1. A hierarchical approach to habitual expressions: Introduction

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1.1. Introduction

This chapter introduces the idea that habitual aspect (or 'habituality'), defined as the unbounded repetition of an event or situation that occurs typically, is not a single grammatical category, but a family of related meanings operating at different scopal layers within the clause. To give a first idea of what we mean by this, consider the following examples, based on Boneh & Doron (2013: 183):

(1)   a.   *In those days, Mary **wouldn't** smoke after dinner.*
           b.   **In those days, Mary **didn't would** smoke after dinner.*
(2)   a.   *In those days, Mary **used to** not smoke after dinner.*
           b.   *In those days, Mary **didn't use to** smoke after dinner.*

Both (1) and (2) contain habitual auxiliaries: *would* in (1) and *used to* in (2). The two auxiliaries behave differently with respect to negation, though: *would* in (1) necessarily scopes over negation: Mary's habit was to not smoke after dinner; with *used to* the situation is different: in (2a) negation is within the scope of the auxiliary (it was Mary's habit to not smoke), while in (2b) it scopes over the auxiliary (it was not Mary's habit to smoke). The differences in scope are reflected in the order of negation and the auxiliary with respect to one another.

For another illustration of the differences in scope between habitual markers, consider the following example:

(3)   *I used to be wont to read a book in a few days.*
(4)   **I was wont to use to read a book in a few days.*

Example (3) contains two habitual expressions: *used to* and *be wont to*. The fact that these can be combined in a single sentence without being pleonastic suggests that they have distinct functions in the sentence. The fact that the order of the two expressions cannot be inverted, as shown in (4), furthermore suggests that they have different scope. In this book we explore facts like these from a typological perspective. Note that we focus on grammatical expressions in this book, but sometimes resort to lexical expressions in English for illustrative purposes.

In Section 1.2 of this introductory chapter we discuss and define the notion of habituality, additionally exploring the relations among habituality, multiplicativity (event-internal quantification), and genericity in general descriptive terms. In Section 1.3 we provide a classification of markers of these categories in scopal terms using the theory of Functional Discourse Grammar (FDG, Hengeveld & Mackenzie 2008; Keizer 2015). The scopal organization of grammatical and lexical modifiers is a key feature of this theoretical model. In Section 1.4 we then define potential types of habituality and related categories in terms of the hierarchical structure of FDG, and develop criteria by means of which these types may be identified. In Section 1.5 we illustrate the application of the criteria. Section 1.6 then presents the typological predictions that will be put to the test in this volume. We round off the chapter

in Section 1.7 by discussing the questionnaire resulting from this approach and how it will be used in the language-specific chapters of the volume.

1.2. Habitual aspect and related categories

Habitual aspect has been defined in various ways in the literature. The most well-known approach is probably that of Comrie (1976: 27–28), who defines habituals as forms which "describe a situation which is characteristic of an extended period of time". Similar characterizations of habituals are given e.g. by Dahl (1985: Ch. 3) and Carlson (2012), while other scholars have defined habituality with explicit reference to repetition (pluractionality, iterativity, etc.); see e.g. Brinton (1987), Xrakovskij (1997), and Bertinetto & Lenci (2012). We will return to the definition of habituality (and closely related categories) shortly.

Most linguists seem to treat habituality as a single grammatical category. Reference is usually made to 'the habitual' in the singular, and it has been observed that many languages do without a dedicated habitual marker and that those that have one "seem to introduce just one marker of 'habituality', and nothing resembling a field of contrasting markers" (Carlson 2012: 842). Dahl (1985) does identify a number of different types of habitual markers in his language sample, but the distinguishing features in his work are whether the habitual in question can also express generic meaning ("habitual–generic") or whether it is limited to past contexts ("habitual–past"). In other words, these are not distinct subtypes of habitual meaning per se, but rather semantic extensions of a habitual marker or restrictions to certain contexts. While we do find some discussions of semantic contrasts between different habitual markers – such as Boneh & Doron (2008) on Hebrew and Boneh & Doron (2013) and Hengeveld et al. (2021) on English – this appears to be the exception rather than the rule.

The present volume explores the idea that habituality may be a family of closely related meanings rather than a single unified grammatical category. As the individual contributions will show, several languages in our sample also make distinctions between more than one grammatical habitual marker. What these different markers have in common is that they express some form of habituality, which for the purposes of our cross-linguistic investigation we define as expressing 'unbounded repetition of an event or situation that occurs typically'. There are three ingredients in this definition:

– REPETITION: a habit manifests itself as a repetition of a certain event or situation over time, a property it shares with e.g. multiplicativity.
– UNBOUNDEDNESS (see Fortuin 2023 for discussion): this distinguishes the unbounded nature of the repetition involved in habitual series from the bounded nature expressed by iterative elements such as temporally quantified expressions, e.g. *He did it twice*.
– TYPICALITY (Comrie 1976; Dik 1997, Gregersen & van Lier forthc.): habitual aspect expresses that a situation is characteristic of someone or something. This distinguishes it from other cases of unbounded repetition that do not involve typicality, as in *She did it often*.

An example from Huallaga Quechua illustrates a habitual construction with all three properties mentioned above.

Huallaga Quechua (Quechuan; Weber 1989: 110)
(5)   *Biyaahi-ta   puri-q   ka-sha.*
       trip-OBJ   travel-HAB COP-3.PERF
       'He used to go on trips.'

Habitual meaning is expressed in Quechua by means of the suffix *-q* attached to a main verb followed by the copula *ka*. The construction is limited to the past. The meaning of the construction is that the third person subject of the sentence was engaged in the unbounded repetition of going on trips, something that was typical of the subject.

Expressions of habituality are often used not only to denote the 'unbounded repetition of an event or situation that occurs typically', but also related semantic categories. The relation may be seen as based on each of the three components of the definition mentioned above.

Firstly, expressions used for habitual aspect may sometimes also be used for other types of repetition, as when they express multiplicative aspect:

West Greenlandic (Eskimo-Aleut; Fortescue 1984: 279, Trondjem 2012: 67, 70)
(6)   *Quli-nut   innar-**tar**-put.*
       ten-ALL   go.to.bed-HAB-IND.3PL
       'They habitually go to bed at ten o'clock.'
(7)   *Ikut-**tar**-paa.*
       hack-MLTPL-IND.3SG>3SG
       'She is hacking it.'
(8)   *Pujor-**tar-tar**-poq.*
       smoke-MLTPL-HAB-IND.3SG
       'She is in the habit of smoking.'

The suffix *-tar* expresses habitual aspect in (6) and multiplicative aspect in (7). The two may also be combined, as in (8). The link between these different types of quantification may be understood in terms of Cusic's (1981) approach. He calls cases like (7) PHASE QUANTIFICATION, which is event-internal, while (6) is a case of EVENT QUANTIFICATION, which is event-external. The existence of these two types of quantification explains the ambiguity involved in the following sentence (Mourelatos 1978: 429):

(9)   *He knocked on the door three times.*

On one reading of this sentence, the subject knocked on the door on three different occasions, on the other, there were three repeated knocks on a single occasion.

A second way in which habitual expressions may extend to other domains is through the unboundedness involved in its definition. Occasionally elements expressing habitual aspect are also found in the expression of generic statements, containing general truths. The following examples illustrate the use of the Coptic habitual auxiliary *šare* in the expression of habitual aspect (10) and of genericity (11).

Coptic (Afro-Asiatic; Van der Vliet & Zakrzewska this volume)

(10) *šare   ndaimōn   gar miše mn   ne=u-erēu   e=u-kēkahēu*
     HAB.PRS WDEF.PL-demon PART fight with POSS.PL=3PL-fellow CIRC=3PL-naked
     n-te-ušē
     in-DEF.SG.F-night
     'For the demons are in the habit of fighting with each other naked during the night.'

(11) *če   šare   pe-stadion   r   ou-monē*
     QUOT HAB.PRS DEF.SG.M-stadium   make   INDF.SG-station
     'The stadium equals a day's journey.'

(11) does not involve quantification over events; rather, it is a single situation that is being described. However, the sentence is such that it is always true, whatever the situation in which it is uttered. For this reason, this type of sentence has been classified as true in all possible worlds, or, in Dahl's formulation 'true in all worlds that have a certain relation to the actual world' (Dahl 1975: 100).

A third way in which habituals may have extended uses is through the typicality involved in their definition. English *used to* is used in (12) to express habitual aspect. In Comrie's (1976: 27) famous example (13), however, no repetition is involved.

(12)   *My mother always **used to** be singing when she was cooking or ironing.*
(13)   *The temple of Diana **used to** stand at Ephesus.*

It is clear that in the stative example in (13), there is no repetition. The statue is located at a fixed location over a long period of time. The only thing that is expressed here is that it was a characteristic property of the period in question that the temple of Diana stood at Ephesus. Similar examples may be given for Slovak. In (14) a regular habitual sentence is illustrated, in (15) a stative one:

Slovak (Indo-European; Genis & Kyselica this volume)

(141) *Hovorie-**va**-l-a   mi   to   asi   dva   razy   do týždňa.*
     speak.IPFV-HAB-PST-F.3SG   1SG.DAT   that some two   times   to week
     'She used to say that to me some two times per week.'

(15) *Na kopci   pred   nami stá-**va**-l   chrám.*
     on hill   before   1PL stand.IPFV-HAB-PST.M.3SG temple
     'There used to stand/be a temple on the hill in front of us.'

Mønnesland (1984: 59 ff.) would describe example (14) with the habitual verb derived from an eventive as a "frequentative habitual", (15) with the habitual verb derived from a stative verb presents a "stative habitual". Slovak derived habitual verbs like these, in the past tense, function in a way that is identical to one of the uses of the English *used to* constructions, the one which Binnick (2006: 41) typifies as *anti-present-perfect*: "they imply that the situation no longer holds in the present." We do not include this type of construction in our broad category of habitual and related constructions.

A further interesting property of habitual aspect is that it is two-faced when it comes to its modal interpretation: the existence of a habit itself is real, but the habit is not necessarily

realized at the moment referred to (Givón 1994: 323). Binnick (2005: 343) formulates this as follows: "a habit cannot be true at a point in time, only over a period of time". This might explain why in many languages habitual aspect belongs to the irrealis domain (Givón 1994; Cristofaro 2004), as in the following example, in which a conditional form expresses habitual meaning:

Scottish Gaelic (Indo European; Corral Esteban 2021: 6)
(16) Dhiarr   iad   orm   an   èisdeadh   mi   ri ceòl
      ask.PST   3.PL   on.1.SG   INT   listen.COND   1.SG   to music.DAT
      nuair   bha   mi   òg.
      when   be.PST   1.SG   young
      'They asked me if I would listen to music when I was young.'

There are also diachronic connections between habitual markers and modal markers, as discussed in la Roi (2023: 91–93).

1.3. Functional Discourse Grammar[1]

FDG is a typologically based and hierarchically organized model of grammar, based on functional principles. The hierarchical layers distinguished in FDG belong to different levels of grammatical organization: the Interpersonal (pragmatic) Level, the Representational (semantic) Level, the Morphosyntactic Level, and the Phonological Level. These are related in a top-down manner, as indicated in Figure 1. As this figure indicates, pragmatics governs semantics, pragmatics and semantics govern morphosyntax, and the three together govern phonology. The different arrows indicate that the theory allows Levels to be skipped when they are not relevant. For example, the exclamation *Wow!* has no semantics and no morphosyntactic structure, and will therefore skip the Representational and Morphosyntactic Levels.

Every level is internally organized in terms of hierarchies of layers, the nature of which corresponds to the level to which they pertain. For the purposes of this chapter, only the internal structure of the first two levels is relevant. These are given in Figure 2, which also shows the hierarchical relations between them. Scopal domination is indicated by means of '>' and 'v'.
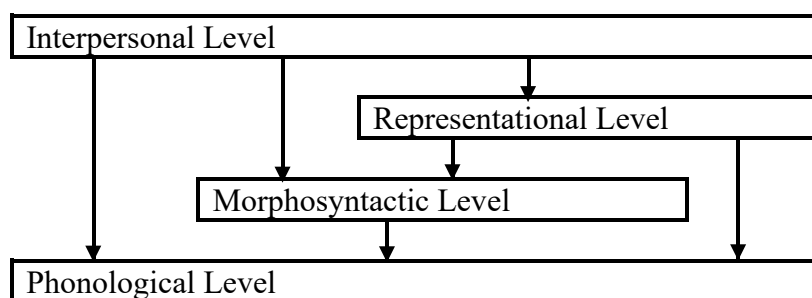

Figure 1. Levels in FDG

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[1] This section is partly taken from Hengeveld (2023).

Interpersonal Level	Discourse Act	>	Illocution	>	Communicated Content	

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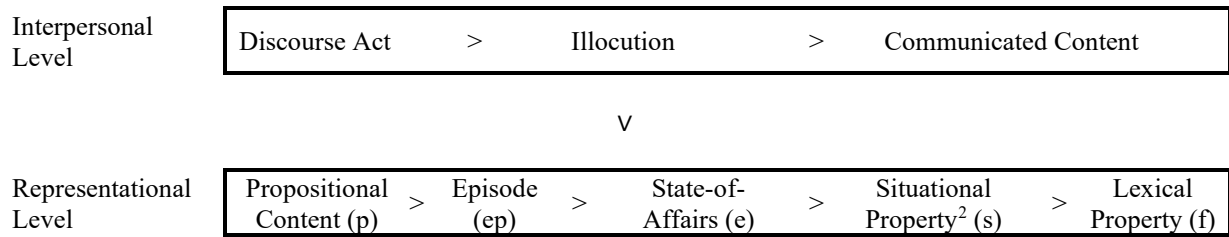| Representational Level	Propositional Content (p)	>	Episode (ep)	>	State-of-Affairs (e)	>	Situational Property[2] (s)	>	Lexical Property (f)

Figure 2. Scope relations at the Interpersonal and Representational Levels in FDG

Every layer may be specified by (grammatical) operators or (lexical) modifiers, represented as π and σ respectively in a formula like the following, where both are given as modifying a Propositional Content (p):

(17)   (π p_1: [------------------] (p_1): σ (p_1))

For instance, a Propositional Content may be specified by an inferential operator or by an inferential modifier, as shown in (18):

(18)   a.   She *must* be the happiest woman in the world.
                (infer p_1: [–she is the happiest woman in the world–] (p_1))
        b.   She is *presumably* the happiest woman in the world.
                (p_1: [–she is the happiest woman in the world–] (p_1): presumably (p_1))

In (18a) the auxiliary *must* is a grammatical expression of inference represented as an operator 'infer' preceding the propositional content, while *presumably* in (18b) is a lexical expression of inference represented in its lexical form as a restrictor following the propositional content. Similar examples could be given for every layer.

Returning now to the layers represented in Figure 2, at the Interpersonal Level, the highest layer relevant here is that of the Discourse Act. This is the basic unit of analysis in FDG, and may be defined as the smallest identifiable unit of communicative behaviour. It contains an Illocution and a Communicated Content. The Illocution captures the lexical and formal properties of a Discourse Act that can be attributed to its conventionalized interpersonal use in achieving a communicative intention. Examples of illocutions are Declarative, Hortative, and Prohibitive. The Communicated Content is the message contained in an utterance, and concerns the totality of what the Speaker wishes to evoke in his/her communication with the Addressee.

At the Representational Level, the highest layer is that of the Propositional Content, which is a mental construct that does not exist in space or time but rather exists in the mind of the person entertaining it. The next three layers, the Episode, the State of Affairs, and the Situational Property, will turn out to be especially relevant in later chapters and are discussed in somewhat more detail here.

The Episode is a combination of one or more States-of-Affairs that are thematically

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[2] The term *Situational Property* is equivalent to the term *Configurational Property* used in earlier publications on FDG.

coherent in the sense that they share time, location, and participants. The following example shows an Episode consisting of four States-of-Affairs:

(19)   Coming out of the house, checking the mailbox, and tripping over his shoes, he entered his car.

This combination of States-of-Affairs complies with the definition of an Episode given above. In terms of its grammatical manifestation, the four States-of-Affairs all share the same location in time, expressed by the absolute past tense on the last verb in the string. The non-finite endings on the other verbs indicate that they have to be given the same temporal interpretation as that last verb. Thus, a crucial property of Episodes is that they can be located in time by means of absolute tense.

States-of-Affairs differ from Episodes in that they are characterized by relative tense. In (20) the converbal *-ing* endings on the first three verbs indicate simultaneous relative tense. The following examples show that States-of-Affairs can also be characterized as taking place anterior to (20) or posterior to (21) the absolute temporal reference point.

(20)   Coming out of the house, *having forgotten* his keys, he returned to fetch them.
(21)   Coming out of the house, *being about to enter* his car, he decided to stay home.

Situational Properties constitute the basic building blocks of States-of-Affairs and are not themselves locatable in absolute or relative time. They are a combination of a predicate and its arguments that together characterize a set of States-of-Affairs. For instance, in all the converb clauses in the following examples the Situational Property is the same, but the States-of-Affairs are different:

(22)   Leaving the house, he will turn left.
(23)   Having left the house, he enters his car.
(24)   Being about to leave the house, he changed his mind.

In all these cases the Situational Property 'someone come out of the house' is used, but it is instantiated in different States-of-Affairs. In other words, a Situational Property is a type of State of Affairs, while the State of Affairs itself is a token. Situational Properties are formalized in FDG in the form of predication frames, which can be used in the description of different States-of-Affairs of the types captured by the Situational Property.

The Lexical Property, finally, is the lowest layer of the Representational Level. It can be defined as the property expressed by any kind of lexeme.

Table 1 summarizes the properties of the layers discussed here. Definitions are mainly taken from Hengeveld and Mackenzie (2008).

Table 1. Layers in FDG

Layer	Definition
Discourse Act (A)	the smallest identifiable unit of communicative behaviour
Illocution (F)	the lexical and formal properties of a Discourse Act that can be attributed to its conventionalized interpersonal use in achieving a communicative intention
Communicated Content (C)	the totality of what the Speaker wishes to evoke in his/her communication with the Addressee
Propositional Content (p)	a mental construct that does not exist in space or time but rather exists in the mind of the one entertaining it
Episode (ep)	one or more States-of-Affairs that are thematically coherent, in the sense that they show unity or continuity of absolute time, location, and participants
State of Affairs (e)	events or states, i.e. entities that can be located in relative time and can be evaluated in terms of their reality status
Situational Property (s)	the combination of a predicate and its arguments that characterizes a set of States-of-Affairs
Lexical Property (l)	the property expressed by any lexeme

FDG makes strong predictions as regards the process of grammaticalization (see Hengeveld 2017; Giomi 2023a, 2023b). The claim is that contentive change in this process is a matter of scope increase, a process in which a grammatical element assumes new meanings or functions by moving up step by step along the layered hierarchies, both at the Representational and Interpersonal Levels. For instance, an operator at the layer of the Situational Property may acquire a new meaning at the layer of the State of Affairs, and then move further up to the layer of the Episode. The synchronic correlate of this is that, if a grammatical marker operates at more than one layer on the same level, these layers will be contiguous in the hierarchy. We will return to this issue in the concluding chapter of this book.

1.4. Types of habituality

1.4.1. Introduction

In this section we associate different types of habituality and the categories related to it with the different layers distinguished within FDG as described in the previous section. We start with an initial classification in Section 1.4.2 and then substantiate this classification by applying several types of tests, which have to do with the scope of operators (Section 1.4.3), modifiers (Section 1.4.4), and the occurrence of habitual expressions in different types of complement clauses (Section 1.4.5).

1.4.2. Initial classification

Taking into account the definitions of layers just given, one could potentially relate a subtype of habituality and related categories to each of the layers at the Representational Level in FDG. Consider the following paraphrases and preliminary examples:

(i)   Genericity at the layer of the **Propositional Content**: The propositional content is always true.

(25)   *Water **will** boil at 100 degrees Celsius.* (Bybee, Pagliuca & Perkins 1994: 157)

(ii)   Habituality at the layer of the **Episode**: The series of States-of-Affairs constituting the Episode occurs regularly.

(26)   *Every day Jane **will** come home from school and ring up the friends she's just been talking to.*

Note that, since the friends Jane rings up may be different ones on every occasion, quantification is over a series of different events rather than a single event.

(iii)   Habituality at the layer of the **State of Affairs**: An individual State of Affairs occurs regularly.

(272)   *It **used to** rain most of the year.*

(iv)   Habituality at the layer of the **Situational Property**: A certain type of State of Affairs occurs regularly due to a propensity of a typically specific animate participant involved.

(28)   *My daughter **is prone to** getting seasick.*

(v)   Multiplicativity at the layer of the **Lexical Property**: A single State-of-Affairs can be subdivided into several identical subparts.

(29)   *stut**ter**, pat**ter**, chat**ter**, cac**kle**, bab**ble*** (Bybee, Pagliuca & Perkins 1994: 157)

Note that in this book we will only pay attention to genericity and multiplicativity in those cases in which a marker of habituality expresses these categories as well, and not to specialized markers of genericity and multiplicativity.

1.4.3. The scope of operators

As mentioned above, every FDG layer may be specified by operators, which represent grammatical expressions of e.g. temporal, aspectual, and modal distinctions. Table 2 is slightly adapted from Hengeveld & Fischer (2018), and provides an overview of classes of operators currently recognized in FDG. Appendix 1 provides a full list of operators.

Table 2 does not list the habitual and related categories listed in Section 1.3.2, as we intend to use it as a testing ground to determine the scope of grammatical habitual categories within the system. The test is as follows: Suppose a habitual expression can be shown to be within the scope of an Episode operator such as absolute tense, and to have scope over an operator of the Situational Property such as qualitative aspect, then this habitual expression must itself be at the layer of the State of Affairs.[3]

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[3] Barring the potential complications listed in 1.4.6.

Table 2. Operators in FDG

	Interpersonal Level			Representational Level				
	Discourse Act	Illocution	Communicated Content	Propositional Content	Episode	State-of-Affairs	Situational Property	Lexical Property
Mood	irony, mitigation, reinforcement	illocutionary modification		proposition-oriented modality	episode-oriented modality	event-oriented modality	participant-oriented modality	
Polarity	rejection	negative basic illocutions	denial	disagreement	co-negation	non-occurrence	failure	local negation
Evidentiality	quotative		reportative	inference	deduction	event perception		
Mirativity			mirative					
Tense					absolute tense	relative tense		
Quanti-fication						event external quantification other than habitual	event internal quantification other than habitual	
Aspect							qualitative aspect	
Location						event location	directionality	

Table 3. Adverbial modification in FDG

	Interpersonal Level			Representational Level				
	Discourse Act	*Illocution*	*Communicated Content*	*Propositional Content*	*Episode*	*State-of-Affairs*	*Situational Property*	*Lexical Property*
Textual organization	Situating the Discourse Act *finally*							
Illocutionary Modification		Modification of Illocution *frankly*						
Intensification			Intensification *definitely*					
Evidentiality			Reportative *reportedly*	Inferential *presumably*	Deductive *seemingly*	Event perception *visibly*		
Perspective				Perspective *technically*				
Modality				Subjective epistemic *probably*	Objective epistemic *really*	Event-oriented *mandatorily*	Participant Oriented *easily*	
Time					Unique *recently*	Recurrent *weekly*	Aspect *continuously*	
Location					Absolute location *nationally*	Relative location *internally*	Direction *diagonally*	
Quantification						Event-external *frequently*	Event-internal *briefly*	
Participation							Additional participant *manually*	
Manner							Subject-oriented *angrily*	Predicate-oriented *beautifully*
Degree								Degree *extremely*

This is the only intervening layer between the Episode and the Situational Property. One of the uses of Spanish *soler* shows this behaviour:

Spanish (Indo-European, Olbertz this volume)

(30) *Por otra parte,   no   son   más   que   las   dos   de la   madrugada*
      on   other side   not   are   more   than   the   two   of the   morning
      *y   a esta   hora, en su   casa   **suele**   **estar**   trabaja**ndo**.*
      and at this   hour   in his   home   HAB.PRS.3SG   be.INF   working
      'On the other hand, it is no later than two o'clock in the morning and at this early hour he is usually working at home. (CORPES fiction, 2002 Spain)

In (30) *soler* is in the scope of the present tense operator, expressed on the auxiliary itself, while it has scope over the progressive operator, expressed by a combination of the auxiliary *estar* and the converbal ending of the main verb.

When habitual markers occur at different layers, as we suggest in this volume, then it should also be possible to have one within the scope of another, just as in the case of other combinations of operators. In the introduction we provided an example of this type of cooccurrence (see (3) above).

1.4.4. The scope of modifiers

Every FDG layer may also be specified by modifiers, which represent lexical expressions of e.g. temporal, aspectual, and modal distinctions. Table 3 is slightly adapted from Hengeveld (2023) and provides an overview of classes of modifiers currently recognized in FDG. The test is as follows: Suppose a habitual expression can be shown to be within the scope of a State of Affairs modifier such as a relative temporal one, and to have scope over a modifier of the Lexical Property such as one of degree, then this habitual expression must itself be at the layer of the Situational Property, which is the only intervening layer between the State of Affairs and the Lexical Property. English *be wont to* shows this behaviour:

(31) *My daughter **is wont to** get seasick **when she sails on a small ship**.*
(32) *My daughter **is wont to** cry **a lot**.*

1.4.5. Occurrence in complement clauses[4]

In FDG, complement clauses can be classified in terms of the highest layer they contain, as shown in the representations in (33)–(37). For instance, the complement of *believe* must be a mental construct, hence it is represented as a Propositional Content in FDG. Apart from the Propositional Content layer, this complement clause will then also contain all layers within the scope of the Propositional Content, i.e. the Episode, State-of-Affairs, and Situational Property layers. On the other hand, aspectual and achievement verbs such as *begin* and *manage* will take the Situational Property layer as their complement. The Situational Property was defined above as the layer at which a predicate is combined with its arguments. Since aspectual verbs are participant-oriented, in the sense that the subject of their complement should be identical to the subject of the main clause, they must take this layer as their complement. This means that the higher layers of Propositional Content, Episode, and State-of-Affairs layers are irrelevant to these complement clauses. Based on this principle, the following representations show how the

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[4] This text is partly taken from Hengeveld, Clarke and Kemp (2021).

complements of different classes of complement taking predicates differ from one another:

(33)   Complements of verbs of knowledge and belief, such as *realize* and *think*
        $(p_1: (ep_1: (e_1: (s_1: [\ldots\ldots] (s_1)) (e_1)) (ep_1)) (p_1))$
        p_1 = Propositional Content
(34)   Complements of verbs of emotion, such as *regret* or *like*
        $(ep_1: (e_1: (s_1: [\ldots\ldots] (s_1)) (e_1)) (ep_1))$
        ep_1 = Episode
(35)   Complements of verbs of causation, such as *cause* and *trigger*
        $(e_1: (s_1: [\ldots\ldots] (s_1)) (e_1))$
        e_1 = State of Affairs
(36)   Complements of aspectual and achievement verbs, such as *begin* and *manage*.
        $(s_1: [\ldots\ldots] (s_1))$
        s_1 = Situational Property

As these representations show, higher layers contain all lower layers. For instance, in (34) the complement clause is of the Episode type, which as a result contains the layers of the State-of-Affairs and the Situational Property.

The varying underlying structures of the different types of complement clauses can be exploited as a testing ground to determine the layer at which a certain habitual expression operates. For instance, if a habitual expression is possible in the complement clause types in (33), but not in the complement clause types in (34), (35), and (36), we know it operates at the layer of the Propositional Content (ep). If it is possible in the complement clause type in (34), but not in the ones in (35) and (36), we know it operates at the layer of the Episode (ep). If it is possible in the complement clause type in (35) but not the one in (36), we know it operates at the layer of the State-of-Affairs.

Therefore, to test which layer each habitual marker belongs to, one can make use of a set of complement clauses, each classified by a different layer, and run through them in a hierarchical fashion from highest-layer complement clause to lowest, attempting to include a habitual marker in each clause. If the habitual marker cannot feature in the complement clause, then that habitual marker must pertain to a layer higher than that of the complement clause.

Examples (37)–(39) from Danish illustrate this test.

Danish (Indo-European; Gregersen 2021)
(37)   *Det er mærkeligt at*   *alle sælgerne*   *plejer*   *at*   *overperforme*
        it is odd   COMP.FIN all   salesmen.DEF HAB.PRS COMP.NFIN overperform
        og   *nu*   *er der lukket.*
        and   now   is there closed
        'It's odd that all your salesmen usually overperform and now everything is closed [i.e. they do not sell anything anymore]' (linkedin.com)
(38)   **få nogen*   *til at*   *pleje at ...*
        get someone   to COMP.NFIN HAB   COMP.NFIN
        'get someone to usually do…'
(39)   **begynde*   *at*   *pleje*   *at ...*
        begin   COMP.NFIN HAB   COMP.NFIN
        'begin to usually do…'

As shown in (37), the habitual auxiliary *pleje* may be used in an episodical complement. The two complements in (38) and (39) designate a State-of-Affairs and a Situational Property, respectively, and these two sentences are ungrammatical. On the basis of these tests, then, this

use of *pleje* in Danish can be situated at the layer of the Episode.

1.4.6. Complications

The tests listed above cannot always be applied straightforwardly. Four factors may lead to complications: semantic incompatibility, polyfunctionality, stacking, and *portmanteau* expressions.

 Semantic incompatibility can be illustrated by considering generic statements, a category closely related to habituality which we suggest operates at the layer of the Propositional Content. We then would expect that this type of meaning may have scope over absolute tense and objective epistemic modality. However, generic statements are generally timeless,[5] and for that reason are semantically incompatible with absolute tense, and they express general truths, which makes them unlikely candidates to combine with proposition-oriented modalities other than certainty.

(40) a. ?*Water will boil at 100 degrees in the future.*
    Intended: 'It is generally true that water will boil at 100 degrees in the future.'
  b. ?*Water will perhaps boil at 100 degrees.*
    Intended: 'It is generally true that perhaps water boils at 100 degrees.'

 Polyfunctionality occurs when a habitual expression expresses more than one habitual meaning, and is thus situated at different layers. Because grammaticalization proceeds along the FDG hierarchy, we predict that these layers will be contiguous in the FDG hierarchy, which means that polyfunctionality often reflects diachronic change. For instance, a habitual marker may express both habituality at the layer of the State-of-Affairs and that of the Situational Property. In the former case, it is within the scope of absolute tense and has scope over qualificational aspect, while in the latter case it is within the scope of relative tense and has scope over degree. Thus, if we find that a habitual expression can both be within the scope of negation and have scope over negation, this may be because one and the same habitual expression can be used for quantification at both the layer of the Episode and the layer of the State of Affairs. A case in point is Mandarin *guànyú*:[6]

Mandarin (Sino-Tibetan; Fang this volume)
(41) *Wǒ bù **guànyú** gēn yāzi jiēwěn*
  1SG NEG HAB with duck kiss
  'I am not in the habit of kissing ducks.'
(42) *Rénshì   gànbù **guànyú** bù gàn rénshì*
  human.resources official HAB   NEG do human.resources
  'Officials of human resources are in the habit of not doing their job.'

 The third issue to be discussed here is *stacking*.[7] As shown in Tables 2 and 3, operators and modifiers may be combined at the same layer. For instance, at the layer of the State-of-Affairs, one finds operators and modifiers of Relative Location, Relative Tense, Event-oriented Modality, Event Perception, and Non-occurrence. These elements can co-occur in a sentence. Thus, the fact that a certain marker of habituality occurs preceding a marker of relative tense does not necessarily mean that these markers are at different layers. Determining the semantic

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[5] But there are exceptions, as for instance in the case of *Dinosaurs ate kelp* (Dahl 1985: 100, discussed in le Roi (2023: 88).
[6] In addition, this expression can be used at the layer of the Situational Property. See Fang (this volume).
[7] See Giomi (2023a: 136) on horizontal scope.

scope is important in these cases. The complement clause test is not sensitive to this issue and can therefore be used to solve these cases.

Portmanteau expressions combine two or more meanings in a single morpheme. In such cases, the behaviour of the expression in the three testing grounds mentioned above may be due to each of the separate meanings of the morpheme. For instance, that *used to* in English is not found in the complement clause of a verb of causation may be due either to it expressing habituality or to it expressing past tense. The highest layer in the complement clause of a verb of causation is the State-of-Affairs, but past tense is expressed at the next higher layer, that of the Episode. Since *used to* has past tense as one of its meaning components, it will thus never be possible in this type of complement clause, irrespective of the type of habituality it expresses.

1.5. Habituality and related categories – some first illustrations

In this section we will look in more detail at a selection of habitual expressions in a number of languages, determining their scope by applying the tests described in Section 1.4.

(i)   Genericity at the layer of the **Propositional Content**: The propositional content is always true.

In Portuguese, in certain contexts, the form for the future tense can express genericity, i.e. it is the expression of a general truth at the layer of the Propositional Content and can take scope over operators of the next lower layer, the Episode. One of the operators pertaining to this layer is the one expressing evaluative deontic modality, expressed by the auxiliary *ter que* 'should'. Example (43) shows that the future tense is expressed on this auxiliary, reflecting that it has scope over it.[8]

Portuguese (Indo-European; Giomi this volume)
(43)   […]   *a   vida humana é inviolável, por   isso ter-á   sempre que*
       […]   the   life   human is inviolable by   this have-FUT always that
       existir penalização para quem   matar   ou   ajudar a matar.
       exist   punishment   for   whom   kill   or   help   to kill
       '... human life is inviolable, therefore there will always have to be a punishment for those who committed or helped to commit murder.'

(ii)   Habituality at the layer of the **Episode**: The series of States-of-Affairs constituting the Episode occurs regularly.

A special type of habitual marking at the layer of the Episode is found in Coptic. In this language, when the conjunctive mood is expressed on a verb, this indicates that the TMA values from the preceding verb carry over to the current verb. For instance, in the following example the habitual is marked on one verb and the conjunctive on the three following verbs. This means that the latter three should be interpreted as habitual as well. Thus, a series of four verbs, together constituting an Episode introduced by a temporal clause, is to be interpreted as habitual.

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[8] Note that a co-occurring universal quantifier, such as *sempre* 'always' or *nunca* 'never', seems to be necessary to obtain the generic reading.

Coptic (Afro-Asiatic; Van der Vliet & Zakrzewska this volume)

(44) *e=f-šan pōh*   *e-te-prō*   *ša=f-hōrp*
      COND=3SG.M-COND-arrive at-DEF.SG.F-winter   HAB.PRS=3SG.M-soak
      n-te=f-lubutōn   *m-moou*   *n=f-taa=s*   *hiōō=f*
      ACC-POSS.SG.F=3SG.M-tunic in-water CNJ=3SG.M-give=3SG.F upon=3SG.M
      n=f-aaherat=f   *etiōte*   *n=f-r*   *te-ušē*
      CNJ=3SG.M-stand=3SG.M   in-DEF.SG.F-humidity   CNJ=3SG.M-do   DEF.SG-night
      tēr=s   *e=f-šlēl*
      entire=3SG.F   CIRC=3SG.M-pray
      'When winter arrived, he would soak his tunic in water, put it on and stay drenched while spending the entire night praying.'

(iii) Habituality at the layer of the **State of Affairs**: An individual State of Affairs occurs regularly.

(45) *It used to rain a lot in this area.*

This example differs from the following in that the verb has no argument, which means a situation is characterized as typical, while in the following a participant is characterized as such. Furthermore, *used to* quantifies over a single State-of-Affairs, not over a series, as also shown in the following example, adapted from Boneh & Doron (2013: 189).

(46) *I received eight more treatments, and the temporary amnesia became severe. I thought nothing bad about the treatments, however, for I was given a wonderful anaesthetic. When I awoke, a kind nurse **used to** be sitting beside me with warm milk for my stomach if it hurt.*

As Boneh & Doron (2013: 189) note, (46) can only be used when on every occasion it is the same nurse that is present; otherwise *would* would be used, which shows that habitual *would* scopes over sets of States-of-Affairs, i.e. Episodes.

(iv) Habituality at the layer of the **Situational Property**: A certain type of State of Affairs occurs regularly due to a propensity of a participant involved.

An example of an expression of habituality at the layer of the Situational Property is *-ski* in Plains Cree. (47) shows that this expression can occur in the complement of an aspectual verb, which takes a Situational Property as its argument. On the other hand, (48) shows that the expression can take scope over a diminutive modifier of the Lexical Property. Being higher than the Lexical Property, but not higher than the Situational Property, it must be an operator of the latter.

Plains Cree (Algic; Wolvengrey this volume)

(47) Nika-kakwē-tāpwēskin.
      ni-ka-kakwē-tāpwē-ski-n
      1-FUT-IPV.try.to-VAI.speak.truth-HAB-1/2SG
      'I will try to always tell the truth.'

(48) nipāsiskiw
      nipā-si-ski-w
      AI.sleep-DIM-HAB-3SG
      'S/he naps all the time'

(v)   Multiplicativity at the layer of the **Lexical Property**: A single State-of-Affairs can be subdivided into several identical subparts.

In the following example from A'ingae, multiplicativity is expressed through reduplication. The reduplicated form as a whole carries the imperfective suffix, reflecting the scope of this aspectual category over multiplicativity. Since imperfective aspect operates at the layer of the Situational Property, multiplicativity must operate one level lower, i.e. at the Lexical Property layer.

A'ingae (Isolate; Hengeveld & Fischer 2008)
(49)   *Ingima fithithi'je.*
        lngi=ma   fithi~thi-'je
        1.PL =ACC.RLS   kill~MLTP-IMPF
        'He is killing us (one after the other).'

1.6. Predictions

In the light of the treatment of habitual constructions in FDG given above, we may now formulate two predictions, which will be tested in the remainder of this volume:

1. Across and within languages, habitual expressions may differ from one another in terms of the layer(s) at which they apply.
2. If a habitual expression may apply to more than one layer, the layers involved will be contiguous in the hierarchy.

The latter prediction follows from FDG's claim that in grammaticalization, contentive change is a matter of scope increase, a process in which a grammatical element assumes new meanings or functions by moving up step by step along the layered hierarchies. The synchronic correlate of this is that, if a grammatical marker operates at more than one layer on the same level, these layers will be contiguous in the hierarchy.
        If these predictions are correct, than we may conclude that what is called 'habitual' in one language may in fact be quite different from what is called 'habitual' in another. This volume offers a set of tools to tease apart these different types of habitual meaning.

1.7. Preview

Chapters 2–11 of this volume apply the approach outlined above to a wide range of languages. The ten languages studied are Ancient Greek, Coptic, Dolgan, Kwaza, Mandarin, Plains Cree, Portuguese, Russian, Slovak, and Spanish. This selection of languages was made with regard to two primary considerations. On the one hand, we wanted to include languages from as many different families and macroareas as possible, ideally also lesser-known and underinvestigated languages. On the other hand, the nature of the questionnaire-based study meant that the participating authors should both be experts in their respective languages and be familiar with the core concepts of FDG. In addition, for each language there should at least be access to large corpora, native-speaker consultants, or both. Further details on the primary materials are found in the individual chapters. The genetic classification of the languages, showing the highest distinguishing nodes according to Glottolog (Hammarström et al. 2023) is as shown in Table

4. Note that we have occasionally mentioned other languages in this introduction to illustrate our points.

Table 4. Genetic affiliations of the languages of the sample

Language	Genetic affiliation				
Coptic	Afro-Asiatic				
Plains Cree	Algic				
Ancient Greek	Indo European	Classical Indo-European	Graeco-Phrygian	Greek	
Portuguese	Indo European	Classical Indo-European	Italic	Latino-Faliscan	Latinic
Spanish	Indo European	Classical Indo-European	Italic	Latino-Faliscan	Latinic
Russian	Indo European	Classical Indo-European	Balto-Slavic	Slavic	East-Slavic
Slovak	Indo European	Classical Indo-European	Balto-Slavic	Slavic	West-Slavic
Kwaza	Kwaza				
Mandarin	Sino-Tibetan				
Dolgan	Turkic				

All chapters are based on a typological questionnaire (included here as Appendix 2), which tests for:

– the occurrence of habitual expressions in different types of complement clauses;
– the scope of habitual expressions in relation to different categories of lexical modifiers;
– the scope of habitual expressions in relation to different grammatical categories other than habituality.

The relevance of these tests was explained in Sections 1.4.3–1.4.5 of this introduction. The questionnaire furthermore tests for:

– the co-occurrence of habitual expressions, as illustrated in Section 1.1 of this introduction;
– the interpretation of habitual expressions, as discussed in Section 1.4.2 of this introduction.

On the basis of these tests, conclusions can then be drawn about the exact layer(s) at which the habitual expressions studied operate.

All language-specific chapters are organized using the same template. The only aspect that varies is the number of subsections for the varying number of habitual strategies encountered. The template for these chapters is as follows:

1. Introduction
2. The language
3. Strategies
      1.   Overview of strategies
    2-N-1. One subsection for each strategy
        1. Introduction
        2. Modifiers
        3. Operators
        4. Complementation
        5. Interpretation
        6. Summary of strategy
    N. Cooccurrence of strategies
4. Summary

The concluding Chapter 12 then compares the results for the individual languages and presents the typological generalizations that may be detected in these results.

Before moving on to the individual chapters, we will briefly explain how this volume came about. The book is a result of a collaborative research project which ran at the Amsterdam Center for Language and Communication (University of Amsterdam) in the period 2021–2023. Most members of the research group contributed a chapter to this volume. As already mentioned above, all languages were investigated using the same questionnaire, which was developed in collaboration within the research group, and for the sake of comparability the discussions in the individual chapters follow the same structure. The research group members presented their preliminary results at regular online meetings, and draft versions of the book chapters (including this introduction) were circulated for feedback within the research group. Although the individual authors are of course responsible for the analyses presented in their chapters, the volume is thus the result of a close collaboration.

Abbreviations

1	first person		INT	interrogative
3	third person		IPFV	imperfective
ACC	accusative		M	masculine
ALL	allative		MIR	mirative
ANA	Anaphoric pronoun		MLTPL	multiplicative
CIRC	circumstantial		NEG	negation
CLF	classifier		INDF	indefinite
CNJ	conjunctive mood		INF	infinitive
COMP	complementizer ('that')		NFIN	non-finite
COND	conditional		PART	particle
CONJ	conjunction		PF	perfect
COP	copula		PL	plural
DAT	dative		POSS	possessive
DEF	definite		PRS	present
F	feminine		PST	past
FIN	finite		QUOT	quotative
HAB	habitual		RLS	realis
HES	hesitation		RND	round
IND	indicative		SG	singular

Acknowledgements

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Appendix 1. List of FDG operators

Layer	General class	Subclass	Category	References
Discourse Act	Evidentiality	Quotative	Quotative	Hengeveld & Fischer (2018: 348-349)
Discourse Act	Illocutionary Modification		Mitigation	Hengeveld & Mackenzie (2008: 66-68)
Discourse Act	Illocutionary Modification		Reinforcement	Hengeveld & Mackenzie (2008: 66-68)
Discourse Act	Irony		Irony	Hengeveld & Mackenzie (2008: 65-66)
Illocution	Illocutionary Modification		Mitigation	Hengeveld & Mackenzie (2008: 83)
Illocution	Illocutionary Modification		Reinforcement	Hengeveld & Mackenzie (2008: 83)
Communicated Content	Evidentiality	Reportative	Second Hand Reportative	Hengeveld & Hattnher (2015)
Communicated Content	Evidentiality	Reportative	Third Hand Reportative	Hengeveld & Hattnher (2015)
Communicated Content	Frustration		Frustrative	Giomi (2023b: 174ff)
Communicated Content	Mirativity		Mirative	Olbertz (2009), Hengeveld & Olbertz (2012), Fang (2018)
Propositional Content	Evidentiality		Inference	Hengeveld & Hattnher (2015)
Propositional Content	Modality	Epistemic	Doubt	Hengeveld (2004), Hattnher & Hengeveld (2016), Olbertz & Hattnher (2018), Olbertz & Honselaar (2017)
Propositional Content	Modality	Epistemic	Certainty	Hengeveld (2004), Hattnher & Hengeveld (2016), Olbertz & Hattnher (2018), Olbertz & Honselaar (2017)
Episode	Evidentiality	Deduction	Perceptual Evidence	Hengeveld & Hattnher (2015)
Episode	Evidentiality	Deduction	Visual Evidence	Hengeveld & Hattnher (2015)
Episode	Evidentiality	Deduction	Auditory Evidence	Hengeveld & Hattnher (2015)
Episode	Modality	Deontic	Evaluative Obligation	Olbertz & Gasparini Bastos (2013), Olbertz & Honselaar (2017)
Episode	Modality	Deontic	Evaluative Permission	Olbertz & Gasparini Bastos (2013), Olbertz & Honselaar (2017)
Episode	Modality	Epistemic	Objective possibility	Hengeveld (2004), Olbertz & Gasparini Bastos (2013), Hattnher & Hengeveld (2016), Olbertz & Hattnher (2018), Olbertz & Honselaar (2017)

Episode	Modality	Epistemic	Objective certainty	Hengeveld (2004), Hattnher & Hengeveld (2016), Olbertz & Hattnher (2018), Olbertz & Honselaar (2017)
Episode	Tense	Absolute Tense	Past	Hengeveld & Mackenzie (2008: 163-165)
Episode	Tense	Absolute Tense	Remote Past	Hengeveld & Mackenzie (2008: 163-165)
Episode	Tense	Absolute Tense	Recent Past	Hengeveld & Mackenzie (2008: 163-165)
Episode	Tense	Absolute Tense	Past (Yesterday)	Hengeveld & Mackenzie (2008: 163-165)
Episode	Tense	Absolute Tense	Past (Today)	Hengeveld & Mackenzie (2008: 163-165)
Episode	Tense	Absolute Tense	Non-past	Hengeveld & Mackenzie (2008: 163-165)
Episode	Tense	Absolute Tense	Present	Hengeveld & Mackenzie (2008: 163-165)
Episode	Tense	Absolute Tense	Non-present	Hengeveld & Mackenzie (2008: 163-165)
Episode	Tense	Absolute Tense	Future	Hengeveld & Mackenzie (2008: 163-165)
Episode	Tense	Absolute Tense	Remote Future	Hengeveld & Mackenzie (2008: 163-165)
Episode	Tense	Absolute Tense	Imminent Future	Hengeveld & Mackenzie (2008: 163-165)
Episode	Tense	Absolute Tense	Future (Today)	Hengeveld & Mackenzie (2008: 163-165)
Episode	Tense	Absolute Tense	Future (Tomorrow)	Hengeveld & Mackenzie (2008: 163-165)
Episode	Tense	Absolute Tense	Non-future	Hengeveld & Mackenzie (2008: 163-165)
State-of-Affairs	Evidentiality	Event Perception	Perception	Hengeveld & Hattnher (2015)
State-of-Affairs	Evidentiality	Event Perception	Visual Perception	Hengeveld & Hattnher (2015)
State-of-Affairs	Evidentiality	Event Perception	Auditory Perception	Hengeveld & Hattnher (2015)
State-of-Affairs	Evidentiality	Event Perception	Non-perception	Hengeveld & Hattnher (2015), Giomi (2023b: 173)
State-of-Affairs	Frustration		Frustrative	Giomi (2023b: 174ff)
State-of-Affairs	Location	Event Location	Proximal	Hengeveld & Fischer (2018: 330-331)
State-of-Affairs	Location	Event Location	Distal	Hengeveld & Fischer (2018: 330-331)
State-of-Affairs	Modality	Deontic	Prescriptive Obligation	Olbertz & Gasparini Bastos (2013), Hattnher & Hengeveld (2016), Olbertz & Honselaar (2017)
State-of-Affairs	Modality	Deontic	Prescriptive Permission	Olbertz & Gasparini Bastos (2013), Hattnher & Hengeveld (2016), Olbertz & Honselaar (2017)
State-of-Affairs	Modality	Inherent	Event-oriented Possibilty	Olbertz & Gasparini Bastos (2013), Hattnher & Hengeveld (2016), Olbertz & Honselaar (2017)
State-of-Affairs	Modality	Inherent	Event-Oriented Necessity	Olbertz & Gasparini Bastos (2013), Hattnher & Hengeveld (2016), Olbertz & Honselaar (2017)

State-of-Affairs	Quantification	Event Quantification	Iterative	Hengeveld & Mackenzie (2008: 179-180), Hengeveld & Fischer (2018: 349-350)
State-of-Affairs	Quantification	Event Quantification	Distributive	Hengeveld & Mackenzie (2008: 179-180), Hengeveld & Fischer (2018: 349-350)
State-of-Affairs	Quantification	Event Quantification	Semelfactive	Hengeveld & Mackenzie (2008: 179-180), Hengeveld & Fischer (2018: 349-350)
State-of-Affairs	Quantification	Event Quantification	Repetitive	Hengeveld & Mackenzie (2008: 179-180), Hengeveld & Fischer (2018: 349-350)
State-of-Affairs	Tense	Relative Tense	Anterior	Hengeveld & Mackenzie (2008: 173-174)
State-of-Affairs	Tense	Relative Tense	Non-anterior	Hengeveld & Mackenzie (2008: 173-174)
State-of-Affairs	Tense	Relative Tense	Simultaneous	Hengeveld & Mackenzie (2008: 173-174)
State-of-Affairs	Tense	Relative Tense	Non-simultaneous	Hengeveld & Mackenzie (2008: 173-174)
State-of-Affairs	Tense	Relative Tense	Posterior	Hengeveld & Mackenzie (2008: 173-174)
State-of-Affairs	Tense	Relative Tense	Non-posterior	Hengeveld & Mackenzie (2008: 173-174)
Situational Property	Aspect	Perfective-Imperfective	Perfective	Hengeveld & Mackenzie (2008: 210-211)
Situational Property	Aspect	Perfective-Imperfective	Imperfective	Hengeveld & Mackenzie (2008: 210-211)
Situational Property	Aspect	Phasal	Prospective	Hengeveld & Mackenzie (2008: 210-211)
Situational Property	Aspect	Phasal	Ingressive	Hengeveld & Mackenzie (2008: 210-211)
Situational Property	Aspect	Phasal	Progressive	Hengeveld & Mackenzie (2008: 210-211)
Situational Property	Aspect	Phasal	Egressive	Hengeveld & Mackenzie (2008: 210-211)
Situational Property	Aspect	Phasal	Resultative	Hengeveld & Mackenzie (2008: 210-211)
Situational Property	Modality	Deontic	Participant-Oriented Obligation	Hengeveld (2004), Olbertz & Gasparini Bastos (2013), Hattnher & Hengeveld (2016), Olbertz & Hattnher (2018), Olbertz & Honselaar (2017)
Situational Property	Modality	Deontic	Participant-Oriented Permission	Hengeveld (2004), Olbertz & Gasparini Bastos (2013), Hattnher & Hengeveld (2016), Olbertz & Honselaar (2017)
Situational Property	Modality	Inherent	Inherent Necessity	Olbertz & Gasparini Bastos (2013), Olbertz & Honselaar (2017)
Situational Property	Modality	Inherent	Ability	Hengeveld (2004), Olbertz & Gasparini Bastos (2013), Hattnher & Hengeveld (2016), Olbertz & Honselaar (2017)

Situational Property	Modality	Inherent	Acquired Ability	Hengeveld (2004), Hattnher & Hengeveld (2016), Olbertz & Honselaar (2017)
Situational Property	Modality	Inherent	Intrinsic Ability	Hengeveld (2004), Olbertz & Gasparini Bastos (2013), Hattnher & Hengeveld (2016), Olbertz & Honselaar (2017)
Situational Property	Quantification	Participant-Oriented	Habitual	Hengeveld & Fischer (2018: 349-350)
Lexical Property	Location	Directionality	Cislocative	Hengeveld & Fischer (2018: 330-331)
Lexical Property	Location	Directionality	Translocative	Hengeveld & Fischer (2018: 330-331)
Lexical Property	Location	Directionality	Returnative	Hengeveld & Fischer (2018: 330-331)
Lexical Property	Quantification	Property Quantification	Refactive	Giomi (2023a: 327-328)
Lexical Property	Quantification	Property Quantification	Completive	Giomi (2023a: 138)
Lexical Property	Quantification	Property Quantification	Diminutive	Hengeveld & Fischer (2018: 349-350)
Lexical Property	Quantification	Property Quantification	Durative	Hengeveld & Fischer (2018: 349-350)
Lexical Property	Quantification	Property Quantification	Multiplicative	Hengeveld & Fischer (2018: 349-350)

Appendix 2. Questionnaire for habitual expressions

Inventory of strategies

List the grammatical strategies that are available in the language to express one or more of the following meanings. Note that not all these meanings are expressed grammatically in English; the examples are meant to illustrate the meanings rather than to make any claims about English. Furthermore, the first and last meanings are not strictly speaking habitual, but are of interest to us as in many languages expressions formats used for habitual aspect are also found to express these meanings. We use *generic* for the meaning in (1) and *multiplicative* for the meaning in (5). It is important not to immediately associate the tests in the questionnaire with this inventory of strategies, as the tests are meant to find out for each expression strategy which of the following meanings it can express.

(1)   The content of the utterance is always true (genericity, see e.g. Dahl 1975).
        *Water **boils** at 100 degrees*.

(2)   A series of States-of-Affairs occurs regularly (i.e. States-of-Affairs with varying or non-specific participants. Note that in the example below the friends may vary from one to the other occasion, see Boneh & Doron 2013: 189).
        *Every day Jane **will** come home from school and ring up the friends she's just been talking to.*

(3)   An individual State of Affairs occurs regularly (i.e. with no variation regarding the participants, the participant is specific, as in the following example. But there may be variation of [relative] time and place, quantificational aspect – except habituality itself).
        *He **used** to take many tiny things seriously.*

(4)   A certain type of State of Affairs occurs regularly due to a propensity of a specific animate participant involved (Dik 1997: 236).
        *He **was prone** to eat a lot.*

(5)   A State-of-Affairs consists of more than one sub-event occurring on a single occasion (multiplicativity, see Bertinetto & Lenci 2012). (Note that this strategy is only relevant when expressed grammatically, which is not the case in the example below, which is lexicalized.)
        Why do you sniffle? (versus *sniff*)

For each of the strategies expressing one or more of the above meanings determine how they behave with respect to the following tests. Note that we are only looking at strategies that at least have one of the meanings (2), (3) or (4), as these are the core habitual meanings which are at the core of our project.

A. Occurrence in complement clauses

For the classification of Complement Taking Predicates, see Noonan (1985: 110–133 [Section 1.3.2]).

(i)   Can the strategy occur in the complement clause of propositional attitude predicates such as *believe*, *think*, *suppose*, and *doubt*, or predicates of knowledge, such as *know*, *realize* and *dream*? These predicates embed Propositional Contents, so if the strategy can occur in these complements, it operates *at most* at the Propositional Content Layer, but may be operating at a lower layer.

Slovak

(1)   **Vede-l-i,**   *že občas*   **zvykn-e**   *prespa-ť*
know.IMPF-PPT-3PL   CONJ occasionally   HAB-PRS.3SG   through.sleep.PF-INF
u tety.
at aunt.GEN
'They knew she had a habit of sleeping over at her aunt's sometimes.'

(ii)   Can the strategy occur in the complement clause of commentative (factive) predicates such as *regret*, *be sorry*, *be odd*, *be significant*, or *like*, or predicates of deduction and manifestation such as *find out*, *notice*, *emerge*, and *show*? The complement clauses of all these predicates have independent time reference. Factive predicates furthermore imply that what the speaker is talking about is real. These predicates embed Episodes, so if the strategy can occur in these complements, it operates *at most* at the Episode Layer, but may be operating at a lower layer.

Spanish

(2)   [Clyde, a potential suspect, was believed not to have a car at his disposal, and therefore was probably innocent. But when last year Noah included the profile of the two girls of the Edinburgh campus into the list of his potential victims,]
descubrió   *que Clyde* **solía**   *conducir el Morris oscuro*
discovered.3SG that Clyde   HAB.IMPF.3SG drive.INF   the Morris dark
de una de sus tías.
of one of his aunts
'He found out that Clyde used to drive the dark-coloured Morris of one of his aunts.' (D. Redondo, *Esperando al diluvio*, 2022. Fiction, CORPES)

(iii)   Can the strategy occur in the complement clause of manipulative predicates such as *allow*, *cause* and *trigger,* or predicates of immediate perception such as *witness*[9]? The property of these predicates is that there is dependent time reference in their complement clauses but no same subject requirement. These predicates embed States-of-Affairs, so if the strategy can occur in these complements, it operates *at most* at the States-of-Affairs Layer, but may be operating at a lower layer.

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[9] Only in the sense of direct perception, such as in *I witnessed him leave the building*, not in the sense of indirect perception, such as *I saw that he had left the house*.

English
(3)   *I myself have also **witnessed** that he **used to** spend most of his time in the library reading.*[10]

(iv)   Can the strategy occur in the complement clause of phasal predicates such as *begin, continue*, or *finish*, positive achievement predicates such as *manage*, *dare,* or *remember to*, or negative achievement predicates such as *try*, *forget to*, *fail*, and *avoid*? The property of these predicates is that there is a same subject requirement. These predicates embed Situational Properties (i.e. the predicate and its arguments), so if the strategy can occur in these complements, it operates *at most* at the Situational Property Layer, but may be operating at a lower layer. Note that this test only works when the predicates involved are not auxiliaries.

Mandarin
(4)   *Nán_rén **kāi_shǐ ài**   dǎ_bàn   le.*
      man   begin   HAB dress.up   MIR
      'Men begin to be prone to dress up.'[11]

B. Semantic scope of modifiers

For the classification of the modifiers mentioned below, see Hengeveld (2023).

B.1. Habitual strategy is within the scope of the modifier

Note that it is assumed in FDG that operators may or may not scope over modifiers of the same layer. This means that if a habitual strategy is within the scope of a modifier, it can be at the same layer or at any lower layer. This is reflected in the descriptions below.

(i)   Can the strategy occur within the semantic scope of reportative adverbials such as *reportedly* or *allegedly,* or adverbials of subjective attitude such as *(un)fortunately*? This question is relevant for generics, such as *All animals are mortal* because this kind of expressions can be modified by reportative modifiers or modifiers expressing a subjective attitude. These modifiers apply to the Communicated Content, so if they can be used to modify the habitual strategy, the latter must at most be at the layer of the Communicated Content, but may also be operating at any lower layer.

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[10] https://www.alhakam.org/sahibzada-mirza-majeed-ahmad-sahib/

[11] https://zhidao.baidu.com/index/?word=男人开始爱打扮了.

Spanish

(5)　*y　nuestra calidad de vida (que **afortunadamente　suele***
and our　　 quality of life　REL　fortunately　　　 HAB.3SG
contagiar=se　en　sus　aspectos　positivos　a　otros　países).
infect.INF=REFL.3 in　 its　 aspects　　positive　　to other　　 countries
'and the quality of our lifestyle (which fortunately often infects other countries regarding its positive aspects)' (*Informe sobre la ciencia y la tecnología en España*, 2017. Non-fiction, CORPES)

(ii)　Can the strategy occur within the semantic scope of subjective epistemic adverbials such as *probably, certainly,* or *probably,* or perspective adverbials, such as *technically (speaking),* or inferential adverbs such as *presumably*?1 All these adverbials modify the truth of a Propositional Content; "perspective adverbials" restrict the truth value to a certain domain. These modifiers apply to the Propositional Content, so if they can be used to modify the habitual strategy, the latter must at most be at the Propositional Content layer, but may also be operating at any lower layer.

Danish

(6)　*Du **plejer　sikkert***　*at　　　　 stalke　　nogle　　af dine yndlings*
you HAB.PRS probably　　COMP.NFIN stalk.INF　 some　　 of your favourite
influencers for　at　　　　 hente　inspiration
influencers for　 COMP.NFIN get.INF　inspiration
'You probably sometimes stalk some of your favourite influencers in order to get some inspiration' (elle.dk)

(iii)　Can the strategy occur within the semantic scope of objective epistemic adverbials such as *really* and *hardly*, or deductive adverbials such as *audibly*, or absolute-unique temporal modifiers such as *in 1999* or relative-unique temporal modifiers such as *before the war* or *before the pandemic*? These modifiers modify the Episode, so if they can be used to modify the habitual strategy, the latter must at most be at the Episode layer, but may also be operating at any lower layer.

Russian

(7)　***V　drevnie vremena***　*prostitutok,　　**byvalo,**　topili,*
In　ancient times　　　　 prostitutes.GEN　HAB　　drown.PST.IMPF.3PL
kaznili,　　　　no　prostituciju　izžit'　　ne　udalos'.
punish.PST.IMPF.3PL but　prostitution　 banish.INF　not　 succeed
'In ancient times, prostitutes used to be drowned, executed, but it was not possible to get rid of prostitution.' [Владимир Шахиджанян. 1001 вопрос про ЭТО (№№ 501-1001) (1999)]

(iv)　Can the strategy occur within the semantic scope of event-oriented modal adverbials such as *feasibly* or adverbs of event perception such as *visibly* or modifiers of recurring temporal intervals, such as *on Mondays* or *after lunch* or modifiers of event quantification other than habitual? These modifiers modify the State-of-Affairs, so if they can be used to modify the habitual strategy, the latter

must at most be at the layer of the State-of-Affairs, but may also be operating at any lower layer.

English (this is a paraphrase only, as *prone* is probably lexical in nature)
(8)   *She was **always prone to** dropping bits of wisdom like that in my lap.*[12]

(v)   Can the strategy occur within the semantic scope of aspectual adverbials such as *continually* or *ingressively,* adverbials expressing direction, such as *diagonally, into the house*, or adverbials introducing additional participants, such as *with a knife, with my friend*? These modifiers modify the Situational Property, so if they can be used to modify the habitual strategy, the latter must be at the layer of the Situational Property, or at the only remaining lower layer, that of the Lexical Property.

English (this is a paraphrase only, as *prone* is probably lexical in nature)
(9)   *But the Brazos River is **continually prone** to flooding.*[13]

(vi)   Can the strategy occur within the semantic scope of narrow manner adverbials such as *badly* or *slowly*? These modifiers modify the Lexical Property, so if they can be used to modify the habitual strategy, the latter must be at the layer of the Lexical Property as well.

English (this is a paraphrase only, as *sniffle* is lexicalized)
(10)   *She starts to **slowly sniffle**.*

B.2. Habitual strategy has scope over the modifier

If a habitual strategy has scope over a modifier, it can be at the same or a higher layer. This is reflected in the descriptions below.

(vii)   Can the strategy have semantic scope over objective epistemic adverbials such as *really* and *hardly*, or deductive adverbials such as *audibly*, or absolute-unique temporal modifiers such as *in 1999* or relative-unique temporal modifiers such as *before the war* or *before the pandemic*? These modifiers modify the Episode, so if the strategy can have scope over them, it should itself also *at least* be at the Episode layer, but may also be operating at a higher layer.

English (paraphrase only, as genericity is here expressed lexically)
(11)   *It is **universally true** that in cheap houses the walls are **audibly** thin.*

(viii) Can the strategy have semantic scope over event-oriented modal adverbials such as *feasibly* or adverbs of event perception such as *visibly* or modifiers of recurring temporal intervals, such as *on Mondays* or *after lunch* or modifiers of event quantification other than habitual such as *always* or *every week*? These modifiers

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[12] https://fun-a-day.com/early-literacy-preschool-supplies/
[13] https://www.fortbendstar.com/countynews/prestage-address-infrastructure-demands-at-business-gathering/article_0732e13c-7445-11ed-9733-bfcc80973b09.html

modify the State-of-Affairs, so if the strategy can have scope over them, it should itself also *at least* be at the State-of-Affairs layer, but may also be operating at a higher layer.

Russian
(12) **Každyj   večer   pered   vyxodom,   byvalo,** *oret:*
every   evening before   exit   HAB   shout.PRS.IMPF.3SG
«Nikifor,   talantu!»
Nikifor   talent
'Every evening before going out he would shout: "Nikifor, talent!"' [B. A. Sadovskoj. Zapiski aktera (1927)]

(ix)   Can the strategy have semantic scope over aspectual adverbials such as *continually, ingressively,* and *completely,* adverbials expressing direction, such as *diagonally and into the house*, or adverbials introducing additional participants, such as *with a knife* and *with my friend*? These modifiers modify the Situational Property, so if the strategy can have scope over them, it should itself also *at least* be at the Situational Property, but may also be operating at a higher layer.

Spanish
(13)   *A   la   redacción   **suelen**   llegar   libros   **continuamente.***
at   the   editorial.office   HAB.PRS.3.PL   arrive.INF   books   continually
'At the editorial office books continually arrive.' (CORPES, press, 2007)

(x)   Can the strategy have semantic scope over narrow manner adverbials such as *badly* and *slowly*, or adverbials expressing degree, such as *extremely*? These modifiers modify the Lexical Property, so if the strategy can have scope over them, it should itself also *at least* be at the Lexical Property layer, but may also be operating at a higher layer.

Coptic
(14)   **mere   laau   gar   r   hōb   hm   p-hōp**
PRS.HAB.NEG anybody   for   do   thing   in   WDEF.M-secret
'For nobody acts in secret.' (J).7:4.

In Coptic habituality is expressed by the form *mere*, which here scope over the manner expression *phōp* 'in secret'.

C. Semantic scope of other grammatical categories, to the extent that the language has them.

For the definition of the operators mentioned below, see the attached excel sheet and the references therein.

C.1. Habitual strategy is within the scope of the other grammatical category

Note that it is assumed in FDG that there may be operators of different classes at the same layer. For instance, the same layer may host a temporal operator a modal operator. This means that if a habitual strategy is within the scope of an operator of a different class, it may be at the same layer or any lower layer. This is reflected in the descriptions below.

(i)   Can the strategy occur within the semantic scope of hearsay operators? These operators specify the Communicative Content, so if they can have scope over the habitual strategy, the latter must *at most* be at the same layer, or at any lower layer.

A'ingae (Hengeveld & Fischer in prep.)
(15)   *Jun, tsa'kaende matachija kufepa kanse'ya, da khasheyeja.*
        jun, tsa'kan-en=**te**   matachi=ja   kufe=pa **kanse**='ya,
        yes ANA.SIMIL-CAUS=REP   matachi.clown=CONTR play=SS HAB=ASS
        da   khashe'ye=ja
        HES old.man=CONTR
        'Yes it is told that that's how the old man played the matachi game.'

(ii)   Can the strategy occur within the semantic scope of subjective epistemic modal operators or operators of inferential evidentiality? These operators specify the Propositional Content, so if they can have scope over the habitual strategy, the latter must *at most* be at the same layer, or at any lower layer.

Portuguese
(16)   *Passada a   noite de Natal,   há   sempre comida que restou*
        after   the night of Christmas there.is always food   that is.left
        *e   para cujos   prazos   de validade não **deve costumar** prestar muita*
        and to   whose   period   of validity not must HAB   pay   much
        atenção.
        attention.
        'After Christmas night, there is always some food that is left and to the expiration date of which you probably don't [lit. "must not"] usually pay much attention.'

(iii)   Can the strategy occur within the semantic scope of operators of absolute tense, operators of evaluative deontic modality, or operators of deductive evidentiality? These operators specify the Episode, so if they can scope over the habitual strategy, the latter must *at most* be at the same layer, or at any lower layer.

Slovak
(17)   *Dennodenne ráno   so-**m**   čaká-**va**-l   s*
        daily   morning   AUX-PRS.1SG wait-HAB-PPT.M.3SG   with
        laborantkou   Evou Čiernou na   príchod Sama Sama do laboratória.
        lab.technician Eva Čierna on[to]   arrival Sam Sam to laboratories
        'Every morning I waited with lab technician Eva Čierna for the arrival of Sam Sam in the lab.'

(iv)   Can the strategy occur within the semantic scope of operators of relative tense, operators of event perception, operators of event-oriented modality, or operators of event quantification other than habitual? These operators specify the State-of-Affairs, so if they can scope over the habitual strategy, the latter must *at most* be at the same layer, or at any lower layer.

English (this is a paraphrase only, as *prone* is probably lexical in nature)
(18)   *Sometimes macaws **can** be **prone** to bite.*[14]

(v)   Can the strategy occur within the scope of operators of phasal aspect or perfective/imperfective aspect, operators of participant-oriented modality, or directionals? These operators specify the Situational Property, so if they can scope over the habitual strategy, the latter must *at most* be at the same layer, or at any lower layer.

A'ingae (Hengeveld & Fischer in prep.)
(19)   *Ingima fithithi'je.*
       ingi=ma   fithi~**thi-'je**
       1.PL=ACC.REAL kill~MLTP-IMPF
       'He is killing us.' (BC12.099)

The A'ingae multiplicative, expressed through reduplication, may have a marginal habitual use. In the preceding example, in which it is used multiplicatively, it is shown to be within the scope of the imperfective aspect.

(vi)   Can the strategy occur within the scope of property quantification or local negation? These operators specify the Lexical Property, so if they can scope over the habitual strategy, they can only operate at this layer, which is the lowest in the hierarchy.

English (paraphrase only, as *stutter* is lexicalized)
(20)   *non-stuttering adult men*

C.2. Habitual strategy has scope over the other grammatical category

Note that it is assumed in FDG that there may be operators of different classes at the same layer. For instance, the same layer may host a temporal operator and a modal operator. This means that if a habitual strategy has scope over an operator of a different class, it may be at the same layer or any higher layer. This is reflected in the descriptions below.

(vii)   Can the strategy have semantic scope over operators of absolute tense, operators of evaluative deontic modality, or operators of deductive evidentiality? These operators specify the Episode, so if the strategy can have scope over them, it should itself also be at least at the same layer, or any higher layer.

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[14] https://raisingparrots.com/do-macaws-bite-their-owners

Portuguese

(21) [...] *a   vida humana é inviolável, por isso* **terá**   *sempre* **que**
          the   life human is inviolable for   thus will.have always that
      existir penalização   para quem   matar   ou ajudar a matar.
      exist   punishment   for who   kill   or help   to kill
      '... human life is inviolable, therefore there **will** always **have to** be a punishment
      for those who committed or helped committing murder.'

(viii) Can the strategy have semantic scope over operators of relative tense, operators
        of event perception, operators of event-oriented modality, or operators of event
        quantification other than habitual? These operators specify the State of Affairs, so
        if the strategy can have scope over them, it should itself also be at least at the same
        layer, or any higher layer.

Portuguese

(22) *numa altura em   que o   mar já*   ***costumava ter   devolvido***
      at.a time   in   REL the sea already   used.to   have returned
      o   que levara   fora   da   época   balnear
      the REL had.taken outside of.the   season bathing
      'at a time when the sea **would** already **have returned** what it had taken outside
      the bathing season'

(ix) Can the strategy have semantic scope over operators of phasal aspect or
      perfective/imperfective aspect, operators of participant-oriented modality, or
      directionals? These operators specify the Situational Property, so if the strategy
      can have scope over them, it should itself also be at least at the same layer, or any
      higher layer.

Ancient Greek

(23) *Hò   theasámenos   pâs* **án** *tis anè:r* **e:rásthe:**
      the.NOM   watch.PTCP.NOM   every MP   INDF man.NOM desire.IND.PF.3SG
      dáïos   eînai.
      warlike.NOM   be.INF
      'Every single man who watched it would get hot to be warlike.' (Ar.*Ran.* 1022)

In Ancient Greek one of the functions of the particle *án* is to express habituality. Here it
has scope over perfective aspect, expressed on the verb.

(x)   Can the strategy have semantic scope over property quantification or local
      negation? These operators specify the Lexical Property, so if the strategy can have
      scope over them, it should itself also be at least at the same layer, or any higher
      layer.

A'ingae (Hengeveld & Fischer in prep.)

(24) *uchhi~chi-'je='chu*
      hit~MLTP-IMPF=CLF:RND
      'the thing that she usually hits with'

In A'ingae the imperfective expresses habituality as one of its meanings. Here the imperfective scopes over the multiplicative, which is expressed through reduplication.

D. Co-occurrence

Can the markers discussed above occur in the same clause? What is the semantic scope relation between them?

Can the same marker occur twice in the same clause with different meanings? What is the semantic scope relation between the two instances?

E. Interpretation

Do the repeated events involve specific or non-specific participant(s)? By way of illustration, consider the following examples, adapted from Boneh & Doron (2013: 189).

(25) *I received eight more treatments, and the temporary amnesia became severe. I thought nothing bad about the treatments, however, for I was given a wonderful anaesthetic. When I awoke, a kind nurse **used to** be sitting beside me with warm milk for my stomach if it hurt.*
(26) *I received eight more treatments, and the temporary amnesia became severe. I thought nothing bad about the treatments, however, for I was given a wonderful anaesthetic. When I awoke, a kind nurse **would** be sitting beside me with warm milk for my stomach if it hurt.*

In (25) the nurse that is being referred to is specific: it is always the same individual. In (26) the nurse is non-specific, a different nurse is involved in each case. This means that in (25) a single event with unique participants is quantified over, while in (26) the quantification concerns different States-of-Affairs, in each of which a different Individual is involved.

Note that many of some tests do not work well for portmanteau expressions such as used to *as here the second grammatical category (in the case of* used to, *the past tense) co-determines the distributional possibilities of the habitual.*