Contrastive Linguistics: Theories and Methods

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1 The subject matter of contrastive linguistics

Narrowly defined, contrastive linguistics can be regarded as a branch of comparative linguistics that is concerned with pairs of languages which are 'socio-culturally linked'. Two languages can be said to be socio-culturally linked when (i) they are used by a considerable number of bi- or multilingual speakers, and/or (ii) a substantial amount of 'linguistic output' (text, oral discourse) is translated from one language into the other. According to this definition, contrastive linguistics deals with pairs of languages such as Spanish and Basque, but not with Latin and (the Australian language) Dyirbal, as there is no socio-cultural link between these languages.

More broadly defined, the term 'contrastive linguistics' is also sometimes used for comparative studies of (small) groups (rather than just pairs) of languages, and does not require a socio-cultural link between the languages investigated. On this view, contrastive linguistics is a special case of linguistic typology and is distinguished from other types of typological approaches by a small sample size and a high degree of granularity. Accordingly, any pair or group of languages (even Latin and Dyirbal) can be subject to a contrastive analysis.

This article is based on the (intermediate) view that contrastive linguistics invariably requires a socio-cultural link between the languages investigated, but that it is not restricted to pairwise language comparison. Even though it is not a branch of applied linguistics, contrastive linguistics thus aims to arrive at results that carry the potential of being used for practical purposes, e.g. in foreign language teaching and translation. As it provides the descriptive basis for such applications, its research programme can also be summarized as 'comparison with a purpose' (E. König). The 'objective of applicability' is also reflected in the fact that contrastive studies focus on the differences, rather than the similarities, between the languages compared.

As a first approximation, the method of contrastive linguistics can be represented as in Diagram 1 (for ease of representation, the following discussion will concentrate on pairwise comparison). '$A(L_n)$' stands for the analysis of a language L_n and '$A_c(L_1 \leftrightarrow L_2)$' for the contrastive analysis of two languages L_1 and L_2.

analysis of single languages $\rightarrow$ contrastive analysis $\rightarrow$ application

$A(L_1)$

sociocultural link — foreign language teaching

$A_c \begin{bmatrix} L_1 \\ \updownarrow \\ L_2 \end{bmatrix}$ — translation
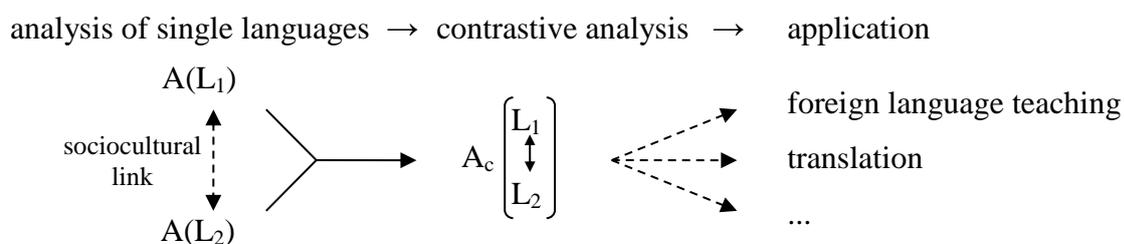
$A(L_2)$ — ...

Diagram 1: Contrastive linguistics between language-particular analysis and application

The schema given in Diagram 1 will be refined below. In particular, the role of 'bilingual linguistic output' will be integrated into the picture. This output not only provides the empirical basis for contrastive studies but also functions as a conceptual link between the linguistic systems investigated, as it can be used to establish comparability between categories from different languages.

After providing a brief historical overview of contrastive linguistics in Section 2, Section 3 will address some fundamental methodological issues, in particular the question of cross-linguistic comparability, and the different ways in which comparison can be carried out. Section 4 contains some remarks on the empirical basis of contrastive linguistics (specialized corpora).

2   Historical remarks

The programme of contrastive linguistics was instigated by Charles Carpenter Fries from the University of Michigan in the 1940s. Fries (1945: 9) contended that "[t]he most effective materials [in foreign language teaching] are those that are based upon a scientific description of the language to be learned, carefully compared with a parallel description of the native language of the learner". Some years later, this project was put into practice by Fries' colleague Robert Lado (1957). The assumption that foreign language teaching can be improved by comparing the learner's native language with the language to be learned came to be known as the "Contrastive Hypothesis". Its main assumptions can be summarized as follows (cf. König & Gast 2009: 1):

- First language acquisition and foreign language learning differ fundamentally, especially in those cases where the foreign language is learnt later than a mother tongue and on the basis of the full mastery of that mother tongue.
- Every language has its own specific structure. Similarities between the two languages will cause no difficulties ('positive transfer'), but differences will, due to 'negative transfer' (or 'interference'). The student's learning task can therefore roughly be defined as the sum of the differences between the two languages.
- A systematic comparison between mother tongue and foreign language to be learnt will reveal both similarities and contrasts.
- On the basis of such a comparison it will be possible to predict or even rank learning difficulties and to develop strategies (teaching materials, teaching techniques, etc.) for making foreign language teaching more efficient.

The contrastive hypothesis in the form summarized above soon turned out to be too optimistic. It was too undifferentiated in many respects and neglected important parameters of second language acquisition (e.g. natural vs. mediated, sequential vs. simultaneous, second vs. third language, etc.). Moreover, the contrastive programme lacked a solid foundation in learning psychology and was never even put on a reasonable empirical basis, insofar as the intention of producing comprehensive comparisons of language pairs was never convincingly realized. The enterprise of improving foreign language teaching on the basis of pairwise language comparison was therefore abandoned before long, even though a certain plausibility of at least some of the basic assumptions made by early contrastive linguistics can hardly be denied (cf. Kortmann 1998).

New impetus was given to pairwise language comparison in a number of publications from the 1970s and 1980s that did not primarily pursue didactic purposes (e.g. König 1971, Rohdenburg 1974, Plank 1984). These authors regarded contrastive linguistics as a "limiting case of typological comparison" (König 1996: 51) which was characterized by a small sample

size and a high degree of granularity. This typologically oriented approach culminated in John Hawkins' (1986) monograph *A Comparative Typology of English and German – Unifying the Contrasts*. It was one of Hawkins' primary objectives to discover correlations between properties of specific grammatical subsystems (especially syntax and morphology), with the ultimate goal of 'unifying the contrasts'. Moreover, Hawkins aimed at providing explanations for the correlations he observed and related his contrastive analyses to theories of language processing (e.g. Hawkins 1992). Even though Hawkins' hypotheses and generalizations met with criticism (e.g. Kortmann & Meyer 1992, Rohdenburg 1992), they provided important insights and helped establish contrastive linguistics as a type of language comparison that was interesting and worthwhile in itself, without pursuing any specific objectives related to second language acquisition or other linguistic applications.

The 1980s and 1990s witnessed a certain diversification in the field of contrastive linguistics insofar as new topics came into the focus of attention (e.g. pragmatics and discourse studies, cf. House & Blum-Kulka 1986, Oleksy 1989), and new empirical methods were introduced, especially corpus-based ones (cf. Section 4). The availability of specialized corpora (parallel corpora and learner corpora) also led to a renewal of the link between contrastive linguistics and linguistic applications, e.g. insofar as insights gained from (quantitative) contrastive analyses turned out to be useful for translation studies (see e.g. Johansson 1998a, Doherty 2001).

Most studies published under the label of 'contrastive linguistics' in the first decade of the third millennium follow the spirit of the characterization given in Section 1, i.e. they pursue a basically theoretical (rather than applied) interest but deal with pairs of languages that are 'socio-culturally linked'. In fact, the majority of articles published in the journal *Languages in Contrast*, which was launched by the John Benjamins Publishing Company in 1998, deals with European languages, especially Germanic and Romance ones. As far as the topics investigated are concerned, there is a preponderance of discourse-related studies, which may be due to the corpus-based methodology applied in most cases. Recently, structural aspects of contrastive comparison have been brought back into the focus of attention, e.g. by König & Gast (2009), who provide a comprehensive comparison of English and German grammar.

3   Ways of comparing languages

3.1   Establishing comparability

Just like linguistic typology, contrastive linguistics has to face the problem of "comparability of incommensurable systems" (Haspelmath 2010: 664). However, unlike linguistic typology, contrastive linguistics can tackle this problem in a data-driven way. As it deals with pairs (or groups) of languages that are socio-culturally linked, it can rely on a substantial amount of bilingual output (translations, parallel corpora). The 'hypothesis of inter-lingual comparability' is thus not a heuristic move but a fact of life reflected in the language of (ideally) balanced and fully proficient bilingual speakers. Note that 'comparability' does of course not mean 'equivalence': It is part of a contrastive analysis to determine the degree of equivalence between (comparable) categories from different languages ('non-equivalence', 'partial equivalence', 'near equivalence', cf. Section 3.2). Still, contrastive analysis, just like linguistic typology, has to rely on 'comparative concepts', i.e. "concepts created by comparative linguists for the specific purpose of cross-linguistic comparison. … Comparative concepts are universally applicable, and they are defined on the basis of other universally applicable concepts: universal conceptual-semantic concepts, universal formal concepts, general formal concepts, and other comparative concepts" (Haspelmath 2010: 665).

The exact way in which comparability is established depends on the type of phenomenon under comparison. We can distinguish broadly between three ways of carrying out contrastive analyses: (i) comparison based on form (Section 3.2), (ii) comparison based on the mapping from form to function (Section 3.3) and (iii) comparison across functional domains (Section 3.4).

3.2 Comparison based on form: Consonant inventories

A typical example of comparison based on form alone is provided by contrastive analyses in the domain of phonology. Let us consider the consonant inventories of English and German for illustration. A framework of comparison is provided by a classical structuralist analysis which is based on articulatory features of typical allophones instantiating the relevant phonemes ('place of articulation', 'manner of articulation' and 'voicing'). Both the English phoneme $/l/_E$ and the German one $/l/_G$ can thus be regarded as instantiating the comparative concept 'voiced alveolar lateral'.

There are two basic types of relationships between such pairs of consonants: **near equivalence** and **non-equivalence**. The latter relationship is uninteresting in most cases – as the majority of pairs of consonants are obviously non-equivalent, say Engl. $/p/_E$ and Germ. $/k/_G$ – but there is a special case of non-equivalence that is highly relevant to contrastive studies, i.e. **partial equivalence**.

In the case of near equivalence two phonemes have a similar distribution and, depending on the context, (more or less) identical phonetic realizations. This applies, for instance, to the alveolar nasals of English and German ($/n/_E$ and $/n/_G$). The relationship between these phonemes is one of near equivalence (rather than 'full equivalence') because phonemes (as well as linguistic categories in general) are defined only relative to linguistic systems. This means that phonemes from different linguistic systems can never be fully equivalent.

A relationship of partial equivalence obtains when two phonemes are phonetically and distributionally similar but not (near) equivalent. For instance, the voiced alveolar lateral of English and its German counterpart have a similar distribution but (partially) different phonetic realizations, as Engl. $/l/_E$, unlike German $/l/_G$, is velarized in a syllable-final position. If phonemes are regarded as sets of allophones, $/l/_E$ and $/l/_G$ can be said to overlap but not to be co-extensive:

(3)   comparative concept
           'voiced alveolar lateral'

        Engl. $/l/_E$ Germ. $/l/_G$
      = {l, ɫ, l̥}   = {l, l̥}
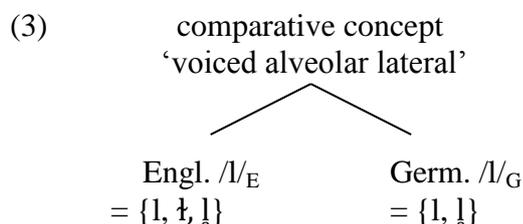
The difference between near equivalence and partial equivalence is a gradual one. Partial equivalence can be assumed when the inter-lingual identification of two categories leads to considerable deviations from the target system in one of the languages involved. For example, if the voiced alveolar lateral of English is identified with the one of German, the pronunciation will be non-target-like in specific contexts (e.g. *[fɪl] instead of [fɪɫ]). Such 'erroneous' inter-lingual identification of categories from different languages leads to interference. The relationship between the categories involved can be called **pseudo-**

equivalence; it holds between a pair of categories as conceived by an (unbalanced) bilingual speaker.

The contrastive method outlined above is illustrated in Diagram 2, where the role of bilingual data is taken into account. Each language is first analyzed in its own terms, and the 'raw data' is subject to a 'preliminary comparison' based on relevant comparative concepts. The pairs of categories thus identified are then subject to a contrastive analysis, which is carried out against the background of bilingual output.
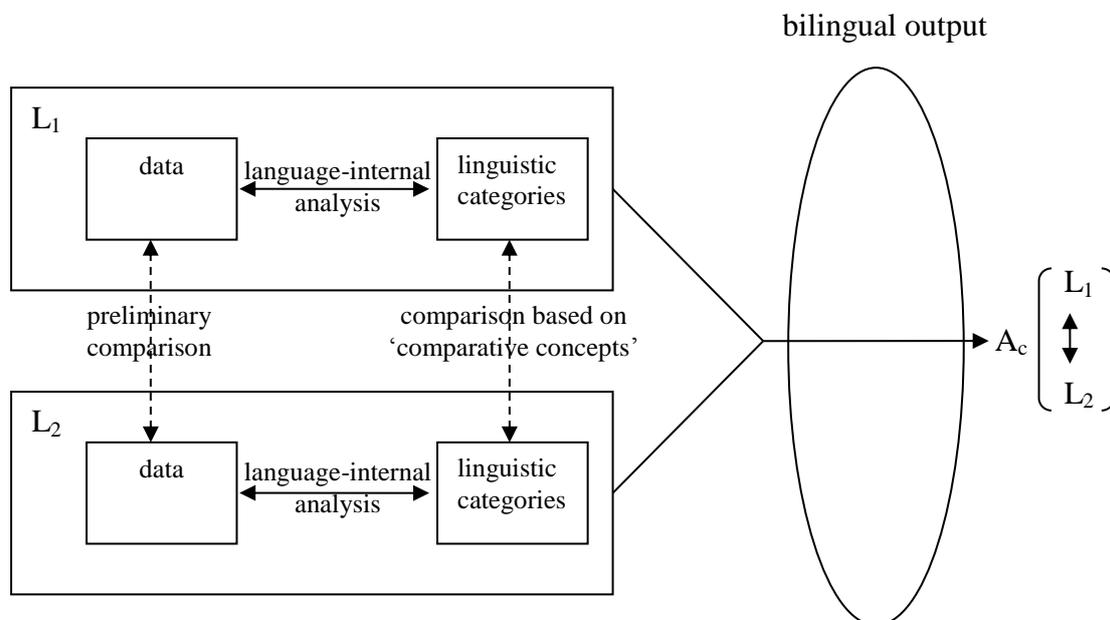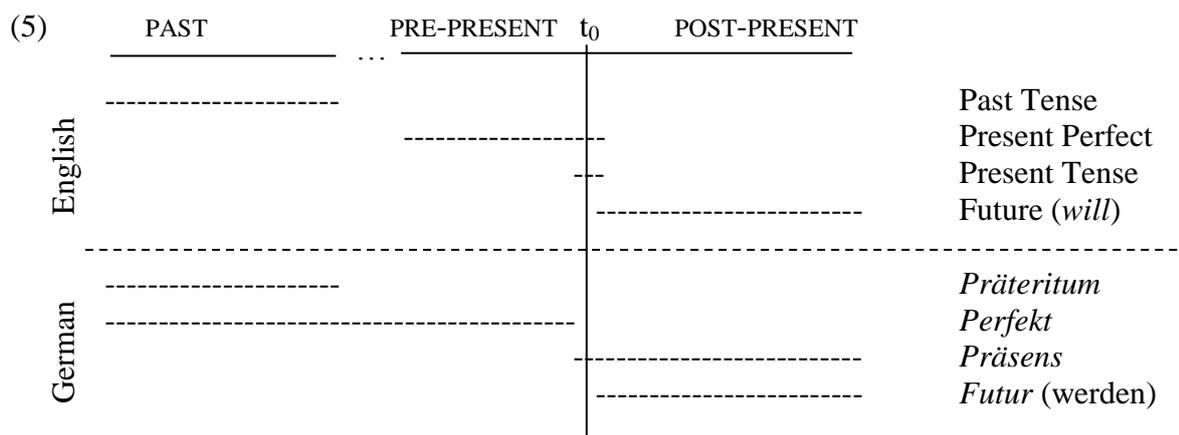

Diagram 2: Comparison in contrastive linguistics

3.3   Comparison based on form and function

Most parameters of comparison investigated in contrastive studies are not purely formal but concern the mapping between form and function. As is well known from typological studies, this mapping is typically (perhaps universally) many-to-many, i.e. each ontological category can be expressed using various linguistic categories, and each linguistic category covers a certain range of functions.Still, the mapping from function to form is not entirely arbitrary. Roughly speaking, the domains of meaning covered by a given linguistic category must be semantically similar. In the 'semantic map' approach developed in linguistic typology (e.g. Haspelmath 1997, van der Auwera & Plungian 1998), semantic similarity is represented as proximity in an n-dimensional space. Such cross-linguistic models of form-function mapping can also serve as comparative concepts in contrastive analyses. This will be illustrated with the example of tense categories in English and German. (4) represents a simplified model of temporal reference (cf. Declerck 2006):

(4)   PAST   …   PRE-PRESENT t_0 POST-PRESENT

Tense categories will usually cover contingent domains on a time axis as shown in (4). The 'time spheres' (roughly) covered by some English and German tense categories are indicated in (5):

(5)

	PAST	PRE-PRESENT	t_0	POST-PRESENT	

English
- ---------------------- Past Tense
- ------------------- Present Perfect
- -- Present Tense
- ------------------------ Future (*will*)

German
- ---------------------- *Präteritum*
- -- *Perfekt*
- ------------------------ *Präsens*
- ------------------------ *Futur* (werden)

The same types of equivalence relations that were pointed out in Section 4 can be observed in (5). The relationship of near equivalence holds between the English *will*-future and the German *werden*-future. By contrast, the English Present Tense and the German *Präsens* are only partially equivalent, as the latter, but not the former, is commonly used to express future time reference.

3.4 Comparison across functional domains

In specific cases, a given comparative concept can be used to make generalizations across functional domains. A relevant example is provided by the two phenomena of relative clause formation and Wh-question formation in English and German (cf. Hawkins 1986). From a functional point of view, these operations must be kept apart (nominal modification vs. elicitation of a value in an open proposition). However, in English and German both operations can be described in terms of the same comparative concept, i.e. 'extraction'. They differ only in terms of the (external) distribution of the relevant clauses (nominal modifier vs. interrogative main clause). For instance, in both (6a) and (6b) *who* is assumed to have been moved from its 'base position' (*t*) to its 'surface position':

(6) a. The man [who$_i$ you talked to t_i] is my brother.
     b. Who$_i$ did you talk to t_i?

As Hawkins (1986) has shown, the operation of extraction is subject to different restrictions in English and German: English allows extractions out of finite complement clauses and non-finite adverbial clauses, though not out of finite adverbial clauses. By contrast, German does not allow extractions out of finite or adverbial clauses at all (i.e. extractions are only possible out of non-finite complement clauses). This is shown in (7) and (8) and summarized in Table 1 (from König & Gast 2009: 195).

(7) a. Who$_i$ did Charles think [that he saw t_i in our garden]?
     b. The man [who$_i$ Charles thought [that he saw t_i in our garden]] was my brother.
(8) a. *Wen$_i$ glaubte Karl, [dass er in unserem Garten t_i sah]?
     b. *Der Mann, [den$_i$ Karl glaubte, [dass er in unserem Garten t_i sah]], war mein Bruder.

movement …				
within clauses	across clauses			
	complement clauses		adverbial clauses	
	non-finite	finite	non-finite	finite
German				
English				

Table 1: Extractions in English and German

4   The use of corpora in contrastive linguistics

As has been pointed out, bilingual output plays an important role in contrastive linguistics in at least two respects: First, it provides a basis of comparison, or at least justifies the assumption of comparability; second, it constitutes the material on which contrastive generalizations are based. The existence of bilingual output is therefore regarded as a central feature of contrastive linguistics, not least because it distinguishes this discipline from other types of comparative studies, especially typological ones.

Two major types of bilingual output can be distinguished: (i) data sets which instantiate each of the linguistic systems in ways that do not differ substantially from output produced by native speakers of the relevant languages ('balanced bilingual output'); and (ii) data sets which are characterized by deviance from relevant output produced by native speakers in one of the languages involved ('unbalanced bilingual output'). Balanced bilingual output is represented by (high quality) translations and parallel corpora based on such translations. Unbalanced bilingual output is represented by the non-target-like language of second language learners. Such data has also been collected in large samples of texts in the form of 'learner corpora'. Each type of resource can be used for different purposes.

Parallel corpora are typically used for quantitatively oriented (often distributional) studies of specific linguistic features in discourse. The results obtained in such studies are often relevant to translation studies (cf. Doherty 2001). In recent years, parallel corpora have played a prominent role in contrastive linguistics based in Scandinavian countries (e.g. Aijmer et al. 1996, Johansson 1998b). It is also in this research context that extensive parallel corpora have been compiled, e.g. the English-Norwegian Parallel Corpus, which was assembled between 1994 and 1997 at the University of Oslo. This corpus contains (pairs of) texts that have been translated in both directions, i.e. there are English originals with Norwegian translations and vice versa. Such 'bidirectional' corpora allow for the investigation of rather subtle questions concerning the theory and practice of translation, e.g. 'hidden' interference phenomena and translation norms.

While parallel corpora provide (balanced) bilingual output, learner corpora are 'bilingual' in a different way: they contain only data from one language, which is, however, produced by second language learners and consequently exhibits features of the leaner's L1. One of the most comprehensive learner corpora available – the International Corpus of Learner English (ICLE) – has been compiled at the Université Catholique de Louvain under the coordination of S. Granger (cf. Granger 1998). It contains more than 3 million words produced by native speakers of more than twenty different languages. Even though the computerized analysis of interlanguage need not pursue a didactic purpose, it obviously lends itself to several pedagogical applications and has in fact become a central component of technology-enhanced learning in recent years.

References

Aijmer, Karin, Bengt Altenberg and Mats Johansson (eds.) (1996). *Languages in contrast. Papers from a symposium on text-based cross-linguistic studies, Lund 4-5 March 1994*. Lund Studies in English 88. Lund: Lund University Press.

Declerck, Renaat (2006). The grammar of the English verb phrase, Vol. 1. Berlin: Mouton de Gruyter.

Doherty, M. (2001). Discourse relators and the beginnings of sentences in English and German. *Languages in Contrast* 3.2: 223– 251.

Fries, Charles Carpenter (1945). Teaching and learning English as a foreign language. Ann Arbor: University of Michigan Press.

Granger, Sylviane (1998). Learner English on Computer. London: Longman.

Haspelmath, Martin (1997). *Indefinite Pronouns*. Oxford: Oxford University Press.

Haspelmath, Martin (2010). Comparative concepts and descriptive categories in cross-linguistic studies. *Language* 86.3: 663–687.

Hawkins, John (1986). A comparative typology of English and German. Unifying the contrasts. London: Croom Helm.

Hawkins, John (1992). A performance approach to English/German contrasts. In In Mair, Christian and Manfred Markus (eds.), New departures in contrastive linguistics. Proceedings of the conference held at the Leopold-Franzens-University of Innsbruck, Austria, 10–12 May 1991, 115-136. Innsbruck.

House, Juliane and Shoshana Blum-Kulka (eds.) (1986). Interlingual and intercultural communication: Discourse and cognition in translation and second language acquisition studies. Tübingen: Narr.

Johansson, Sig (1998a). Loving and hating in English and Norwegian: A corpus-based contrastive study. In Albrechtsen, D., B. Henriksen, I.M. Mees and E. Poulsen (eds.), Perspectives on foreign and second language pedagogy. Essays presented to Kirsten Haarstrup on the occasion of her sixtieth birthday, 93-103. Odense: Odense University Press.

Johansson, Stig (1998b). On the role of corpora in cross-linguistic research. In S. Johansson and S. Oksefjell (eds.), Corpora and cross-linguistic research: Theory, method, and case studies, 3-24. Amsterdam and Atlanta, GA: Rodopi.

Johansson, Stig (2000). Contrastive linguistics and corpora. Reports from the project 'Languages in Contrast', University of Oslo.

König, Ekkehard (1971). Adjectival constructions in English and German. Heidelberg: Groos.

König, Ekkehard (1996). Kontrastive Grammatik und Typologie. In Lang, E. and G. Zifonun (eds.), Deutsch – typologisch, 31-54. Berlin/New York: Mouton de Gruyter.

König, Ekkehard and Volker Gast (2009). Understanding English-German Contrasts. 2nd edition (revised). Berlin: Erich Schmidt Verlag.

Kortmann, Bernd and Paul-Georg Meyer (1992). Is English grammar more explicit than German grammar, after all? In In Mair, Christian and Manfred Markus (eds.), New departures in contrastive linguistics. Proceedings of the conference held at the Leopold-Franzens-University of Innsbruck, Austria, 10–12 May 1991, 155-166. Innsbruck.

Kortmann, Bernd (1998). Kontrastive Linguistik und Fremdsprachenunterricht. In Börner, Wolfgang and Klaus Vogel (eds.), Kontrast und Äquivalenz. Beiträge zu Sprachvergleich und Übersetzung, 136-167. Tübingen: Narr.

Lado, Robert (1957). Linguistics across cultures: Applied linguistics for language teachers. Ann Arbor: University of Michigan Press.

Oleksy, Wieslaw (ed.) (1989). Contrastive pragmatics. Amsterdam: Benjamins.

Plank, Frans (1984). Verbs and objects in semantic agreement: Minor differences between English and German that might suggest a major one. Journal of Semantics 3: 305-60.

Rohdenburg, Günter (1974). Sekundäre Subjektivierungen im Englischen und Deutschen. Vergleichende Untersuchungen zur Verb- und Adjektivsyntax. Bielefeld: Cornelsen-Velhaben & Klasing.

Rohdenburg, Günter (1992). Bemerkungen zu infiniten Konstruktionen im Englischen und Deutschen. In In Mair, Christian and Manfred Markus (eds.), New departures in contrastive linguistics. Proceedings of the conference held at the Leopold-Franzens-University of Innsbruck, Austria, 10–12 May 1991, 187-207. Innsbruck.

van der Auwera, Johan and Vladimir Plungian (1998). Modality's semantic map. Linguistic Typology 2.1: 79-124.

Weinreich, Uriel (1953). Languages in contact: findings and problems. The Hague: Mouton.