Lexico-grammatical patterns, pragmatic associations and discourse frequency[1]

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The virtue of a thing is related to its proper function.
(Aristotle, *Ethics*, Book 6, ii)

1. Introduction

In a paper that was published some years ago (Schmid 2003), I made the somewhat unusual claim that the sequence *I love you* can be considered a collocation. An anonymous reviewer of this paper rightly pointed out that *I love you* is a sentence consisting of a subject, a verb and an object, and concluded – to my mind mistakenly – that it could hardly be a collocation at the same time. His or her conclusion was apparently based on the premise that the constituents of sentences are connected by means of syntactic rules and relations, while the elements making up a collocation are connected by virtue of lexical attractions or associations. I responded to the reviewer's objection by declaring that sequences of words can be sentences and collocations at the same time. Lexical associations, I argued, could supersede syntactic relations if the users of the language process sequences of words as more or less prefabricated lexical chunks. The paper was eventually published, but I do not think that the reviewer came round to sharing my view.

Is it possible to prove the contention that *I love you* is a quasi-fixed lexico-grammatical unit in addition to being a sentence? One argument supporting this claim comes from the observation of frequencies in corpora. If one retrieves from the *British National Corpus* all sequences of a personal pronoun followed by any form of the verb *love* and again followed by a

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personal pronoun,[2] it turns out that *I love you* is by far the most frequently found manifestation of this schematic pattern accounting for more than a quarter of all cases found. Boasting 666 hits, *I love you* is almost four times as frequent as the runner-up, *I love it* (175 hits), which in turn is followed in the frequency rank list by the wonderful sequence of *she loved him* (132 hits), *he loved her* (125) and *you love me* (113). Even when we take into account that *I* is considerably more frequent than *he* and *she*, and that *you* is more frequent than its competitors in the object slot, i.e. *him* and *her*, *I* and *you* are still highly significantly more frequent as subjects and objects respectively of *love* than the other personal pronouns or indeed any other possible syntactic realization.[3]

A second, presumably more compelling argument for the lexical-association-hypothesis for *I love you* is of a different nature: much more than *she loved him* or *he loved her*, *I love you* immediately calls up a whole world of associations in your mind when you read or hear this sequence. These associations are related to the situations in which *I love you* is commonly used: that it is what lovers usually say when they want to tell their partner that they love them; that it is the conventional way of getting this communicative task done, and that other ways of expressing deep affection like *I like you* or *I'm fond of you* will fall short of achieving the intended communicative effect; that this sequence of words is often uttered in particularly romantic moments or moments where there is a special need for such an assurance, say in time of a relationship crisis; and presumably that this cliché-like phrase is often heard in more or less melodramatic movies and commercial pop songs. It is a fairly safe guess that none of these bits of knowledge will pop up in your mind when you read or hear *she loved him* or *he loved her*, except maybe that they are typically found in romantic fiction.

In short, what sets *I love you* apart from *she loved him* and other lexically less strongly associated minimal sentences like *I like soccer* or *Frida likes chicken* is the fact that *I love you* activates a number of pragmatic associations, i.e. associations to typical users (lovers, fiction writers, figures

2. The query used for retrieving this material from *BNCweb* was "_PNP {love/V} _PNP".
3. The log-likelihood score for *I* in subject position preceding LOVE is 13,299, compared to 3,393 and 3,248 for *she* and *he* respectively; the score for *you* in the object slot immediately following *I love* is 4,106, with *him* and *it* trailing behind with the scores 607 and 439 respectively.

in movies), typical situations (romantic moments), typical communicative intentions (assurance of deep affection). This observation raises the question, to be investigated in this paper, whether lexico-grammatical patterns in general are supported or even motivated by pragmatic aspects. More specifically, I want to discuss in which way pragmatic associations have an effect on the freezing and chunking of various types of lexico-grammatical patterns.

In order to do so, lexico-grammatical patterns and pragmatic associations must first be salvaged from their less-than-splendid isolation outside the linguistic system proper and integrated in a model of linguistic knowledge (Section 2). Following a rough differentiation of types of lexico-grammatical patterns based on common criteria such as transparency, variability and irregularity (Section 3), the ways in which different types of lexico-grammatical patterns can be said to benefit from pragmatic associations will be investigated (Section 4). This discussion will specifically highlight the fact that collocations and lexical bundles differ with regard to the support they receive from pragmatic associations. Section 5 will relate the insights gained in Section 4 to the widespread idea that the chunking of lexico-grammatical sequences is related to their discourse frequencies and explain in which way pragmatic aspects motivate frequencies of occurrence.

2. Theoretical background

Idioms, routine formulae, collocations and other types of multi-word expressions and lexical-association phenomena, on the one hand, and all kinds of phenomena subsumed under the label *pragmatics*, on the other, traditionally share the same fate: they are banned from models of grammar proper because they are irregular and unpredictable and are therefore said to defy large-scale generalizations. Nevertheless, hardly anyone will doubt that the two phenomena have an important role to play in how languages work and are used as communicative tools. An adequate theory of language should therefore strive to accommodate and integrate formulaic sequences and pragmatic aspects of language. In this section, a framework will be outlined which tries to do exactly this.[4]

4. The framework is still under construction and will be detailed elsewhere.

2.1 The general framework: Entrenchment and conventionalization

The framework starts out from the assumptions that what has traditionally been referred to as "the Language System" is not a stable entity, as is suggested by the established use of this definite noun phrase. Instead, the "system" is considered to emerge from and be continuously refreshed by the interplay of cognitive processes taking place in individual minds, on the one hand, and sociopragmatic processes taking place in societies, on the other. This dynamic model is inspired by and compatible with a number of recent approaches labelled by terms such as "usage-based", "emergentist", "socio-cognitive", "complex-adaptive" and others.[5] What distinguishes the present framework from these approaches is its explicit aim to reduce the complexity of the adaptive and dynamic system that is language to a *limited number* of cognitive and sociopragmatic processes and their interaction.

The cognitive processes postulated in the model are subsumed under the term *entrenchment*, and the sociopragmatic ones under the label *conventionalization*. The framework is therefore referred to as the *entrenchment-and-conventionalization model*, or *EC-model* for short.

Following dynamic conceptions of the notion of *convention* (cf. Croft 2000: 98–99, Eckert 2000: 45, Sinha and Rodriguez 2008), *conventionalization* is understood as the continuous mutual coordination and matching of communicative knowledge and practices, subject to the exigencies of the entrenchment processes taking place in individual minds. The term *entrenchment* refers to the on-going re-organization of individual communicative knowledge, subject to the exigencies of the social environment (cf.

5. These approaches include: emergentist and usage-based models of grammar (e.g. Hopper 1987, MacWhinney 1999, Hawkins 2004), language acquisition (e.g. Tomasello 2003, Goldberg 2006, 2009, MacWhinney 1998, Behrens 2009) and language change (Bybee 1985, 2006, 2007, 2010, Bybee and Hopper 2001, Haspelmath 1999, 2002, Croft 2000, 2009, Traugott and Dasher 2004); cognitive-linguistic usage-based models, including various types of construction grammars (e.g. Langacker 1988, 2008, Barlow and Kemmer 2000, Fillmore, Kay, and O'Connor 1988, Goldberg 1995, 2006); exemplar-based approaches (e.g. Bybee 2001, Pierrehumbert 2001, 2006) and complex-adaptive approaches (e.g. The Five Graces Group 2009, Blythe and Croft 2009); socio-cognitive approaches (e.g. Geeraerts 2003, Kristiansen 2008, Croft 2009, Harder 2010, Geeraerts, Kristiansen, and Peirsman 2010).

Langacker 1987: 59, 2008: 16–17, Evans and Green 2006: 114, Schmid 2007, Blumenthal-Dramé 2012).[6]

Neither entrenchment nor conventionalization ever come to a halt;[7] the two terms denote on-going processes rather than resultant states. In the EC-model, the "communicative knowledge" which takes centre-stage in the definitions of both entrenchment and conventionalization is available to individual speakers in the form of only one type of cognitive process: **association**. All types of "linguistic elements" and "linguistic structures" ultimately rely on this general cognitive process, which is of course not specific to language but nevertheless manifested in language-specific ways (see Section 2.2). On a general level of description, the process of *association* can simply be defined as creating "a link between two or more cognitive representations" (Smith and Mackie 2000: 37).

The EC-model adopts the general idea of so-called "spreading activation" models (cf. e.g. Collins and Loftus 1975, Dell 1986, Aitchison 2003: 84–101) that linguistic knowledge is available as a network of more or less routinized associations of various types. Within this network, activation spreads whenever an auditory or visual linguistic stimulus (i.e. the formal side of a "sign") is presented to a hearer or reader or activated during language production by a speaker or writer. Activation spreads from associations to other associations that can be related in the network in a variety of ways (see again Section 2.2 for more details).

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6. Note that this definition is at the same time more general and more specific than other frequently quoted conceptions of the notion of entrenchment, among them that proposed by Langacker (1987: 59). On the one hand, it is more general because it explicitly subsumes all kinds of re-organisation processes, not only those that lead to the formation of symbolic units. And on the other hand, it is more specific in the respect that it explicitly includes the relation to the social environment which influences the internal cognitive processes.
7. In view of the so-called critical-period hypothesis, which postulates that the window for acquiring a language is only open for a limited number of years during childhood (Lenneberg 1967), the idea of a lifelong reorganization of linguistic knowledge taking place in individual speakers' minds is presumably highly controversial. It is not unlikely, however, that the nature of the reorganization processes indeed remains the same from early language acquisition throughout speakers' lives (cf. Tomasello 2000: 237), while the amount of reorganization taking place becomes smaller due to increased routinization and resulting fossilization of associations (MacWhinney 2012).

In line with other usage-based and cognitive approaches (e.g. Langacker 1987: 100, 2008: 16, Haspelmath 1999: 1058, Smith and Mackie 2000: 37, Bybee 2006), the EC-model assumes that the strength of associations is fostered by **routinization**, which is in turn facilitated by repeated processing events. Linguistic elements or structures that are uttered, written, heard and read more frequently than competing structures are more likely to be processed faster and with less cognitive effort and control than rare ones. Frequent linguistic stimuli are thus more likely to produce routinized associations than infrequent ones (see Section 5 for more details).

Concurrent with the routinization resulting from the repeated processing of similar or identical associations or association patterns, speakers begin to abstract commonalities and form new "second-order" associations. This process is referred to as **schema-formation** or **schematization** in the EC-model. On the level of words, for example, schema-formation is required to build up "representations" of lexemes *qua* abstract units. Speakers do not just routinize form-meaning associations of the individual word-forms *go*, *goes*, *going*, *went* and *gone*, but also routinize associations to the schema GO, which abstracts from the different forms and meanings. Repeated encounters of such sequences as *that's right*, *that's good*, *that's great*, *that's nice*, *that's horrible* and *that's awful* will presumably not only result in a routinization of associations connecting each of these recurrent expressions to certain meanings, but also in the formation of a more general meaning-carrying schema THAT'S + EVALUATIVE ADJ. Associations to such schemas can also become more or less routinized. As mentioned above, in the EC-model, linguistic knowledge is assumed to be available to individual speakers in the form of constantly re-adapted associations to such schemas, but also in the form of non-schematized but routinized associations.[8] In addition, schemas are used as a source for "generative", productive and creative language use.

However, this description of individual knowledge is of course not sufficient for language to work as a communicative tool. Since language is not solipsistic but "has a fundamentally social function" (The Five Graces Group 2009: 1), one has to assume that there is some sort of match of the routinized and schematized linguistic associations in the minds of different speakers of a language. Hence, as expressed in the definition of the notion

8. This view is of course compatible with construction-grammar approaches, but it is more dynamic and much less committed to rash claims concerning the existence of constructions.

of entrenchment, the entrenchment-processes taking place in individual minds are not only subject to internal cognitive processes but also, of course, to external factors, i.e. to the input given by other speakers and the amount of output produced by speakers themselves, which arguably serves as a particularly privileged form of input.[9] This is where the second major element of the EC-model comes in: the sociopragmatic processes. Linguistic associations in the minds of individual speakers are continuously and mutually strengthened as a result of actual **communication** in social situations. Trivial as it may appear, it must be stressed that the process of communication is the prerequisite for the mutual exchange of linguistic knowledge. While producing and comprehending linguistic utterances that are of course primarily meant to convey information and fulfil other communicative functions, interlocutors invariably and inadvertently process associations linked to linguistic elements and schemas, thus inevitably strengthening their routinization. Communication can take place synchronically, within the temporal boundaries of a shared speech event characterized by the exchange of spoken utterances, and also asynchronically, when written utterances are read at a later point in time. All four modes, writing, reading, speaking and listening/comprehending, are assumed to have effects on entrenchment processes. It is in this way that communication turns out to be the basic source of the much-quoted frequency effect on routinization and entrenchment mentioned above.

While the details of how frequency of occurrence in actual spoken and written discourse translates into routinization are still far from clear, a set of processes known as **co-adaptation** (Ellis and Larsen-Freeman 2009: 91), **accommodation** (cf. Trudgill 1986: 1–38, Giles, Coupland, and Coupland 1991, Auer and Hinskens 2005, Giles and Ogay 2006), or **alignment** (e.g. Pickering and Garrod 2004) are very likely to play key roles. These terms capture the tendency of speakers to imitate and adapt features and elements encountered in the speech of their interlocutors, usually as an act of per-

9. Note that the "input given by other speakers" is not only an external factor, as suggested in the text, but also an internal one, since what is crucial for further entrenchment is not the objectively given input, but input-as-processed. Studies of reanalysis (e.g. Detges and Waltereit 2002) indicate that a key element of this process resides in hearers' parsing during comprehension rather than speakers' innovative constructions. I would like to thank Ulrich Detges for drawing my attention to this important point.

forming solidarity and group identity.[10] One possible reason for this tendency is "the social pressure to speak like others" (Wray 2008: 18), which ultimately results in the establishment of linguistic conventions (Clark 1996: 71, Croft 2000: 98–99). From a neurological point of view, it is possible that the notorious mirror neurons (Pickering and Garrod 2004: 188) play a role in this process.

Co-adaptation contributes to the **diffusion** of associations related to linguistic elements and features across the members of speech communities. The link between co-adaptation and diffusion is the cognitive process of routinization, which only works, however, when speakers carry over memory traces from concrete language-processing situations – no matter whether they are spoken dialogues or reception of written material – into new processing situations. Auer and Hinskens (2005: 336) use the term "individual long-term accommodation" for this effect. Pickering and Garrod (2004: 217–218, 2005: 89–100) even note that alignment in discourse plays a role in the emergence and conventionalization of routinized semi-fixed expressions: "if an expression becomes sufficiently entrenched [in a conversation, HJS], it may survive that conversation" (Pickering and Garrod 2004: 218).

In the study of language change, the process of diffusion is typically related to the spread of innovations (e.g. Croft 2000: 166–183), but in fact it has much further-reaching effects. As for innovation, in terms of the EC-model, new linguistic associations are replicated as a result of co-adaptation and thus diffuse and spread in the speech community, very much like a contagious virus or disease.[11] Significantly, and this is where the EC-model differs from other accounts, co-adaptation and diffusion are also responsible for the stability of the linguistic system in the way that those linguistic associations that are frequently repeated in actual situations of language use will resist change, both in the minds of individual speakers and in the speech community. They are constantly renewed and will thus remain part of the shared and conventionalized **norm**.[12] This may be available in the

10. Cf. also Johanson's (2008) notion of "code-copying" and the work by Enfield (2005, 2008).
11. Blythe and Croft (2009) outline a mathematical model of how this could work.
12. This notion of *norm* is not to be confused with Coseriu's (1967: 11) understanding of the same term. While Coseriu regards the *norm* as a level of usuality located between actual speech and his structuralist conception of the *sys-*

form of a tacit shared understanding of how communicative tasks are generally accomplished in the given speech community (**institutionalization**, cf. Brinton and Traugott 2005: 45–47, **usualization**, cf. Blank 2001: 1596) or – as is the case in all codified languages – is additionally laid down in grammars, dictionaries, or usage guides (**codification**; cf. Holmes 2008: 110–117). As a counterpart to innovation, extremely rare linguistic associations are in danger of losing their conventionality and becoming obsolete, since they are not reinforced in the minds of speakers and are thus subject to decay and forgotten. Examples of lexico-grammatical patterns that are currently facing this fate include "old-fashioned" expressions such as *jolly good*, *old bean*, *old boy* and others that have a somewhat P.G. Wodehousian ring to them.

In sum, the major processes identified in the EC-model as being constitutive of a dynamic and adaptive model of language are the cognitive entrenchment-processes of **association**, **routinization** and **schema-formation** and the sociopragmatic conventionalization-processes of **communication** and **co-adaptation**. Whether **diffusion** and **normation** must be modelled as sociopragmatic processes in their own right or as results of the interaction of cognitive processes and co-adaptation is still an open question in the ongoing conception of the EC-model.

The EC-model is unique in integrating the cognitive and the sociopragmatic forces in a dynamic conception of both linguistic stability and language change. It is a parsimonious model as it strives to reduce the number of processes and forces required to model linguistic systematicity, variability and dynamicity to the bare minimum. And it claims to be a psychologically and sociologically plausible model of language which relies on well-documented language-specific variants of equally well documented domain-general processes. While the majority of the claims made so far have been backed up by reference to the work of others, the way they are integrated in the EC-model in order to form a coherent model of linguistic structure, variation and change is new. This will be shown in greater detail in the next section.

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tem, here the process of normation is indeed part of the emergent and dynamic system.

2.2 The place of lexico-grammatical patterns and pragmatic associations in the EC-model

As this paper focuses on the relation between pragmatic associations and lexico-grammatical patterns, the place of both in the EC-model must next be clarified. In order to do this, a framework of four types of associations which are assumed to underlie language as a dynamic communicative tool and system will be introduced: symbolic, paradigmatic, syntagmatic and pragmatic associations. In keeping with the aims of this paper, syntagmatic associations, which form the cognitive substrate of lexico-grammatical patterns, and pragmatic associations will be described in greater detail in the following account of these four types of associations.

Firstly, *symbolic association* reciprocally link linguistic forms (on different levels of complexity) to meanings. They provide the cognitive foundation of *linguistic signs* (cf. Saussure 1916: 98) or *constructions* (Fillmore, Kay, and O'Connor 1988, Goldberg 1995). As already pointed out, in the EC-model, linguistic signs are considered to be highly routinized and schematized symbolic associations.

Secondly, *paradigmatic associations* link linguistic associations to "competing" associations, i.e. to associations that could potentially enter the focus of attention under the given contextual and cotextual circumstances (cf. Aitchison 2003: 84–91). Routinized paradigmatic associations are the cognitive substrate of the well-known paradigmatic sense-relations (synonymy, antonymy, hyponymy, etc.). They are also essential for the development of variable schemas, since the generalization process involves recognizing the fact that certain elements are interchangeable within an observed pattern. For example, in generalizing the schema THAT'S + EVALUATIVE ADJ from expressions such as *that's right*, *that's nice*, or *that's lovely* speakers recognize both the identity of *that's* and begin to associate *right*, *nice*, *lovely* and other adjectives as paradigmatic competitors in the variable slot of the schema.

Thirdly, *syntagmatic associations* emerge in the process of production and comprehension by connecting linguistic signs and constructions which follow each other in running text. They can be fleeting associations that are activated in "one-off" online processing situations to construct or make sense of a chain of linguistic stimuli, but, significantly, they can also be routinized and schematized as a result of repeated processing. This effect is particularly relevant in the context of this paper. If syntagmatic associations linking sequences of linguistic elements are routinized and schematized, the

symbolic associations ('meanings') are not activated in a gradual, sequential way, with the mind incrementally blending associations related to the component parts; instead there is a direct symbolic association to the meaning of the whole unit or **chunk** (cf., e.g., Sinclair 1991: 110, Wray 2002: 9, Sinclair and Mauranen 2006: 37–40, Terkourafi 2011: 358–359). In more traditional terminology, this gives rise to what Burger (2010: 82–83) calls "Zeichen zweiter Stufe" ('second-order signs', HJS] which are composed of signs that are themselves first-order signs, resulting in the existence of a "sekundäres semiotisches System" ['secondary semiotic system', HJS].[13]

Significantly, whether a sequence of words is processed as a chunked symbolic association or via associations triggered by the component parts depends on the processing history of individual speakers (Wray 2008: 11, The Five Graces Group 2009: 15). For example, if you are a hotline telephone counsellor you are more likely to process the sequence *how can I help you today* as one holistic chunk than other speakers of English, who are of course familiar with this sequence but hardly ever produce it. It is one of the strengths of the EC-model that such differences are predicted as an integral part of the framework. As more and more speakers begin to share the holistic type of associations, the type of processing can also change on the collective macro-level of the speech community. This means that the chunk becomes conventionalized. A good example of this is the sequence *yes we can*. In the BNC, which dates from the late 1980s and early 1990s, we find 26 attestations of this sequence of words. Whether this can be interpreted as evidence for a certain degree of routinization in the minds of at least some speakers of English at that time is certainly debatable, but this question can remain open here. What seems rather clear is that after Barack Obama's presidential campaign in 2008, the phrase *yes we can* has undoubtedly been turned into a chunk in the minds of most Americans (and many other native and non-native speakers of English). In the present context it is particularly noteworthy that the chunk comes complete with a rich set of pragmatic associations relating to Obama, his campaign and election victory, the major messages that he was trying to get across with

13. See Grzybek (2007: 202–204) on the roots of this distinction in Barthes (1957) and Russian phraseology and an interesting discussion of further implications on pragmatic aspects of phraseology.

this slogan, more recently presumably also to whether or not he has been able to live up to his promise.[14]

Symbolic associations resulting from the schematization of syntagmatic associations can be linked to formally fixed sequences of elements, e.g. in the case of totally frozen expressions that cannot be changed in any way (BY AND LARGE, KITH AND KIN), or to sequences that include open slots that can be filled in various ways (THAT'S + EVALUATIVE ADJ). In a cognitive-linguistic framework, both types can be referred to as *chunks*, but for the second, variable type the terms *schema* or *schematic construction* are more commonly used. Schemas define both invariable slots of patterns and restrictions on how variable slots can be filled (cf. Tomasello 2003: 173–175, Langacker 2008: 17, Behrens 2009: 397). Schemas are available in different sizes – relating to morphologically simple and complex units – and on different levels of abstraction – from lexically specific to highly schematic. As a result, the network is "heteromorphic" (Wray 2008: 12, 20), marked by multiple associations routines and a considerable degree of redundancy (Nattinger and DeCarrico 1992: 23, Bybee 2010: 24, for neurological evidence, see Capelle, Shtyrov, and Pulvermüller 2010: 198–199). For more or less any given linguistic element many different routinized and schematized associations compete for activation.

The routinization of syntagmatic associations produces the well-known "priming" effect (cf. Hoey 2005: 7–14) that speakers and hearers are often able to anticipate the occurrence of a second element of a recurrent sequence as soon as they are confronted with the first one. In the EC-model, routinized syntagmatic associations are thus the cognitive source of the frequently voiced impression that collocations show a certain degree of "predictability" (cf. e.g. Greenbaum 1970, Sinclair 1991: 110, Herbst 1996: 389).

Do all semi- or fully-fixed expressions emerge by means of the gradual routinization of syntagmatic associations? Probably not. According to Wray, there are "sequences that start off formulaic" (2002: 59), i.e. as "long strings with a complex meaning that have never got broken down" (2002:

14. That writers rely on the availability of a chunk-like association linked to *yes we can* even in a non-native speaker environment is demonstrated by the headlines *Yes, we can't* found in a magazine accompanying the German broadsheet *Süddeutsche Zeitung* (SzExtra, 04.–10.02.2010, p. 10) and *No, you can't* used as a hook in the German weekly *Die Zeit* (15 February 2012) (http://www.zeit.de/2012/08/USA-Atomkraftwerke). Thanks to Sylvia Jaki for the reference to the first of these sources.

61), on the one hand, and "sequences that become formulaic" (2002: 60), i.e. as "strings of smaller units that have got stuck together" (2002: 61). Regarding the question of how sequences "become formulaic in the first place", she rightly emphasizes that "[t]his question needs to be answered slightly differently depending on whether it relates to the language as a whole or the language knowledge of an individual" (Wray 2002: 60) – a remark which is in keeping with the distinction between individual entrenchment and collective conventionalization in the EC-model. On the micro-level, individual speakers can acquire routinized and schematized syntagmatic associations either wholesale, i.e. directly as holistic symbolic associations linking meanings and communicative needs to complex sequences of words, or by gradually chunking them as a result of repeated usage. As the large majority of formulaic sequences are already more or less conventionalized in the speech community, the first type of acquisition is presumably much more frequent than the second (cf. Wray's "needs-only analysis" 2002: 130–132). On the macro-level of the speech community, chunks can also emerge gradually by means of long-term fusion processes (as seems plausible for complex prepositions of the type *in spite of*, cf. Beckner and Bybee 2009), but they can also be the result of the spread of the chunk. While this may suggest that the processes taking place in individual minds and those taking place in society are essentially the same, the EC-model makes it quite clear that this is not the case: on the one hand, chunking, as an individual cognitive process, cannot affect the speech community and result in long-term change unless its effects diffuse across members and are handed over to later generations of speakers; and on the other hand, individual chunking processes are subject to the perception of the input and co-adaptation processes in actual discourse situations.

Pragmatic associations connect symbolic, paradigmatic and syntagmatic associations with perceptual input garnered from external situations.[15] While pragmatic associations share with the other three types of associations the underlying cognitive process that is at work, they are special in two ways: on the one hand, pragmatic associations are associations of a second order in the respect that they operate on the other types of associations, in particular on routinized associations, and thus seem to rely on

15. Cf. Hoey's more general definition of the notion of *pragmatic association*: "Pragmatic association occurs when a word or word sequence is associated with a set of features that all serve the same or similar pragmatic functions (e.g. indicating vagueness, uncertainty)" (Hoey 2005: 27, original emphasis omitted).

them. This relates to the common conception of pragmatics as being some kind of facultative appendix that can, but need not, be invoked in linguistic description if helpful or necessary. Yet, on the other hand, pragmatic associations are arguably also the ultimate source of the other three types of associations, at least in any viable usage-based model of language, since symbolic, paradigmatic and syntagmatic associations can only emerge from actual usage events which invariably involve pragmatic associations. The key to reconciling these two seemingly opposing roles attributed to pragmatic functions lies in the routinization of pragmatic associations, which results in the emergence and routinization of symbolic associations, upon which, subsequently, new pragmatic associations can operate. Cotextual and contextual associations then become a part of symbolic associations, or, vice versa, as Nattinger and DeCarrico put it with reference to Levinson (1983: 33), "aspects of linguistic structure sometimes directly encode features of context" (1992: 4).[16]

According to the EC-model, pragmatic associations link the external speech event with internal cognitive processes and hence constitute the main interface between entrenchment processes, on the one hand, and conventionalization processes, that is communication and co-adaptation, on the other. In keeping with a general understanding of pragmatics as having to do with language-use in actual contexts and "meaning-in-context" (Bublitz and Norrick 2010: 4), pragmatic associations are defined as linking other types of associations, especially symbolic ones, to perceptual stimuli relating to

- the **situational context** (including discourse participants, places, settings, objects which may serve as targets of deictic references, types of events);
- the linguistic **co-text** (especially what was said before);
- the **communicative intentions** of speakers (including illocutionary acts and implicatures).

For the purposes of this paper, four effects of pragmatic associations which are predicted by the EC-model should be highlighted. Firstly, since pragmatic associations link symbolic associations to usage events, they are instrumental in creating sensitivity to characteristics of lexemes and constructions with respect to **style**. For instance, there can be no doubt that compe-

16. I would like to thank Peter-Arnold Mumm for sharing with me his thoughts on the ubiquitous two-sided effects of pragmatic associations on the other types of associations.

tent speakers of English know that competing idiomatic expressions referring to the death of a person (*passed away, has left us, kicked the bucket, bit the dust, is partying with angels* etc.) convey different attitudes to what is said and are appropriate in different types of situations. How does this knowledge come about? It is only possible because language users apparently do not have highly reductive, feature-like representations of the meanings of words and constructions of the type [BECOME NOT ALIVE] for *die*, but can indeed rely on rich memory of situations where different expressions meaning 'die' were used (cf. Bybee 2010: 55–56).[17] By virtue of the routinization of such pragmatic associations, language users are able to develop style sensitivity. In addition, as already mentioned, pragmatic associations become parts of or are even turned into symbolic associations whose communicative impact no longer depends on the specific context.

Secondly, language users derive their knowledge of **register** differences (cf. Wray 2008: 117) from the routinization of pragmatic associations between certain linguistic forms and occasions when they were uttered, resulting for example in the awareness that patterns such as *payment in due course*, *obstruction of justice*, *take into custody*, or *judgment notwithstanding the verdict* are typically produced by legal experts when discussing legal matters.

Thirdly, pragmatic associations are also a necessary source of **connotative meanings** attached to lexemes and patterns in the minds of individual speakers and eventually whole speech communities. Like style sensitivity, the knowledge of semantic nuances such as 'positive', 'negative', 'offensive', 'derogatory', 'ironic', 'euphemistic' and all kinds of more specific connotations must be derived from the experience of individual usage events (cf. Feilke 1996 156–180). This pertains to the lexicon as a whole but also, for example, to the knowledge that the collocation *fine friend* is typically used in an ironical way with negative connotations, while *good friend* and *old friend* have positive connotations. Similarly, the positive connotations attributed to the expressions *a rough diamond*, *up and coming*, or *know something inside out* (cf. Gläser 1986: 32) and the negative

17. The idea that situational properties of earlier experiences with linguistic expression are stored and constantly added to the existing stock of knowledge about expressions is central to so-called exemplar theories, a type of usage-based models which is particularly prominent in the field of phonology (cf. e.g. Pierrehumbert 2001, Bybee 2010: 14–32).

ones of *breed like rabbits* and *common as muck* (Gläser 1986: 31) must be learned by extracting them from contexts via pragmatic associations.

Finally, and this is to be probed more deeply in Section 4, pragmatic associations are likely to be instrumental, or even play a central role, in the acquisition of syntagmatic chunks, especially in early language acquisition but also throughout a speaker's life. It is a very robust finding in usage-based approaches to language acquisition that infants and toddlers first learn unanalyzed chunks (Behrens 2009: 393) and only later begin to segment and generalize. Crucially, these chunks are learnt in social situations characterized by shared attention (Tomasello and Rakoczy 2003, cf. Behrens 2009), and thus it is more than likely that "these chunks would also be learnt together with their associated functions in context" (Nattinger and DeCarrico 1992: 11, cf. Tomasello 2003). As pointed out above, in the EC-model, it is assumed that this pragmatically co-determined learning or reorganization process does not stop with the end of the so-called critical period but extends throughout a speakers life.

3. The purview of the field of lexico-grammatical patterns

Because of its fluid and fuzzy boundaries and its internal heterogeneity, the field of lexico-grammatical patterns is difficult to demarcate from other phenomena and to differentiate internally (cf. e.g. Granger and Paquot 2008, Wray 2012). While it is neither necessary nor intended to contribute to solving the classificatory problem in this paper, for descriptive and terminological purposes an attempt must be made to superimpose some kind of terminological working structure on this notorious jungle.[18] The umbrella term that I will use in this paper in order to avoid any theoretical commitments is *lexico-grammatical patterns*. These are defined in admittedly rough terms as *recurrent sequences of lexical and grammatical elements*

18. Superordinate terms having different semantic nuances and coming from a variety of theoretical backgrounds which are commonly found in the literature include *multi-word units* (e.g. Schmitt 2000: 96–100), *FEIs* (i.e. *fixed expressions including idioms*; Moon 1998), *formulaic sequences* (Wray 2002, Schmitt 2004), *formulaic language* (Wray 2008), *prefabricated routines* or *prefabs* (Erman and Warren 2000, Bybee 2010), *routine formulae* (Coulmas 1981), *extended units of meaning* (Sinclair 1996), *lexical phrases* (Schmitt 2000: 101–102), *(lexical) chunks* (Lewis 1993[1], Schmitt 2000: 101, Bybee 2010: 33–37), *sedimented patterns* (Günthner 2011[2]: 158), (*syntactic*) *gestalts* (Aijmer 2007: 44, Auer 2007[3]: 97, Imo 2011).

which serve an identifiable function.[19] Figure 1 uses the dimension of frozenness/variability to chart the terrain in such a way that three groups of types of lexico-grammatical patterns can be formed. The individual types are briefly explained in what follows, adding further well-known dimensions such as degrees of transparency/compositionality, syntactic (ir-)regularity and pragmatic constraints.

Group 1: More fixed lexico-grammatical patterns

- *Routine formulae*: syntactically and semantically fixed phrases tied to social situations and pragmatic acts such as greetings, apologies, thanks; these are not integrated in syntactic structures but function in a syntactically autonomous way (*great to see you, how are you doing, excuse me, thank you so much, long time no see*).
- *Transparent conventional phrases*: institutionalized phrases which are formally fixed – with regard to both the elements involved and their order – but semantically more or less transparent (*ladies and gentlemen, mind the gap*).
- *Proverbs and proverbial sayings*: cliché-like, frozen sequences of words displaying shared cultural wisdom, which are typically not embedded in larger syntactic structures but are propositions, sentences and, arguably, even quoted texts in their own right (*out of sight, out of mind*; *an apple a day keeps the doctor away*).

19. It will be noted that this definition deliberately leaves open the perennial issue of what it exactly means for a sequence of words to be "recurrent". One reason for this apparent surrender lies in the uncertainties regarding the assessment of frequencies discussed in Section 5. See e.g. Jones and Sinclair (1974: 19), Kjellmer (1982: 26) or Clear (1993: 277) for attempts to define thresholds concerning relative paradigmatic frequencies and Church and Hanks (1990), Clear (1993), Stubbs (1995), Manning and Schütze (2001) as well as Grzybek (2007: 196–201) on calculating significance levels of relative syntagmatic frequencies. The reference to "an identifiable function" is not meant to ensure that the sequences studied have an identifiable pragmatic role but used to exclude chance clusters such as the sequence of *paper* and *so* which can muster as many as 29 hits in the BNC.

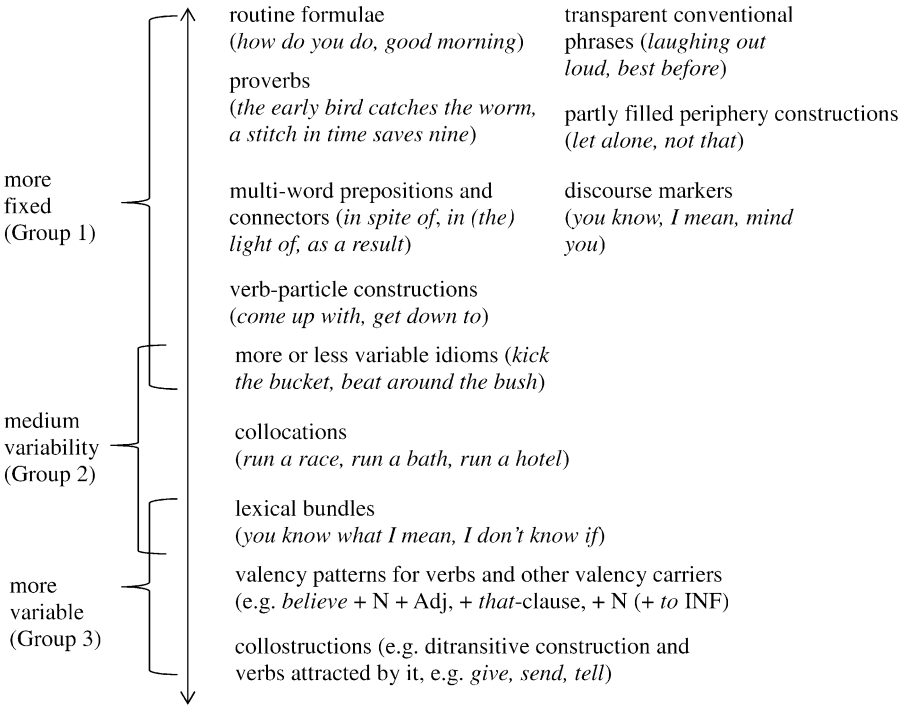

Figure 1. Types of lexico-grammatical patterns arranged on the dimension of frozenness/variability[20]

– *Partly filled periphery constructions*: syntactically deviant or somehow salient uses of familiar items subject to specific syntactic restrictions and triggering special semantic and or pragmatic effects, e.g. the *let alone* construction and the *the X-er the Y-er* construction (Fillmore, Kay, and O'Connor 1988, Capelle 2011) or the *not-that* con-

20. Literally all readers of earlier versions of this paper have commented on the problems inherent in this classification, drawing my attention to inconsistencies in the application of the key criterion, to the existence of hidden criteria such as abstractness and schematicity and to unconvincing placement of individual items in the list (e.g. pertaining to idioms and proverbs). The basic principle behind the arrangement relies on the variability of the types of phenomena named, which explains why collocations and collostructions are considered more flexible than idioms and proverbs. That the figure appears the way it does in spite of these convincing reservations is not only due to my pig-headedness, but also to the sheer fact that the purpose of the classification is a descriptive and terminological one.

struction (Delahunty 2006, Schmid 2011, 2013). The invariable elements of these constructions are highly fixed, while the open slots are of course variable.

- *Multi-word prepositions and connectors*: so-called complex prepositions and connectors usually regarded as the result of grammaticalization processes (*in need of, by virtue of, on top of, with regard to, as a result, as a consequence, in contrast*; cf. Quirk, Greenbaum, Leech, and Svartvik 1985: 669–671, Hoffmann 2005).
- *Discourse markers*: elements found at clause peripheries, usually separated from clauses proper as autonomous units, serving a range of textual, conversational and interpersonal functions (*I see, I mean, you know, mind you*; cf. Schiffrin 1987).
- *Verb-particle constructions*: phrasal verbs, prepositional verbs, phrasal-prepositional verbs with more or less opaque meanings (*get up, keep up, go through, look at*).
- *Idioms*: sequences of orthographic words which are integrated as (parts) of clauses in the syntactic structures of sentences and whose composite meanings cannot or only partly be derived from the meanings of their parts (*blow off steam, cry wolf, walk on a tightrope*). Idioms cover a range from frozen to more variable expressions and thus straddle the boundary between Group 1 and Group 2. They range from completely opaque (*kick the bucket*) to idiomatic but largely analyzable expressions (*spill the beans*) (cf. Svensson 2008), and from expressions made up of entirely familiar elements (*bite the dust*) to those including otherwise unfamiliar ones (*kith and kin*) (cf. Fillmore, Kay, and O'Connor 1988: 506–511, Dobrovol'skij 1995).

Group 2: Medium fixed patterns

- *Collocations*: recurrent lexical combinations, typically Adj-N (*strong tea, towering figure*), N-V (*dog – bark, price – drop*), V-N (*propose – motion, sign – petition*), Adj-Adv (*highly selective, fully integrated*). This class is here taken to include light-verb constructions, i.e. more or less fixed combinations of semantically empty or bleached verbs and nouns (*have lunch, take a picture, make a proposal*).
- *Lexical bundles*: "simple sequences of word forms that commonly go together in natural discourse", "regardless of their idiomaticity and regardless of their structural status" (Biber, Conrad, Leech, Johansson,

and Finegan 1999: 990–1024; e.g. *if you want to*, *or something like that*, *I don't know why*). Terms used by other authors to refer to similar phenomena are *lexicalized sentence stems* (Pawley and Syder 1983), *lexical phrases* (Nattinger and Decarrico 1992) and *conversational routines* (Aijmer 1996). As indicated in Figure 1, lexical bundles (and lexicalized sentence stems) straddle the fluid boundary between Group 2 and Group 3, since many of them – e.g. *I don't know why* – are lexically specific but are, of course, at the same time manifestations of lexically more variable syntactic patterns. In addition, they often include highly chunked grammatical elements such as *don't* (cf. Bybee and Scheibmann 1999), *want to* (Krug 2000: 117–166), or *going to*.

Group 3: More variable patterns

- *Valency patterns*: complementation patterns associated with verbs and other valency carriers (cf. Herbst 2010: 191–192).
- *Collostructions*: mutual attractions of lexical elements and schematic ('grammatical') constructions, e.g. the tendency of the ditransitive construction to attract the verbs *give*, *tell*, *send* (Stefanowitsch and Gries 2003) or the tendency of the N-that construction to attract the nouns *fact*, *view*, or *idea* (Schmid 2000). As descriptions of collostructions typically start out from schematic constructions and investigate lexemes that are attracted by them (cf. Stefanowitsch and Gries 2003: 214), collostructions can be seen as being complementary to valency patterns, whose description proceeds from lexemes *qua* valency carriers to patterns.

Although there are many exceptions, two general correlational trends can be observed: Firstly, frozenness shows a relationship to transparency in such a way that the more fixed lexico-grammatical patterns also tend to be more opaque than the more variable ones. Secondly, frequencies of occurrences of actual manifestations, i.e. tokens, of members of these classes tend to increase as we go from the top of Figure 1 to the bottom. This is of course not unrelated to degrees of frozenness/variability, since lexically-filled, substantive patterns found in Group 1 are semantically much more specific and thus less widely applicable than schematic, "grammatical" patterns. Valency patterns, collostructional attraction phenomena and also collocational phenomena on the one end of the scale are clearly more fre-

quent than routine-formulae, transparent conventional phrases, proverbs and partly-filled periphery constructions on the other end, with the other categories covering the intermediate ground. Needless to say, the discourse frequencies of those general classes and especially of individual items belonging to them vary considerably depending on text-types, genres and registers. Routine formulae, discourse markers, particle verbs and lexical bundles, for example, are very frequent in spontaneous spoken interaction, while many complex prepositions and connectors are more often used in planned speech and writing (cf. Hoffmann 2005: 95–119).

Interestingly, judgments concerning the likelihood that examples from the various classes are stored as schematized, prefabricated chunks follow an inverse trend, with idioms usually being judged as better candidates for holistic processing than valency patterns or collostructions. This is mainly because such judgments typically rest on the most reliable criteria of semantic opacity and syntactic irregularity. The reasonable rationale behind this is that despite their infrequent occurrence opaque idioms must be processed as prefabs since they cannot be calculated online on the basis of rules.

4. The relation between pragmatic associations and types of lexico-grammatical patterns

4.1 Brief survey of previous literature

The existing literature on pragmatic aspects of more or less fixed multiword expressions has largely focussed on two types of patterns: routine formulae (e.g. Coulmas 1981), on the one hand, and various types of recurrent conversational sequences, on the other. Three publications stand out as particularly instructive sources for the present attempt to investigate the relation between lexico-grammatical patterns and pragmatic associations: Pawley and Syder's (1983) seminal study on *lexicalized sentence stems*, Nattinger and DeCarrico's (1992) book on *lexical phrases* and Aijmer's (1996) volume on *conversational routines*. Three further studies that explicitly target pragmatic aspects of idioms or phraseology, among them Strässler (1982) and Filatkina (2007), do not approach the issue from the perspective of the fixed expressions, but set out from classic pragmatic topics such as speech acts, deixis, implicatures and presuppositions, and discuss their relevance for the description of phraseological units. Grzybek

(2007: 201–202) emphasizes that all attempts to link phraseological units to specific communicative functions are doomed to failure due to the polyfunctionality of most elements. However, the fact that most types of lexico-grammatical patterns can of course serve several functions and be used in many contexts does not rule out the possibility that their emergence and use are indeed supported, or even motivated, by one or more of their more frequent functions.

Many authors who do not focus on pragmatic aspects nevertheless acknowledge the pragmatic potential of certain types of more or less fixed expressions by introducing specific categories. Cowie (1988: 132) proposes a distinction between semantically specialized idioms and pragmatically specialized idioms (cf. also Wray 2002: 58). Fillmore, Kay and O'Connor, in their pioneering paper on *let alone*, devote a quarter page to the distinction between "idioms with and without a pragmatic point" (1988: 506), but do not dwell on this issue any further. Aijmer (1996: 24–28) investigates items that lend themselves to performing socially and interactionally relevant illocutionary functions such as thanking, requesting and apologizing. Moon subsumes simple formulae, sayings, proverbs and similes under fixed expressions that are "problematic and anomalous on grounds of [...] pragmatics" (1998: 19) – a characterization that is unlikely to do justice to the role of pragmatic associations. Gramley and Pätzold have a category of routinized stereotypical phrases referred to as "pragmatic idioms" (2004: 59), which also includes items that are found in greetings, introductions, partings and other recurrent types of social encounters.[21]

Pragmatic aspects of lexico-grammatical patterns have also been mentioned as providing a methodological tool for assessing the formulaicity of potential fixed expressions. While Pawley and Syder (1983) and Nattinger and DeCarrico (1992) laid the foundation for this idea, Read and Nation (2004: 33) explicitly mention the possibility of using a "pragmatic/functional analysis" as an "analytical criterion", recognizing "that formulaic sequences have important roles in the performance of speech acts and are commonly associated with particular speech events". Wray (2008: 117–118) includes the tests whether a sequence "is associated with a specific situation and/or register" and "performs a function in com-

21. References to a number of other relevant sources can be found in Moon (1998: 216). Feilke (1996) and Stein (1995) are very instructive investigations of German which highlight communicative functions.

munication or discourse" among the possible criteria to be used as a diagnostic for the identification and assessment of formulaic sequences.

4.2 Survey of the criteria

On the basis of this literature and the definition of pragmatic associations in Section 2.2, two main criteria will be used to assess the interplay of pragmatic associations and different types of lexico-grammatical patterns:

1. Can a specific recurrent communicative intention or illocutionary force be identified as being associated with the potential pattern (cf. Wray 2008: 118)? Such an intention can include conventionalized indirect speech acts (Searle 1975) or frequent implicatures (Grice 1975).
2. Can we identify clear indicators for style and register constraints or connotative meanings extracted from pragmatic associations (cf. Wray 2008: 117)?

The following analysis will not take up the three groups formed above but proceed from clear cases – in which pragmatic associations either undoubtedly do or do not play an important role – to the more interesting, so to speak "critical" cases.

4.3 Pragmatic associations and types of lexico-grammatical patterns

4.3.1 Routine formulae, discourse markers and transparent conventional phrases

As has already been pointed out, routine formulae more or less by definition meet recurrent communicative needs and are closely associated with certain social situations and illocutionary functions. Given the right type of situation (such as when people meet for the first time), the use of certain routine formulae is both predictable and more or less obligatory; the meanings and functions of routine formulae depend on the specific situation and vary according to cultures and social groups (Coulmas 1981: 82–83). Conversely, the choices between competing routine formulae function as markers of styles and hence group identities, cf. the differing implications associated with greetings such as *good afternoon*, *hello*, *what's up*, *hi there*, or

hey dudes. All this supports the view that pragmatic associations play an important role in the use of routine formulae.[22]

This is also supported by the observation that routine formulae are prone to change 'meanings' and functions as a result of metonymic shifts of pragmatic associations from one aspect of a frame to another (Traugott and Dasher 2004). The EC-model treats these cases as re-schematizations of pragmatic associations. A good example is the formula *how do you do*, which emerged as a generalized chunk in the 17th century with the more or less transparent meaning and corresponding pragmatic function of inquiring about the health of the person addressed (cf. *OED3*, s.v. *how do you do*). Now since these inquiries are usually made in the early phases of social encounters, a pragmatic transfer seems to have taken place, creating an association between this expression and another conventional move common to the early stages of social encounters, namely greeting. Individual speaker/hearers apparently routinized this new pragmatic association and generalized it into a greeting – an understanding which then spread across the speech community and became conventionalized.[23] As an additional pragmatic association restricting the use of this chunk even further, *how do you do* is today only used as a rather formal – and somewhat old-fashioned – greeting in first encounters of two interlocutors.

The boundary between routine formulae and the class of transparent conventional phrases is rather fuzzy. Interestingly, phrases of the latter type, e.g. *best before* (on a food item), *emphasis mine* or *my emphasis* (following a quotation in academic prose), are referred to as "pragmatemes" by Mel'čuk (1995: 176–186) and defined as "pragmatic phrasemes" which are

22. With regard to their typical functions, Coulmas (1981: 94–108, 119), for example, distinguishes between discourse-controlling items (*wait a minute*, *over to you*), politeness formulae (*don't mention it*, *I beg your pardon*), metacommunicative formulae (*that's all I have to say*, *are you with me*), psychoostensive (*you're kidding*, *are you sure*) and hesitation formulae (*I guess*, *you know*). Gläser (1986: 129–152) proposes categories on a more fine-grained level related to specific illocutionary acts including greeting and parting (*good evening*, *take care*), congratulating (*many returns*, *a happy new year*), apologizing (*excuse me*, *no offence meant*), regretting (*what a pity*, *what a shame*, *I'm sorry*), encouraging (*take it easy*, *don't panic*), confirming (*you can say that again*, *you said it*), rejecting (*don't give me that*, *far from it*) and warning formulae (*mind the gap*, *watch your tongue*).
23. Note that expressions like *how are you doing*, *how are you* and *how is it going* are currently undergoing the same shift of pragmatic associations.

bound to certain situations. This kind of logic can be extended to other transparent but highly conventionalized expressions such as *ladies and gentleman*, *laughing out loud*, *frequently asked questions*, or *what can I do for you*, all of which are motivated by strong pragmatic associations along the lines suggested here.

Phrasal discourse markers such as *you know, I see, I mean, mind you* or *I think* can be treated alongside routine formulae and conventional phrases, as it seems rather clear that their routinization and re-schematization has pragmatic and discursive foundations. This is irrespective of whether the whole process is modeled as grammaticalization (Brinton and Traugott 2005: 136–140), lexicalization (Aijmer 1996: 10) or indeed *pragmaticalization* (Aijmer 1997; cf. Brinton 2010: 303–305, Claridge and Arnovick 2010).

In the EC-framework, then, knowledge about routine formulae, fixed conventional phrases and discourse markers – including of course knowledge related to their appropriate use and understanding, illocutionary aims as well as interpersonal and social implications – is explained as a routinization of pragmatic associations linking linguistic choices and usage events. As far as the emergence and developmental paths taken by these formulae are concerned, one can assume that in many cases the conventionalization of chunks and their potential concurrent pragmatic shifts does indeed result from repeated usage, while individual speakers learn them as fully chunked symbolic associations.[24]

4.3.2 Collostructions, valency patterns and verb-particle constructions

For different reasons, highly schematic, 'grammatical' collostructional and valency patterns, on the one hand, and more or less completely lexicalized verb-particle constructions, on the other, are rather unlikely to be related to pragmatic associations in any significant way.

Regarding the former, none of the criteria given in section 4.2 can be applied with positive results, as neither the way in which lexemes are attracted by schematic constructions (i.e. collostructions) nor that in which

24. Overt signs of such a fusion-like process (cf. Brinton and Traugott 2005: 63–67) can be observed in those extreme cases where chunking is accompanied by phonological reductions yielding simplex forms (i.e. univerbation) as in the greetings *hi* < *hiya* < *how are you*, *howdy* < *how do you do* or Bavarian *pfüatdi* 'bye' < *behüte dich Gott* lit. 'may God watch over you'.

constructions are demanded by lexemes (i.e. valency patterns) seems to be dependent on situational, functional, or other pragmatic aspects in the sense defined above. It is true that individual manifestations of these patterns can serve specific communicative functions – as has been argued to be the case for shell-noun constructions such as *the thing is* (cf. Delahunty 2011), *the truth is* or *the fact is* in Schmid (2001). Arguably, however, these lexically-specific patterns are on their way to becoming "sedimented" (Günthner 2011) as "lexicalized sentence stems" (Pawley and Syder 1983: 191) or "syntactic gestalts" (Aijmer 2007: 44), and have thus already made considerable progress in their development towards being conventionalized as fully chunked units.[25]

Verb-particle constructions, i.e. phrasal verbs, prepositional verbs and phrasal-prepositional verbs, can be treated as fully lexicalized multi-word lexemes boasting their own entries in the dictionary (Cappelle, Shtyrov, and Pulvermüller 2010).[26] They do not, therefore, differ very much from other simple lexemes, except maybe in the respect that many of them are seen as belonging to a rather casual style level. While it seems clear that multi-word verbs are results of chunking-like developments – usually described as *lexicalization* (cf. Traugott 1999: 259) – the question whether or not pragmatic associations were instrumental in this diachronic development must remain open here.[27]

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25. As regards typical, i.e. highly variable and lexically unfilled, clause-level constructions, collostructions and schemas, pragmatic aspects have not been explored in any detail so far. Goldberg (1995: 67 *et passim*) does mention issues such as information structuring, topic-comment arrangement and also style and register as having some relevance, e.g., for the passive construction, and exploits pragmatic considerations for the purpose of the semantic differentiation of argument-structure constructions (1995: 93–95), but does not focus on them in any detail.
26. Cf. Herbst and Schüller (2008: 119–120, 146–147) for a different approach which regards only simple verbs as listed lexemes and treats particle verbs as complementation patterns.
27. In her summary of the papers collected in the volume edited by Brinton and Akimoto (1999), Traugott (1999: 248–250) describes the general development of particle verbs and other complex predicates from Old English to Present-day English in three idealized stages passing from a) open and compositional "phrasal constructions" to b) "collocations and phrasal lexicalizations" and finally c) "idioms". This classic lexicalization process towards a reduction of syntactic flexibility and semantic compositionality and the emergence

4.3.3. Multi-word prepositions and connectors and partly filled periphery constructions

Multi-word, "complex" prepositions[28] such as *in view of*, *in spite of* or *with regard to* and multi-word connectors such as *as a result*, *on the contrary* and *in addition* are explained by means of the routinization and generalization of syntagmatic associations into chunks in the EC-model (cf. also Beckner and Bybee 2009). In contrast to complex predicates, opinions are divided as to whether the emergence of complex prepositions should be seen as a grammaticalization or lexicalization process (Brinton and Traugott 2005: 65–66, Hoffmann 2005: 60–95).

As far as the role of pragmatic associations in the chunking of complex prepositions is concerned, one should keep Hoffmann's (2005) remark in mind that each element seems to have its own specific history. We have to rely on available case studies, then. Schwenter and Traugott (1995), for example, investigate the history of *in place of*, *instead of* and *in lieu of* and remark that pragmatic aspects must be taken into consideration in such endeavours. In the development of the three items they study, "the pragmatics of expectation" apparently plays a key role for chunking and concurrent semantic changes. More generally, "context-induced reinterpretation[s]" (Schwenter and Traugott 1995: 266) – i.e. shifts of pragmatic associations comparable to those observed for routine formulae above – can be shown to be involved. Bybee (2010: 173–174; see also Beckner and Bybee 2009: 36–37) demonstrates the role of gradually conventionalized invited inferences (Traugott and Dasher 2004) for the development of *in spite of*.

Systematic evidence on potential pragmatic motivations of partly-filled periphery constructions such as *let alone*, *the X-er … the Y-er*, or *what's X doing Y* is also not available so far. What do studies of individual items tell

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of holistically processed multi-word predicates is accounted for by the EC-model in terms of the routinization, generalization and diffusion of syntagmatic associations resulting in second-order symbolic associations.

28. Ulrich Detges (pers. comm.) has rightly pointed out that multi-word prepositions may in fact not deserve the special status they are awarded here, since they are essentially just manifestations of nominal idioms. They are nevertheless considered a special class here because of the impressively large number of items showing apparently similar historical developments that can be traced back to pragmatic associations. This is also the reason why they are treated differently from partly filled periphery constructions, which seem to be much less systematic in their sources and developments.

us here? Although they do not probe the question in greater detail, Fillmore, Kay and O'Connor (1988: 532–533) emphasize that speakers' knowledge about constructions such as *let alone* includes knowledge about "specific pragmatic functions in whose service they [i.e. constructions] exist" (1988: 534). This can certainly be understood as meaning that the construction owes its existence as a conventionalized form-meaning pairing to its pragmatic functions. The same line of argumentation seems also convincing for the *what's X doing Y* construction (*what's that fly doing in my soup*), which is closely related to the illocutionary act of a "request or demand for an explanation" and "the pragmatic force of attributing [… an] incongruity to the scene of proposition for which the explanation is required" (Kay and Fillmore 1999: 4; original emphasis omitted). The pattern *Him be a doctor?* (Akmajan 1984, Lambrecht 1990) is associated with the expression of incredulity (Kay 2004: 677). While Fillmore, Kay and O'Connor (1988: 506) regard the *the X-er … the Y-er* construction as an idiom "without a pragmatic point", Nattinger and DeCarrico (1992: 36) attribute the function of "expressing comparative relationships among ideas", admittedly not a very "pragmatic" type of function.[29] To take a final example, the strong pragmatic associations and motivations of the *not that* construction – e.g. *not that I care, not that it matters* – have been amply demonstrated by Delahunty (2006) and Schmid (2013).

As regards the way in which these constructions have emerged, the evidence available also speaks for considerable heterogeneity within this class. The entry for *let alone* in the *OED3* strongly suggests that this gambit has developed by means of repeated usage of the imperative form of the verb *let* and *alone*, that is by means of the conventionalization of a gradual chunking process. In contrast, *not that* is very likely a case of constructional borrowing from the Latin fixed expression *non quod*, which had an equally chunked model in Ancient Greek in the form *οὐχ ὅτι* 'not because, not that' (Schmid 2011).[30]

29. What is interesting about the *the Xer ... the Yer* construction in the context of the EC-model is that the fully chunked and schematized, lexically-filled idiom *the bigger they are/come the harder they fall* co-exists with the schematic pattern *the X-er ... the Y-er*.

30. Interestingly, the historical data suggest that a very special pragmatic function may have supported the borrowing of *not that*, which is first attested in *Wycliffe's New Testament* (1382), and its later conventionalization: the translators of the Wycliffe group used *not that* very frequently to render the Latin *non quod* and also *non quia* when it occurred in the marginal glosses in one of

An interesting third possibility of how periphery constructions can emerge by the assistance of pragmatic associations can be illustrated with the help of the *what's X doing Y* construction. In this case, a likely development is that one lexically-filled and pragmatically determined item served as the source of a schematic pattern, comparable to the way in which individual non-analyzable lexemes (e.g. *Watergate*, *hamburger*) can spawn productive morphological schemas (cf. *Iraqgate* etc., *chickenburger* etc.). A good candidate for being the source of *what's x doing Y* is the line *waiter, what's this fly doing in my soup* which is part of a well-known joke. The process as such is also comparable to cases where proverbial quotations (e.g. *to be or not to be*) provide a model for modifications (e.g. *to pee or not to pee, to see and not to see*), which are also more or less conventionalized and can thus result in schema-formation.

4.3.4 Proverbs and idioms

Proverbs and proverbial sayings are typically discussed by emphasizing their epistemological, historical, cultural and ideological background and their expressive, figurative and quasi-authoritative functions in discourse (cf. e.g. Coulmas 1981: 59–65, Gläser 1986: 103–121, Moon 1998: 256–260, Mieder 2007, Norrick 2007). With regard to more specifically pragmatic functions such as illocutionary acts, Gramley and Pätzold provide a good starting-point by stating that "[p]roverbs are said to have a didactic tendency: they suggest a course of action" (2004: 63). Moon attributes a deontic function to "proverbs in the abstract" and concludes that "they can be categorized as directives" (1998: 274). For Strässler, the major illocution of proverbs and other idioms lies in the "assessment of the social structure of the participants of a conversation" (1982: 128). Such direct or indirect illocutionary forces can indeed be attributed to a considerable number of proverbs such as *look before you leap, out of sight, out of mind, let sleeping*

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their sources, the *Postillae litteralis super totam Bibliam* written by the influential French theologist Nicolas de Lyra (1270-1349), in order to correct in an anticipatory fashion potential misunderstandings of scripture. In the Book of Judges, for example, there is the potential misunderstanding that Gedeon was offering a sacrifice to an angel, rather than God himself, which is rectified by the gloss "not that Gedeon wolde that the sacri|fice be offrid to him that ap|peride to him, for it is to offre to God aloone" (quoted in Schmid 2011: 303).

dogs lie, or *the early bird catches the worm*. More generally, the use of proverbs in actual discourse can also be said to be triggered by recurrent pragmatic associations related to the somewhat patronizing implications which are supported further by the fact that proverbs are often perceived as being somewhat old-fashioned. From this perspective, particularly instructive examples come from the class of so-called truisms, common places, or platitudes, especially tautological ones such as *boys will be boys*, *enough is enough*, or *business is business*. As these expressions do not seem to have an informative propositional content, at least not on the linguistic surface, it is not unreasonable to assume that their use is entirely controlled by various kinds of pragmatic considerations, among them the persuasive or dismissive function and the types of situations that typically produce them.[31]

What remains in the class of idioms once all the other types of lexicogrammatical patterns such as proverbs, routine formulae and transparent conventional phrases have been deducted is rather difficult to assess with regard to the role played by pragmatic associations. Essentially, what we are left with are idioms of the nominative, rather than propositional, type (e.g. Gläser 1986: 49, Grzybek 2007: 194, 203–204, Burger 2010: 36–37), which do not lend themselves to performing fully-fledged illocutionary acts like complaining, disagreeing, or complimenting. Even idioms extending across several clause constituents such as *keep tabs on*, *have an axe to grind*, or *fall on deaf ears* do not seem to be associated with specific types of illocutionary acts. Nevertheless pragmatic associations are certainly not irrelevant for the existence and use of idioms. On a rather anecdotal note, it is remarkable that people will often explain the meanings of idioms by means of phrases such as "you use this when …" rather than "this means …", thus referring to pragmatic usage conditions rather than semantic aspects proper. In addition, the widespread agreement (Moon 1998: 68–74, 215–277, Burger 2010: 81–82) that many idioms are particularly expressive and figurative ways of conveying meanings and attitudes, carry rich connotations, serve specific functions in discourse and are highly genre-, register- and style-sensitive can be taken as evidence for the existence of strong pragmatic associations.

31. What should not be underestimated is the fact that unlike idioms and collocations, proverbs and commonplaces are fully saturated propositions containing finite verbs, or indeed autonomous texts, which lend themselves to performing fully-fletched illocutionary acts and carrying other types of pragmatic associations.

4.3.5 Collocations and lexical bundles

Collocations and lexical bundles jointly form Group 2 in Figure 1 above, since they both exhibit medium degrees of frozenness/variability. The apparent similarity between the two notions or phenomena also shows in Biber, Conrad, Leech, Johansson and Finegan's (1999: 992) claim that "three-word bundles can be considered as a kind of extended collocational association" (1999: 992). While this may be true in some respects, I will try to show in the following that the two phenomena differ considerably with regard to the role played by pragmatic associations.

The terminological space carved out by the notion of *collocation* is more or less reserved for significant syntagmatic associations between words which do not fit into other, more clearly definable categories (Schmid 2003). This is by no means a deficit to be deplored but it is a result of how the space of lexico-grammatical combinations and patterns has traditionally been partitioned: at one end of the continuum, free and unpredictable combinations fall within the remit of "open-choice" syntax; at the other end, syntagmatic associations which are, or gradually become, fixed, opaque and highly predictable belong to the fields of idioms and conventional fixed expressions (Sinclair 1991: 110). The notion of *collocation* covers the intermediate ground.

The notion of *lexical bundles* was originally introduced to refer to recurrent building blocks of discourse which cannot be defined and delimited in terms of grammatical functions, are highly register-sensitive and can be identified more or less mechanically in corpora due to their frequency of occurrence (Biber, Conrad, Leech, Johansson, and Finegan 1999: 990, Biber 2006: 134). Their cognitive status was deliberately left open. More recently, however, researchers have begun to investigate whether at least some lexical bundles are stored and processed as holistic chunks and produced substantial evidence suggesting that they indeed are (cf. Conklin and Schmitt 2012 for a recent survey). Schmitt, Grandage and Adolphs (2004), who used a psycholinguistic dictation experiment to test holistic processing of frequent lexico-grammatical clusters with native and non-native test participants, come to the conclusion that corpus frequency alone is not a reliable predictor of storage and retrieval type. Using a self-paced reading task, Schmitt and Underwood (2004: 187) arrived at rather unsystematic results, which forced them to conclude that "it must be questioned whether the self-paced reading task is the best methodology to research formulaic sequences". Following up on Schmitt and Underwood's lead, Tremblay,

Derwing and Libben (2009) applied the method once more to probe the question whether lexical bundles are stored and processed as single units. They found that lexical bundles were read significantly faster than control strings if participants were allowed to go through the text in a chunk-by-chunk and sentence-by-sentence mode. In contrast, when the reading had to be carried out in word-by-word display, the facilitatory effect of holistic processing was disrupted.[32] Using a phrasal decision task, Arnon and Snider (2010) showed that more frequent four-word lexical bundles are processed significantly faster than less frequent ones. Their results also indicate that frequency must be treated, and tested, as a gradient rather than categorical – i.e. high vs. low frequency – variable, which they interpret as demonstrating that there is no clear-cut boundary between stored/represented and computed four-word lexical bundles. [33]

Interestingly, Tremblay, Derwing and Libben comment on the claim that lexical bundles are linked with certain discourse functions and tend to occur in certain positions in sentences. They remark:

> However, the LBs [i.e. lexical bundles, HJS] used here were not embedded in their usual place within a sentence and as such did not carry the discourse functions they have been said to portray, if any at all. This suggest [sic!] that even though LBs might bear more often than not a set of specific discourse functions, there is no inherent association between the two (2009: 273).

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32. An alternative explanation for these findings suggested to me by Susanne Handl could be that word-by-word presentation disrupts the processing of what Hunston and Francis (2000: 215) call "pattern-flow", that is the way in which lexico-grammatical patterns sequentially overlapping in an utterance are worked out.
33. Tremblay, Derwing and Libben also note that "it is still unclear how exactly […] the term 'stored' [is] defined" and that "[f]urther research is needed to determine what exactly is storage" (2009: 272), adding that their test design does not discriminate between "knowledge that [individual words] go together" and are thus "linked together through combinatorial knowledge" and fully holistic chunk-storage. As the brief outline of the EC-model in Section 2 has indicated, such imponderables are predicted by the model, which does not work with dichotomous types of storage and retrieval but relies on a dynamic conception of degrees of association strengths resulting from degrees of routinization. In addition, as I have claimed (cf. Wray 2008: 11), different speakers may well process identical stimuli in different ways.

This is not the only conclusion one can draw from their results, however. It could also be the case that the pragmatic associations triggered by lexical bundles do not only become routinized but "emancipate" from individual usage events and embark on a journey towards becoming symbolic associations as a result of increased routinization. In traditional terms, recurrent context-dependent pragmatic meaning components become lexicalized as semantic, i.e. context-independent meanings. How can this claim be substantiated?

Firstly, it is supported by the work by Pawley and Syder (1983), Nattinger and DeCarrico (1992) and Aijmer (1996), who convincingly demonstrate that the pragmatic properties of the lexical sequences they study are more or less inherent to them and thus context-free rather than context-dependent meaning components.

Secondly, additional evidence can be adduced by a look at the collection of the most frequent lexical bundles garnered from Biber, Conrad, Leech, Johansson and Finegan (1999), which is given in Table 1. This table includes only those four- and five-word lexical bundles which are marked as occurring more frequently than 100 occurrences per million words (symbolized by ***) and 40 occurrences per million words (**) in conversation by Biber, Conrad, Leech, Johansson and Finegan (1999: 1001–1014). In a sense, then, these are the most "successful" instantiations of the class of lexical bundles in conversation.[34]

Table 1. Frequent lexical bundles in conversation and their pragmatic functions[35]

** I tell you what ** I was going to say ** was going to say	S announces a future speech act
** you don't have to	S gives H permission

34. The items listed in the table are literally just the tip of an iceberg of a much larger set of somewhat less frequent lexical bundles. Rich material on more specific items including a larger number of content words can also be found in Pawley and Syder (1983: 206–208, 213–214), Nattinger and DeCarrico (1992) and Aijmer (1996).
35. The +-signs used by Biber, Conrad, Leech, Johansson, and Finegan (1999: 1001) to indicate that lexical bundles are incorporated in larger lexical bundles have been omitted.

** I don't think so ** I thought it was ** I think it was	S expresses disagreement with H
*** I don't want to ** I'm not going to ** I would like to *** I was going to	S informs H about S's intentions (present and past)
*** I don't know what ** I don't know how ** I don't know if ** I don't know whether ** I don't know why ** well I don't know ** oh I don't know	S informs H about S's lack of knowledge
*** are you going to ** what are you doing ** if you want to	S inquires about H's intentions
** do you know what	S inquires about H's knowledge
** what do you think	S inquires about H's state of mind
** you want me to ** do you want me ** you want to go *** do you want to ** do you want a ** what do you want	S inquires about H's wishes
** are we going to	S inquires about S's and H's common future actions
** It's going to be ** going to be a ** going to have to	S makes a prediction
** have a look at ** let's have a look ** you don't want to	S makes a suggestion
** I said to him	S reports a previous speech act

** you know what I ** you know what I mean ** know what I mean ** what do you mean	S intends to secure understanding
** thank you very much	S thanks H
?** the end of the ?**at the end of	S makes a reference to time
?** or something like that	S marks vagueness

I have arranged the items in the table in such a way that common pragmatic associations, which are of course not mentioned by Biber et al. but have been added to support the present argument, come to the fore. Rough glosses of these associations are rendered in the right-hand side column of the table. The arrangement indicates that all items listed – except the final three marked by question marks – can easily be associated with quite specific pragmatic functions. The list is dominated by conventionalized direct or indirect requests and other directive speech acts of various types (cf. Nattinger and DeCarrico 1992: 49–54, Aijmer 1996: 124–199) and expressions of beliefs, intentions, or states of (lack of) knowledge (*I don't know* + *wh*-element). Particularly revealing examples include highly conventionalized indirect speech acts such as *do you want me*, *you don't have to*, or *I don't think so*, expressing speakers' inquiries for hearers' wishes, speakers' giving permission to hearers and speakers' expression of disagreement respectively.

In order to fully appreciate the pragmatic potential of these lexical bundles, one should consider what is not included in this list: one does not find any familiar collocation-like sequences such as *put it in the fridge* (0.16 occurrences per million words in the BNC), *take me home* (0.39), or *go to work* (2.18).[36] Instead, the list seems to indicate that lexical bundles are a mirror of what people in face-to-face social interactions most frequently negotiate: they exchange information concerning states of minds, intentions and plans for future actions, motivations for past actions; they reject each others' opinions and try to secure understanding; they give and ask for permission; they inform each other about their intentions, and so on. It is

36. What has to be noted is that the individual items that are parts of frequent lexical bundles are of course also high-frequency items themselves and are therefore more likely to occur in any cotext than rarer words, irrespective of their pragmatic utility.

thus not unlikely that the lexical bundles in the list in Table 1 stand out in terms of frequency because they reflect what Nattinger and DeCarrico (1992: 63–64), admittedly having in mind a much more specific meaning, call "necessary topics".[37]

All these observations stand out in stark contrast to what can be said about collocations, which seem to lack such pragmatic associations more or less entirely (cf. Nattinger and DeCarrico 1992: 36). This is partly due to the fact that collocations are not fully saturated propositions but link verbs and objects, subjects and verbs, modifying adjectives and nominal heads, and modifying adverbs and adjectival heads or verbs. They are not represented as finite clauses and thus do not lend themselves to performing communicative functions such as illocutionary acts. Frequent lexical bundles, on the other hand, superficially similar to collocations as they may seem, can be motivated and fostered by pragmatic associations. It is argued here that this is instrumental in the process that can turn at least some, particularly the most frequent, lexical bundles into complex symbolic associations. Remarkably, if a collocation or, more precisely, an expression based on a collocation somehow "manages" to assume a special pragmatic function, as is the case in the typically ironic *you are a fine friend* or *he is a fine friend*, then chunking proceeds further up to the point where we would not classify the chunk as a collocation anymore. So basically, collocations are, more or less by definition, never processed as fully schematic chunks but can only become routinized to a certain degree.

5. Pragmatic associations, discourse frequency, chunking and salience

The overall picture emerging from the discussion in Section 4 can be summarized as follows: Pragmatic associations seem to play an important role in the routinization, schematization and chunking of some types of lexico-grammatical patterns, while it seems to be more or less irrelevant for other types. The former category includes types of lexico-grammatical patterns subsumed in Group 1 in Figure 1 above (i.e. routine formulae, transparent conventional phrases, proverbs, discourse markers and complex preposi-

37. Nattinger and DeCarrico (1992: 63) use the term *necessary topics* to refer to "topics about which learners are often asked, or ones that are necessary in daily conversation" such as autobiographical questions, or questions relating to quantities, time, location, weather and personal likes and preferences.

tions) as well as, notably, lexical bundles, while the latter contains the Group 3 types of valency patterns and collostructions as well as particle verbs and collocations. As for idioms, pragmatic associations are mainly related to attitudinal stance and stylistic choices rather than illocutionary forces. In view of these results, it can be concluded that pragmatic associations seem to contribute to the routinization and schematization of lexico-grammatical patterns in different ways: Firstly, pragmatic, especially illocutionary, utility can be a reason for repeated usage resulting in gradual chunking process, both in individual minds and in the speech community. Secondly, recurrent pragmatic associations can foster the associative symbolic strength of already chunked elements and hence their stability in the speech community. And thirdly, pragmatic associations can strengthen the productive role of schemas related to recurrent situations and communicative intentions.

If it is indeed the case that pragmatic associations support chunking, one may be inclined to ask if and in which way pragmatic aspects are related to frequency of occurrence, which is often seen as a crucial factor influencing chunking-related grammaticalization processes such as fusion, coalescence and univerbation (Bybee 2010: 46–53). The more frequently instantiated phenomena in Group 3 (valency patterns, collostructional as well as collocational attractions) have been found less likely to be associated as routinized and schematized patterns and to be supported by pragmatic associations, while the rarer phenomena in Group 1 are both chunked and motivated or at least strengthened by pragmatic associations. Does this mean that pragmatic associations have a stronger effect on routinization and chunking than discourse frequency?

To address this question, a closer look at what discourse frequency actually means and how it comes about is needed. To begin with, frequency is never *frequency as such*, i.e. absolute frequency, but always *relative frequency*, that is the frequency of occurrence of one thing as compared to that of another (cf. Hoffmann 2005: 148–149). Next, two types of relative frequencies must be distinguished, relative frequency with regard to paradigmatic competitors and relative frequency with regard to syntagmatic companions. The former, which is similar to Hoffmann's (2005: 107–110) idea of "conceptual frequency" and Geeraerts' (2006: 85) notion of "onomasiological salience" compares the frequency of a given element to the frequencies of paradigmatically related items, for example when one observes that the word *dog* is more frequent than, say, co-hyponyms such as *camel* or *tapir* and the fairly technical hyperonym *mammal* or the rarer hyponym

collie. In the EC-model, this **paradigmatic relative frequency**[38] serves as an indicator for the probability with which speakers activate one symbolic association that competes with other symbolic associations related to it by means of paradigmatic associations. Paradigmatic relative frequency can thus be regarded as an indicator for "cotext-free entrenchment" (Schmid 2010: 120).

The second type of relative frequency is particularly relevant for the study of syntagmatic associations and lexico-grammatical patterns. It concerns the proportion of uses of a given form (in a corpus) in a certain syntagmatic environment as opposed to uses of the same form in others and can serve as an indicator for "cotextual entrenchment" (Schmid 2010: 120). This type of frequency is measured in different ways by the well-known range of lexical association statistics including t-score, log-likelihood, mutual information and others (cf. e.g. Evert and Krenn 2001 for a survey). The form *kith*, for example, is very special in this respect, because it invariably occurs in the syntagmatic environment of *kith and kin*. So it has a relative syntagmatic frequency of occurrence of 100% with respect to this pattern. As a very occasional glance at a modern desktop or learners' dictionary will show, other words are of course much more versatile but show tendencies to recur in identical or similar environments, thus giving rise to collocations and all the other kinds of lexico-grammatical patterns discussed above.

At present, we know deplorably little about how paradigmatic relative frequencies and syntagmatic relative frequencies are related to each other and how their interaction affects degrees of routinization and schematization (cf. Schmid 2010, Schmid and Küchenhoff 2013). It seems to be clear that a "cranberry" (Moon 1998: 21) idiom-part such as *kith* is firmly associated with the pattern … *and kin* on the syntagmatic level, but can hardly be claimed to be entrenched as a serious paradigmatic competitor to other, more versatile nouns. Presumably, this form is unlikely to be activated by itself as a symbolic association in its own right, but will be activated effort-

38. Note that paradigmatic relative frequency is essentially a theoretical notion which is very difficult to measure. It is based on an onomasiological perspective whose operationalization requires knowledge of all potential competitors for the encoding of a given idea (in a given corpus). In actual practice, absolute frequencies of occurrences in corpora or normalized relative frequencies per million words are taken as a proxy for the assessment of paradigmatic relative frequencies, but this is of course not the ideal solution (cf. Geeraerts, Grondelaers, and Bakema 1994 for an interesting approach).

lessly as a part of the chunked form *kith and kin* when pragmatic and semantic circumstances call for an activation of this fixed phrase. However, the way in which the relative paradigmatic and syntagmatic frequencies of the overwhelming majority of more versatile lexical items affect entrenchment processes is far less clear.

It seems possible to make some progress regarding this question by relating the two types of relative frequencies to pragmatic associations. In order to do so, the concept of *salience* or *saliency* (cf. e.g. Giora 2003, Hoffmann 2005: 148–152, Schmid 2007) must be introduced. Generally speaking, this notion refers to the potential of any stimulus to attract a person's attention, enter a person's focus of attention and activate certain associations. In Schmid (2007: 119–120), two main types of salience are distinguished, *cognitive salience* and *ontological salience*. Cognitive salience concerns the activation of associations ("concepts") in given speech events, either caused by the presence of external stimuli or by spreading activation in the network. Associations are said to be salient if they are in the present focus of attention. Ontological salience, on the other hand, is defined as the potential of external stimuli to attract attention and activate certain associations (cf. Hoffmann 2005: 151). For example, by their very nature as living beings, humans and animals are more likely targets of our attention than, say, lampposts or doorknobs. Ontologically salient entities have a better chance of triggering cognitively salient associations than ontologically less salient ones. As is captured in so-called *salience* or *empathy hierarchies* (cf. Silverstein 1976, Langacker 1991: 306), speakers typically find themselves more salient than they find hearers, followed by other humans, animals, physical objects and finally abstract concepts.

This is not the whole story, however. While ontological salience may indeed constitute an important perceptual foundation for cognitive salience, its effects are undoubtedly superseded by what could be called *situational* or *pragmatic salience*, that is, the likelihood that a given stimulus will grab our attention *in a given discourse situation*. This aspect is highlighted by the short definition of salience given by Smith and Mackie (2000: 66) – "the ability of a cue to attract attention *in a context*" (my emphasis) – and, at least with regard to the temporal element, also in the characterization provided by Chiarcos, Claus and Grabski: "Salience defines the degree of relative prominence of a unit of information, *at a specific point in time*, in comparison to other units of information" (2011: 2; my emphasis). If you are about to enter your house, the doorknob will become very salient, and if you are trying to park your car without scratching it against a lamppost you

will make sure that you focus on where the lamppost is located. Pragmatic salience can thus override both cotext-free entrenchment and cotextual entrenchment, and it is the interplay of ontological salience and pragmatic salience which produces the cognitive salience that ultimately determines frequency of use or "frequency of being talked about" (Croft 2000: 76). The large body of experimental evidence on the processing of non-literal language use (metaphor, irony etc.) collected by Giora and her collaborators, whose results are enshrined in the well-known graded-salience hypothesis (cf. Giora 2003 and 2012 for surveys), suggests that even though pragmatic and cotextual salience can override cotext-free entrenchment, cotext-free entrenchment is never completely inoperative.

This insight now puts us in a position to go back to the relation between pragmatic associations, chunking and discourse frequency. Consider first the case of proverbs and tautological clichés like *let sleeping dogs lie* or *boys will be boys*. These expressions, whose status as fully chunked units is beyond doubt, are extremely rare in terms of paradigmatic relative frequency, i.e. "absolute frequency of occurrence". In addition, the key elements of these phrases – *sleep*, *dog* and *boys* – are highly versatile lexemes that evoke syntagmatic associations to all kinds of patterns, of which these fixed expressions are clearly not the most prominent ones. This means that neither cotext-free nor contextual entrenchment is a likely motive for the existence and resilience of these phrases. Nor is the ontological salience of dogs and boys likely to play an important role, as the corresponding concepts are of little salience in the use of the idiomatic expressions. Crucially, however, given the right kind of context, the whole chunks seem to be able to muster a high degree of pragmatic salience, in such a way that specific pragmatic associations can trigger them efficiently and effortlessly. This means that high pragmatic salience overrides low relative frequency and results in high cognitive salience in the given situation. Counter-intuitive as it may be if one subscribes to a telic notion of *entrenchment* rather than the procedural, dynamic conception preferred here, it seems to be reasonable to argue that a third type of entrenchment termed *contextual entrenchment* interacts with cotext-free and cotextual entrenchment.

The same line of reasoning seems very plausible for pragmatically-determined routine formulae (*how do you do*, *I beg your pardon*), transparent conventional phrases (*laughing out loud*, *give me a break*, *you're kidding*), grammatical periphery constructions (*let alone*, *not that*) as well as grammaticalized multi-word prepositions. The emergence and diachronic development of all these patterns into chunks is supported, if not actually

motivated, by their pragmatic salience, which is mediated by pragmatic associations that are highly routinized and can eventually become part of symbolic associations.

As for lexical bundles and collocations, the major difference worked out in Section 4 seems to be that the former are supported by pragmatic salience and resulting contextual entrenchment, while the latter are not. Depending on the degree of pragmatic salience, therefore, lexical bundles can become schematized and conventionalized, as chunks and thus acquire the status of "social gestalts" (Feilke 1996). Collocations, on the other hand, do not go beyond the stage of the routinization of syntagmatic associations.

As far as codification is concerned, it is probably not unfair to say that traditional descriptions of languages have not done justice to either of the two classes. While the corpus revolution in lexicography has resulted in a much better coverage of collocational associations, lexical bundles remain the Cinderella of lexicographical practice, even though the applied linguists who have been quoted so frequently in the present paper (Pawley and Syder 1983, Nattinger and DeCarrico 1992, Wray 2002, Schmitt 2004) have long recognized the enormous relevance of these pragmatically important chunks.

6. Conclusion

The overall picture that has emerged in this paper suggests that the effects of pragmatic associations on chunking and schematization processes may have been underestimated so far, especially in quantitative approaches which have very much focused on corpus frequencies and different ways of calculating their statistical significance. What I have tried to show is that only a broad dynamic framework that integrates grammatical, semantic, pragmatic, cognitive and sociolinguistic aspects and combines them with quantitative observations on discourse frequencies can do justice to the pragmatic foundations of lexico-grammatical patterns. Such a framework has been suggested and tested with regard to its potential to explain the relation between chunking phenomena, pragmatic associations and discourse frequencies.

With regard to the way in which lexico-grammatical patterns are "represented", it has emerged that knowledge is entrenched in the form of a potentially wide range of associations that can be routinized, schematized and spread in the speech community, i.e. conventionalized, in different ways and to different degrees. Depending on the linguistic and situational context

and on the corresponding ways in which cotext-free (paradigmatic) entrenchment, cotextual (syntagmatic) entrenchment and contextual (pragmatic) entrenchment interact, different associations will come to the fore. The form *mind*, for example, can trigger a symbolic association connecting the form to a meaning of the lexical schema MIND, which will be connected syntagmatically with other associations activated by the co- and context (*he did not seem to mind her presence*); it can trigger a symbolic association to the schematized syntagmatic chunk MIND YOU and its frequent functions as a discourse marker; and it can trigger a routinized or even schematized association to the sequence DO YOU MIND IF I ..., particularly in a situation where someone politely asks for permission. While all these associations are to a large extent shared by most speakers of English and thus conventionalized, the degrees of cotext-free, cotexual and contextual entrenchment will presumably differ in the minds of different speakers.

To end on a personal note, in hindsight I have to admit that *I love you* should indeed not be treated as a case of collocation. While I would still argue that there exists a level of lexical chunking that supersedes the free syntactic composition of this sequence of words, *I love you* has absorbed too many pragmatic associations to count as a collocation and should instead be regarded as a transparent conventionalized phrase which is routinized and schematized to different degrees in the minds of different speakers of English.

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