 32)-33)):

30)a) Fred saw the king and thanked the king.

b) Fred saw \_\_\_\_\_ and thanked the king.

31)a) Fritz sah den König und dankte dem König.

b) \*Fritz sah \_\_\_\_\_ und dankte dem König.

32)a) He is the father of the boy and the friend of the boy.

b) He is the father of \_\_\_\_\_ and the friend of the boy.

33)a) Er ist der Vater von dem Jungen und der Freund von dem Jungen.

b) \*Er ist der Vater von \_\_\_\_\_ und der Freund von dem Jungen.

Notice now the semantic consequences of these contrasts. In previous sections we have seen that some major English/German contrasts conspire to create greater ambiguity in surface forms (morphological and syntactic) in English. The extraction and pied piping contrasts, on the other hand, do not appear to be packing a greater number of semantic or pragmatic types into a limited set of common surface forms in English, thereby making these more ambiguous or vague. But they do have another interesting effect from the point of view of the mapping between surface form and meaning. If we think (following Keenan 1978) in terms of the 'conservation of

logical structure' in these surface structures, we can say that the effect of argument trespassing is precisely not one of conserving logical structure in surface, but rather of destroying it by rearranging arguments and predicates. English frequently permits arguments in surface structure in positions where they do not belong semantically, while German allows less rearrangement, and rearrangement over smaller syntactic domains.

The freer deletions of English are also relevant here. If a deletion process removes an argument of logical structure from surface, the relevant clause will be lacking an argument which belongs logically in it, and which will be assigned to it in the process of semantic interpretation. But both removal of an argument from a position in which it does belong logically, and insertion of an argument (by raising etc.) into a position in which it does not belong logically, would seem to be two complementary ways in which a surface structure can deviate from its corresponding logical structure and thereby fail to conserve it.

### 7. The Unity of English/German Contrasts

The comparative typology of English and German can be summarized as follows:

34)	<u>German</u>	<u>English</u>
	More grammatical morphology	Less grammatical morphology
	More word order freedom	Less word order freedom
	Less semantic diversity of GRs	More semantic diversity of GRs
	Less raising	More raising
	Less extraction	More extraction
	More pied piping	Less pied piping
	Less deletion (of NPs)	More deletion (of NPs)

I would argue that the distribution of the 'more' and 'less' values in 34) admits of a unifying generalization, as follows:

35) Where the grammars of English and German contrast, the surface forms (morphological and syntactic) of German are in closer correspondence with their associated meanings in the following ways:

#### a) Ambiguity (and/or Vagueness)

There is greater ambiguity (and/or vagueness) of surface forms in English, i.e. greater collapsing of semantic distinctions and of different semantic types onto common surface forms. The result is more of a one-to-one mapping between form and meaning in German, with distinct forms carrying distinct meanings to a greater extent:

- cf. ambiguity (and/or vagueness) in English morphology;
- pragmatic ambiguity (/vagueness) in fixed word order;
- ambiguities in semantically diverse SVO and SV sequences;
- ambiguities in Raising and Equi structures.

#### b) Destruction of Semantic Clause Structure

There is less correspondence between surface clause structure and semantic clause structure in English:

1) The arguments of an immediate predicate (V or Adj) in English surface structures are to a greater extent than in German not arguments of this predicate in semantic representation, but must be matched with a predicate lower in the sentence. I.e. German allows less rearrangement of arguments and their predicates, and rearrangement over smaller syntactic domains:

cf. more raising in English;  
more WH-extraction;  
less pied piping.

ii) Conversely, there is greater removal in English surface structures of arguments which are present in semantic representation, i.e. greater deletion of arguments from surface structures in which they do belong semantically:

cf. more deletions (of NP) in English.

German is therefore giving us a 'tighter fit' between surface form and semantic representation. Even though linguists may differ over what they consider a semantic representation to look like, they are all agreed on the following essentials: semantic representations cannot be ambiguous; arguments must stand 'together with' the predicates with which they are associated semantically; and material that is semantically understood, even though deleted or absent from surface structure, must be present in semantic representation. Now it is precisely these essentials that we are concentrating on in our comparative study. German has less surface ambiguity, less rearrangement of arguments and predicates, and less deletion of arguments than English.

#### 8. Conclusions: Inferring a Typological Parameter

What I have presented in this paper is essentially a descriptive regularity underlying contrasts between two extremes in the continuum of variation within Germanic. This regularity now poses two further questions, one empirical, the other theoretical.

Empirically, does this clustering of properties exemplified by English and German have more general validity outside of Germanic? Obviously, there will be many language-particular and idiosyncratic differences between individual languages. But is there still evidence for a similar underlying generalization, such that e.g. the existence of more grammatical morphology compared to English will regularly correlate with more word order freedom, less semantic diversity of GRs, less raising, less extraction, fewer deletions, etc? Impressionistically I believe that the correlations between many of these features in other languages and families are quite good. But we need to look at many more languages from this point of view in order to establish precisely what the nature of the clustering is, by formulating implicational universals such as "if a language has no morphological case system, then it will have such and such", or "if a language allows preposition stranding, then it does such and such", etc. In the meantime, the contrasts of Modern Germanic point to an intriguing regularity, suggesting that variation throughout a whole grammar may be constrained by rather abstract typological principles involving the degree of correspondence between surface form and semantic representation.

Theoretically we must then ask why it is that languages should differ over the degree of correspondence between surface form and meaning in this way. I believe that what we are witnessing here is an interesting interplay between the two fundamental parts of the grammar: between the rules generating linguistic forms on the one hand; and those assigning meanings to these forms on the other. For English, the assignment of meaning to form can be argued to be more complex than in German (both in the grammar and in actual use). More surface ambiguities must be resolved. Vagueness must be supplemented with contextual information to a greater extent. Argument-predicate relations that have been undone in the syntax must be reconstructed in the semantics. And semantically relevant material that is deleted in surface must be reconstituted.

But the English forms themselves, and the rules which generate them, can be argued to be correspondingly simpler than their German counterparts. For the morphology this is self-evident: more extensive use is made of fewer forms. But so too in the syntax. Small numbers of common surface patterns in English can do service for semantic types which require distinctive encoding in German. English makes greater use of its 'basic' phrase structure patterns, whence greater ambiguity. And in addition, the productive movement and deletion processes which effect changes in these basic patterns can 'run freer'; i.e. they apply in more environments, subject to fewer restrictions and constraints, whence the greater destruction of semantic clause structure.

I would therefore argue that the simplicity and generality of the rules of grammatical form are negatively correlated with the simplicity and ease with which meanings can be mapped onto their corresponding forms. And this tension between the two fundamental parts of the grammar results in a continuum of possible variation. Languages can make extensive use of more limited formal means, thereby complicating the assignment of meaning to form, or they can add more formal distinctions, thereby simplifying the mapping to meaning and increasing semantic transparency. And over time they can drift from one part of the continuum to the other, in response to independent changes which have clear consequences for the mapping between form and meaning, such as the phonological changes in Germanic that reduced unstressed syllables and resulted in case syncretism.

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