

of, often written, monologic discourse (RST being a case in point). This raises the question as to how coherence is achieved in *spoken interaction*, and to what degree this differs significantly from written discourse (see also Gernsbacher and Givón, 1995). Geluykens (1999), for instance, argues that coherence, and in particular the way this is achieved via the flow of topics in a conversation, depends on speaker–hearer collaboration, and needs to be negotiated. A final important issue which needs to be addressed is the *acquisition* of both cohesion and coherence (in L1 as well as in interlanguage). A representative, and continually updated, bibliography of research on coherence, compiled by Wolfram Bublitz (2008), is available online.

See also: discourse processing, discourse and pragmatics in SLA, implicature, pragmalinguistics, systemic-functional linguistics

References

- Bublitz, W. (1999). Introduction: Views of coherence. In W. Bublitz, U. Lenk and E. Ventola (eds), *Coherence in Spoken and Written Discourse*. Amsterdam: Benjamins.
- (2008). *A Bibliography of Coherence and Cohesion*. [latest update March 2008] At www.philhist.uni-augsburg.de/lehrstuehle/anglistik/sp_rachwissenschaft/bibliography
- Crystal, D. (2004). *The Cambridge Encyclopedia of Language*. Cambridge: Cambridge University Press.
- Geluykens, R. (1999). It take two to cohere: The collaborative dimension of topical coherence in conversation. In W. Bublitz, V. Lenk and E. Ventola (eds), *Coherence in Spoken and Written Discourse*, pp. 35–53. Amsterdam: Benjamins
- Gernsbacher, M.A. and T. Givón (eds) (1995). *Coherence in Spontaneous Text*. Amsterdam: Benjamins.
- Grice, H.P. (1975). Logic and conversation. In P. Cole and J. Morgan (eds), *Speech Acts* (Syntax and Semantics 3), pp. 41–58. New York: Academic Press.
- Halliday, M.A.K. and R. Hasan (1976). *Cohesion in English*. London: Longman.
- Mann, W.C. and S.A. Thompson (1988). Rhetorical structure theory: Toward a functional theory of text organisation. *Text*, 8, 243–81.
- Sanders, T. (1997). Semantic and pragmatics sources of coherence: On the categorization of coherence relations in context. *Discourse Processes*, 24, 119–47.
- Sanders, T. and W. Spooren (2007). Discourse and text structure. In D. Geeraerts and H. Cuyckens (eds) *Handbook of Cognitive Linguistics*, pp. 916–41. Oxford: Oxford University Press.

Collostructions

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Corpus-linguistic methods are now one of the standard tools in many areas of linguistics. Linguists routinely use distributional data to describe and explain linguistic phenomena. However, the discipline is still evolving and (new) tools are constantly developed and refined. One new development involves studying what is sometimes called *colligation*, that is, the co-occurrence of lexical and grammatical elements, or words and patterns/constructions, using methods that were before only applied to *collocation*, that is, the co-occurrence of words. This approach is called *collostructional analysis*, a blend of *collocation* (for co-occurrence) and *construction* (for Construction Grammar, the framework this method has come to be associated with most). Collostructional analysis is a family of methods based on measures of association strength applied to co-occurrence data from corpora, and the following two sections will (i) explain the logic underlying this method and (ii) point to applications relevant to SLA.

The method and its results

Like most measures of association strength in corpus linguistics, collostructional analysis is based on 2×2 tables of observed of (co-)occurrence frequencies such as Table 1.

For the first method, *collexeme analysis* (cf. Stefanowitsch and Gries, 2003), *A* corresponds to a

Table 1 Schematic frequency table of two elements *A* and *B* and their co-occurrence

	<i>B</i>	$\neg B$	Totals
<i>A</i>	$nA \ \& \ B$	$nA \ \& \ \neg B$	nA
$\neg A$	$n\neg A \ \& \ B$	$n\neg A \ \& \ \neg B$	$n\neg A$
Totals	nB	$n\neg B$	$nA \ \& \ B \ \& \ \neg A \ \& \ \neg B$

construction (e.g., the ditransitive NP V NP1 NP2), $\neg A$ corresponds to all other constructions in the corpus (on the same level of specificity), *B* corresponds to a word (e.g., *give*) occurring in a syntactically defined slot of such constructions, and $\neg B$ corresponds to all other words in that slot. A collexeme analysis requires that such a table be created for all *x* different types of *B* occurring in the relevant slot of Construction *A*. For an example such as a table, the frequency table of *give* and the ditransitive, consider Table 2 (based on data from the British Component of the International Corpus of English).

Each of these *x* tables is then analyzed with one of many possible association measures that have been used in the context of collocational strength. The most widely used measure is the negative log10 of a *p*-value of a Fisher-Yates exact test (other statistics have been used, too). For this table, this test returns a very small *p*-value ($< 4.94e-324$), indicating that the mutual attraction between *give* and the ditransitive is in fact very strong. When that association measure is computed for each verb type in the ditransitive and the verbs are ranked according to their attraction to the ditransitive, the rank-ordering in (1) emerges:

- (1) *give, tell, send, offer, show, cost, teach, award, allow, lend, deny, owe, promise, earn, grant, allocate, wish, accord, pay, hand*

The results not only show that verbs are not distributed randomly across constructions, but also help identifying semantic characteristics of the construction. In this case, the verbs in (1) reflect the ditransitive's meaning of transfer very clearly (since most strongly attracted verbs involve transfer), but they also reflect the other (related) senses this construction has been associated with: (non-)enablement of transfer, communication as transfer, perceiving as receiving, etc.

For the second main method, *distinctive collexeme analysis* (cf. Gries and Stefanowitsch 2004a), the 2×2 table is set up differently: *A* corresponds to a construction (e.g., the ditransitive), $\neg A$ corresponds to another functionally similar construction (e.g., the prepositional dative NP V NP PP_{for/to}), *B* corresponds to a word (e.g., *give*) occurring in a syntactically defined slot of that construction and $\neg B$ corresponds to all other words in that slot. While the computation of association measures is as before, the rank-ordering of the words now reflects which word "prefers" to occur with which construction how strongly, that is, subcategorization preferences.

There is now some experimental evidence supporting this approach. For example, Gries *et al.* (2005, 2010) showed that the verbs that, according to a collexeme analysis, are strongly attracted to the *as*-predicative (e.g., *Politicians regard themselves as being closer to actors*) are better predictors of

Table 2 Observed of *give* and the ditransitive in the ICE-GB (with expected frequencies in parentheses)

	Verb: give	Other verbs	Totals
Construction: ditransitive	461	574	1,035
Other clause-level constructions	699	136,930	137,629
Totals	1,160	137,504	138,664

subjects' sentence-completion preferences and self-paced reading times than frequencies alone. The above methods of analysis as well as extensions (*multiple distinctive collexeme analysis* to test more than two alternative constructions), additional methods (*covarying collexeme analysis* to test for co-occurrence preferences within one construction) (cf. Gries and Stefanowitsch 2004b), and different association measures can now be computed easily with an interactive R script by the author (cf. <http://tinyurl.com/collostructions>).

Some applications in SLA

Collostructional studies of these kinds have been applied in numerous contexts: structural/syntactic priming, the study of morphosyntactic alternations, first language acquisition, diachronic constructional change, and more. However, there are now also studies in SLA using these methods. For example, Gries and Wulff (2005) showed that advanced German learners exhibit verb-specific priming effects that are highly correlated with distinctive collexeme strengths of verbs participating in the English "dative alternation." In a similar vein, Gries and Wulff (2009) illustrated that the *to-* versus *ing-* complementation alternation exhibits similar effects: advanced German learners sentence-completion priming was more influenced by the preference of the verb in the sentence fragment than any other variable included in the experimental design. Ellis and Ferreira-Junior (2009) showed how the verbs learners learn first in several argument structure constructions are highly associated with these constructions (using collexeme analysis and a directional measure called ΔP) and are, thus, pathbreaking verbs for the acquisition of constructions. Wulff *et al.* (2009) compared learners' tense-aspect marking patterns in the British National Corpus and the Michigan Corpus of Academic Spoken English; Gilquin (to appear) studies causatives in English; and Wulff and Gries (submitted) show how verb-specific constructional preferences of German and Dutch learners of English correspond to native speakers' preferences and how this approach allows to identify learners' behavioral outliers for subsequent analysis. These applications show that this method has a lot to offer

to SLA research, especially to SLA research that involves, or is based on, exemplar-based approaches to language learning, representation, and processing.

See also: cognitive linguistics and SLA, construction learning, corpus analysis, formulaic language, frequency effects, priming

References

- Ellis, N.C. and F. Ferreira-Junior. (2009). Constructions and their acquisition: islands and the distinctiveness of their occupancy. *Annual Review of Cognitive Linguistics*, 7, 187–220.
- Gilquin, G. (to appear). The non-finite verb slot in English causative constructions: comparing native and learner collostructions. In J. Leino and R. von Waldenfels (eds), *Analytical Causatives*. München: Lincom Europa.
- Gries, S.Th., B. Hampe, and D. Schönefeld. (2005). Converging evidence: bringing together experimental and corpus data on the association of verbs and constructions. *Cognitive Linguistics*, 16(4), 635–76.
- (2010). Converging evidence II: more on the association of verbs and constructions. In John Newman and Sally Rice (eds), *Empirical and Experimental Methods in Cognitive/Functional Research*, pp. 59–72. Stanford, CA: CSLI.
- Gries, S.Th. and A. Stefanowitsch. (2004a). Extending collostructional analysis: a corpus-based perspective on "alternations". *International Journal of Corpus Linguistics*, 9(1), 97–129.
- (2004b). Co-varying collexemes in the *into*-causative. In M. Achard and S. Kemmer (eds), *Language, Culture, and Mind*, pp. 225–36. Stanford, CA: CSLI.
- Gries, S.Th. and S. Wulff. (2005). Do foreign language learners also have constructions? Evidence from priming, sorting, and corpora. *Annual Review of Cognitive Linguistics*, 3, 182–200.
- (2009). Psycholinguistic and corpus linguistic evidence for L2 constructions. *Annual Review of Cognitive Linguistics*, 7, 163–86.

- Stefanowitsch, A. and S.Th. Gries. (2003). Collocations: investigating the interaction between words and constructions. *International Journal of Corpus Linguistics*, 8(2), 209–43.
- Wulff, S., N.C. Ellis, U. Römer, K. Bardovi-Harlig, and C. LeBlanc. (2009). The acquisition of tense-aspect: converging evidence from corpora, cognition, and learner constructions. *Modern Language Journal*, 93(3), 354–69.
- Wulff, S. and S.Th. Gries (2011). Corpus-driven methods for assessing accuracy in learner production. In P. Robinson (ed.), *Second Language Task Complexity: Researching the Cognition Hypothesis of Language Learning and Performance*, pp. 61–87. Amsterdam: Benjamins.

Communicative competence

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To investigate the origins and the contributions of the concept of communicative competence to language studies, it is necessary to travel a bit further into the past of linguistic theory, before the concept's inception, and revisit Noam Chomsky's influential notions of competence and performance. According to Chomsky:

Linguistic Theory is concerned primarily with an ideal speaker-listener, in a completely homogeneous speech community, who knows its language perfectly and is unaffected by such grammatically irrelevant conditions as memory limitations, distractions, shifts of attention and interest, and errors (random or characteristic) in applying his knowledge of the language in actual performance.

(Chomsky, 1965: 3)

As Miller (1975), points out, the historical precedent for Chomsky's theorizing is Saussure's distinction between *langue* and *parole*, or the collective, more abstract norm and the individual, situational realization of language.

For Hymes (1972) social forces are at the center of language studies, and who quotes Chomsky in a

1972 seminal work, finds the latter's characterization of linguistic theory, or the space where that theorizing occurs, restrictive. Hymes also appreciates that the idea of performance is irrevocably connected to imperfection in the context of Chomsky since actual performance can never match abstract knowledge. While Chomsky makes references to "a completely homogeneous speech community," perfect knowledge, and does not focus on context-specific differences of performance by the same listener-speaker, Hymes:

concludes that a linguistic theory must be able to deal with a heterogeneous speech community, differential competence and the role of sociocultural features. He believes that we should be concerned with performance, which he defines as the actual use of language in a concrete situation, not an idealized speaker-listener situation in a completely homogeneous speech community.

(Ohno, 2006: 26)

That necessity to include forces within and among speech communities as pertinent to the investigation of linguistic theory results in a disambiguation of competence. It can be seen as referring on the one hand to linguistic competence, more and the coding and decoding of strings of language as grammatical or not, and also to communicative competence, or the ability to gauge situational acceptability and appropriateness of discourse. In that sense, Hymes is interested in the "social meaning of language" and not in the abstract conceptualization of language as it *could be* if forces outside of language were not at play at all times. According to Spolsky (1989), Hymes's framework is a direct result of his application of Jakobson's ideas which he was exposed to in a conference about style (Spolsky, 1989: 138–39), a possibility only afforded by Jakobson's assertion that language could be studied as it changes (i.e. diachronically). Hymes then goes on to write the 1972 article bringing the problem of the social construction of language into light. In Hymes's own words: