

MULTIPLICATIVES, FREQUENCY AND QUANTIFICATION ADVERBS*

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Abstract: The paper proposes a strict three-way distinction among adverbs that specify the frequency or quantity of multiple events. It is argued that the distribution of the three classes of adverbs in Hungarian largely follows from independent factors, and it is dictated by basic semantic properties of the adverbs. One group of adverbs, that of adverbs of quantification, shares the distribution of comparable (non-adverbial) quantificational expressions. Thus syntactic positions occupied by these adverbs are determined by general considerations, and no adverb-specific assumptions are necessary.

Keywords: frequency adverbs, adverbs of quantification, multiplicatives, plurality, syntactic distribution

1. Introduction

A complex scenario, which contains multiple occurrences of a certain type of situation, can be described in a variety of ways. The repeated occurrence of a specific kind of situation can be signaled either overtly (1) or covertly (2).

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- (1) (a) John knocked twice.
 (b) John drinks often/frequently.
- (2) (a) John knocked. *(several times)*
 (b) John drinks. *(on multiple occasions, habitually)*

This paper explores the behavior of those Hungarian adverbs which mark the number or frequency of situations; the term *adverbs of counting* is used here to refer to all of these elements. It is shown that three classes must be identified among these adverbs, with a number of properties clearly and systematically distinguishing them. The adverb groups identified are (a) multiplicatives, (b) frequency adverbs (including both relative and fixed frequency adverbs) and (c) adverbs of quantification.

The distribution of adverbs of counting can be described by appealing to the classes established and mostly follow from semantic properties of the adverbs themselves. The possible position of adverbs is determined with reference to the clausal structure proposed in É. Kiss (2009c). It is argued that the distribution of some types of adverbs is rigid in the sense that they are restricted to certain domains within the clause. At the same time, the distribution is flexible because it shows free ordering and allows iteration within these domains.

Finally, the paper touches on some issues related to marked positions of the adverbs. The issues addressed include reinterpretation or coercion phenomena and contrastive topics, which affect both phonological and semantic structure.

The paper is organized as follows. Section 2 presents basic assumptions about syntactic structure and notes some restrictions on the data discussed in the paper. Section 3 offers arguments for distinguishing adverbs of quantification along the lines noted above, and section 4 addresses the distribution of these adverbs. Section 5 notes some properties of coercion and adverb iteration, and section 6 concludes the discussion.

2. Basic considerations

The discussion in the paper adopts a specific view of clausal structure, which is presented in sections 2.1 and 2.2. Section 2.3 notes that complex adverbs (which are modified by another adverb) are problematic, and discusses how complex adverbs can be identified in Hungarian.

2.1. Clausal structure

Concerning Hungarian clause structure, the paper follows É. Kiss (2009c). Unless noted, the observations apply to neutral sentences, which lack negation or focused constituents.

In a nutshell, the Hungarian vP is dominated by a PredP projection, which is flattened in the syntax and randomly linearized in the postverbal field. The specifier position of PredP contains elements—usually verbal modifiers (mostly particles) or bare, determinerless arguments—which immediately precede the finite verb in a neutral sentence.

PredP is dominated by a Non-NeutP, a projection present in non-neutral sentences. Crucially, Non-NeutP triggers verb raising and strands the Spec,PredP material in postverbal position. The higher projections of NegP, FP and TopP provide slots for negation, focus and topicalized constituents, respectively. These projections, with the exception of TopP, constitute the predicational part of the sentence.

The functional projections are represented below; the Kleene star (*) on TopP* indicates that the projection can be iterated.

- (3) [_{TopP*} [_{FP} [_{NegP} [_{Non-NeutP} [_{PredP} [_{vP} ...]]]]]]]

Quantifiers (specifically, distributive quantifiers), which on this view lack a dedicated projection, are adjoined to some projection below TopP, in the predicational component in the clause. Left-adjunction of quantifiers is constrained by the phonological requirement that a focused constituent be adjacent to the bare verb. This requirement prohibits left-adjunction to either NegP or Non-NeutP in those sentences which contain focus.

In addition to left-adjunction, the syntactic structure adopted here also permits elements to be right-adjoined (also Ernst 2002, 19). As noted above, the linearization of postverbal constituents is random (though it is preferentially constrained by phonological weight), so right-adjoined constituents are not necessarily pronounced in the position corresponding to the adjunction site.

In the preverbal domain, constituents show strict surface scope; any constituent scopes over those that follow it (Scope Principle, É. Kiss 2002, 113). Postverbal elements can have wide scope over constituents that precede them, either in pre- or postverbal position. Scope is assumed to be determined by c-command; this is consistent with a structure which permits right-adjunction and is not strictly rightward branching.

2.2. Time intervals

Within the clausal structure outlined above, a number of time intervals can also appear. These include at least the following times in a finite clause: (a) the event time (the runtime of the event), (b) the reference time and (c) the speech time (Klein 1994, among others).

Amending the clausal structure outlined above, we assume that these time intervals appear in specific, designated positions in the clause. The event time appears within the vP projection and the speech time is located within TP. Reference time is a time interval within AspP, a projection of the aspectual head Asp, which determines the viewpoint aspect (perfective or imperfective) of the clause. The Asp head will be largely ignored in the following discussion. In the example below, and throughout the paper, *t* indicates a time interval. Subscripts identify the interpretation of the time interval in question.

- (4) [TP t_{speech} T ... [AspP $t_{\text{reference}}$ Asp ... [vP t_{event} v ...]]]

In addition to these times, other time intervals may also be present. The time during which an event is iterated or during which an event recurs habitually is distinct from the times mentioned above. These times can be described as the iterative or habitual time, respectively, and they appear below the T head.

Of all the time intervals a given clause can contain, the speech time is located in the highest position structurally. With respect to the functional categories mentioned above, speech time is located below Non-NeutP, the landing site of verbs in non-neutral clauses. It follows that all times are below Non-NeutP, in the predicational component in the clausal structure.

The position of speech time with respect to Non-NeutP can be established by appealing to a contrast between finite and nonfinite clauses.¹ In a finite clause, the particle must follow the verb in the presence of focus (5). If the clause is nonfinite, the particle can either follow or precede the verb (6) (cf. Brody 1990).

¹ In the following examples, the focused constituent is capitalized and particles, which appear in Spec,PredP, are glossed as ‘part’.

- (5) (a) János A ZÖLDSÉGET ette meg.
 J-nom the vegetable-acc ate part
 ‘János ate THE VEGETABLES.’
- (b) *János A ZÖLDSÉGET meg ette.
 J-nom the vegetable-acc part ate
 ‘János ate THE VEGETABLES.’
- (6) (a) Fontos Jánosnak A ZÖLDSÉGET meg ennie.
 important J-dat the vegetable-acc part eat-inf-3sg
 ‘It is important for János to eat THE VEGETABLES.’
- (b) Fontos Jánosnak A ZÖLDSÉGET ennie meg.
 important J-dat the vegetable-acc eat-inf-3sg part
 ‘It is important for János to eat THE VEGETABLES.’

The contrasting behavior of particles in finite and nonfinite clauses can be reduced to the movement of the verb to the Non-Neut head. Such a movement is obligatory in finite clauses and optional in their nonfinite counterparts, yielding postverbal particles in all cases.

Since finiteness, a property of T, has an effect on movement to Non-NeutP, it can be assumed that T is located below Non-NeutP. On the assumption that speech time is located within TP, speech time is also lower than Non-NeutP.

Putting the issue of the relative position of PredP and TP aside, the functional structure amended with time intervals can be represented as shown below.

- (7) (a) [_{TopP}* [FP [NegP [Non-NeutP [PredP [_{vP} ...]]]]]]
- (b) [[_{TopP}* [FP [Non-NeutP [TP *t*_{speech} T ... [AspP *t*_{reference} Asp ... [_{vP} *t*_{event} v ...]]]]]]]]

The time intervals present in a clause are all located in the predicational component of the clause. This restriction follows from the ordering of functional heads in the clause structure. The question of whether this ordering can be derived from semantic considerations or whether it must be stipulated independently will not be addressed here.

It will be shown in section 4 that the distribution of time intervals makes specific predictions about the position of frequency adverbs. In other words, the distribution of some adverbs of counting can be reduced to that of time intervals.

2.3. Simple and complex adverbs

In the following discussion, complex adverbs—where two or more adverbs form a single constituent—are ignored. Since complex adverbs occupy a single position, determined by the head, they do not reveal generalizations concerning the relative position of multiple adverbs.

This section notes some properties that allow complex adverbs to be distinguished from simple adverbs that are merely adjacent. Whenever multiple adverbs are adjacent in the following discussion, a complex adverb analysis is ruled out by considering these properties.

One diagnostic of complex adverbs is supplied by phrasal stress, which falls on the initial syllable of the phrase in Hungarian (cf. Hunyadi 1999 for a discussion of the Hungarian metrical system). The position of phrasal stress, present on the first syllable of *kétszer* ‘twice’, but missing on the initial syllable of *háromszor* ‘three times’, identifies the following pair of adverbs as a single complex adverb. Square brackets highlight the complex adverb and capital letters mark phrasal stress.

- (8) János [KÉTszer háromszor] ütött.
 J-nom twice three-times hit
 ‘János hit twice three times.’
 (there were two instances of János hitting three times each)

The modifiers *pontosan* ‘exactly’ and *kifejezetten* ‘expressly’, which appear at the left edge of an adverbial phrase, also identify complex adverbs. These modifiers are restricted to the left edge of the phrase, therefore they cannot appear inside a complex adverb constituent. Accordingly, phrasal stress must fall on these modifiers, in accordance with the stress placement mechanism described above.

- (9) (a) *János [KÉTszer pontosan háromszor] ütött.
 J-nom twice exactly three-times hit
 ‘János hit TWICE exactly three times (each).’
 (b) János [kétszer] [PONtosan háromszor] ütött.
 J-nom twice exactly three-times hit
 ‘János hit twice EXACTLY three times (each).’

The same point is shown in (10). Only a single constituent can appear between the verb and either negation or the focus marker *csak* ‘only’.

As expected given the preceding discussion, multiple adverbs are only possible in this position if the adverb(s) on the right are unmodified.

- (10) (a) János nem/csak [kétszer háromszor] ütött.
 J-nom not/only twice three-times hit
 ‘János didn’t hit two times three times.’/
 ‘János only hit twice three times.’
- (b) *János nem/csak [kétszer pontosan háromszor] ütött.
 J-nom not/only twice exactly three-times hit
 ‘János didn’t hit exactly three times twice.’/
 ‘János only hit exactly three times twice.’

With these assumptions and restrictions in place, let us consider the distinctions among adverbs in more detail.

3. Distinctions among adverbs

As mentioned earlier, three types must be distinguished among adverbs of counting. Multiplicatives, frequency adverbs and adverbs of quantification all have distinct properties and a different distribution, which partially follow from inherent semantic properties of these adverbs. This section presents arguments for the distinction among Hungarian adverbs. The first two subsections address distinctions among the adverbs, and section **3.3** offers a more specific characterization of the interpretation of the adverbs. Building on these results, section **4** gives an overview of the possible positions occupied by each of the three groups of adverbs.

3.1. Multiplicatives

The adverbs that specify the cardinality of occurrences of a specific type of event are multiplicatives.

- (11) János egyszer/ kétszer/ néhányszor/ sokszor el késett.
 J-nom once twice few-times many-times part was.late
 ‘János was late once/twice/few times/many times.’

In Hungarian, multiplicatives can be reliably identified by appealing to the form of the adverb. All multiplicatives bear the suffix *-szOr*² and the suffix attaches to a number root, as shown below.

- (12) (a) egy -szer
 one szOr ‘once’
- (b) öt -ször
 five szOr ‘five times’
- (c) sok -szor
 many szOr ‘many times’
- (d) néhány -szor
 some szOr ‘sometimes’
- (e) kevés -szer
 few szOr ‘few times’

The examples above are representative: all cardinal numerals and certain quantifiers can all appear as multiplicatives.

3.2. Frequency adverbs and adverbs of quantification

A number of authors argue for some distinction among adverbs of counting. Among others, Doetjes (1997; 2002) and Nilsen (2003) propose differences that identify distinct groups of adverbs. These differences are, however, not the same distinctions that van Geenhoven (2004; 2005) and Jóhannsdóttir (2005; 2007)—authors who also treat adverbs of counting as a heterogeneous class—argue for. The latter authors motivate a strict distinction between frequency adverbs and adverbs of quantification.³ This section notes a number of differences between these two groups of adverbs in Hungarian, and points out the sources of the different patterns shown by the two adverbs. In the following discussion, frequency adverbs are abbreviated as *freq-adverbs*, and the term *Q-adverb* will be used for an adverb of quantification.

² The realization of the vowel (yielding the allomorphs *-szor*, *-szer* and *-ször* of the suffix) is determined by vowel harmony in Hungarian. In the glosses, a capital letter marks a vowel whose surface realization is determined by vowel harmony, where relevant.

³ Some comprehensive works on adverbs, including Alexiadou (1997), do not distinguish subclasses of adverbs of counting, and do not distinguish *freq-adverbs* and *Q-adverbs* either. Others who do acknowledge a difference (e.g., Cinque 1999; Ernst 2002) fail to provide specific arguments and criteria for the distinction.

3.2.1. Individual-level predicates

In a neutral sentence, which contains no negation or focus, only Q-adverbs are unmarked with individual-level predicates. Freq-adverbs (both relative (e.g., *sűrűn* ‘frequently’) and fixed adverbs (*hetente* ‘weekly’), cf. Stump 1981; 1985) have a degraded status. The examples given below are representative.

- (13) (a) A fiúk gyakran_Q/[?]sűrűn_F/ ^{??}hetente_F szőkék.⁴
 the boy-pl-nom often frequently weekly blond-pl
 ‘Boys are often/frequently/weekly blond.’
- (b) A fiatalok gyakran_Q/[?]sűrűn_F/ kék szeműek.
 the youngster-pl-nom often frequently blue eyed-pl
 ‘Youngsters are often blue-eyed.’

3.2.2. *When*-clauses

The adverbs under discussion show a divergent behavior when they appear with an instantaneous *when*-clause, and the activity in the main clause is interpreted as progressive (ongoing) (cf. Jóhannsdóttir 2005; 2007 for a related discussion for Icelandic). A Q-adverb in the main clause is unmarked, and a freq-adverb leads to ungrammaticality (as before, relative and fixed freq-adverbs behave identically in this respect).

- (14) (a) Amikor haza érek, János mindig_Q köhécse.
 when home arrive J-nom always coughs
 ‘When I get home, János is always coughing.’
- (b) *Amikor haza érek, János sűrűn_F köhécse.
 when home arrive J-nom frequently coughs
 ‘When I get home, János is frequently coughing.’
- (c) *Amikor haza érek, János percenként_F köhécse.
 when home arrive J-nom minute-by coughs
 ‘When I get home, János is coughing every minute.’

For some speakers of Hungarian, the contrast is more salient with a post-posed *when*-clause, but it is evident with at least one ordering.

⁴ In the examples subscripts identify the relevant adverb type. *M* marks multiplicatives, *Q* marks Q-adverbs and *F* appears with freq-adverbs. Whenever a distinction is relevant, *RF* marks relative freq-adverbs and *FF* marks fixed freq-adverbs.

The *when*-clause can also contain an event description with a runtime that is significantly longer than the duration of the repeated event described in the main clause. In this case, both freq-adverbs and Q-adverbs become grammatical. In the following pair of examples, the duration of talking on the phone can be exceptionally long, resulting in grammaticality for both types of adverbs.

- (15) (a) Amikor telefonon beszélgetek, János mindig_Q köhécselek.
 when phone-on speak J-nom always coughs
 ‘When I talk on the phone, János always coughs (repeatedly).’
- (b) Amikor telefonon beszélgetek, János sűrűn_F köhécselek.
 when phone-on speak J-nom frequently coughs
 ‘When I talk on the phone, János frequently coughs repeatedly.’
- (c) Amikor telefonon beszélgetek, János percenként_F köhécselek.
 when phone-on speak J-nom minute-by coughs
 ‘When I talk on the phone, János coughs every minute.’

Even though both types of adverbs are acceptable with a longer time interval specified in the *when*-clause, the adverbs lead to different interpretations. A single instance of coughing (a few times) may suffice with Q-adverbs, but not with freq-adverbs. Freq-adverbs require multiple, iterated instances of coughing—with the frequency specified by the adverb—to happen throughout the entire phone call.

The difference in interpretation is also illustrated by the following adverbs.

- (16) (a) Amikor telefonon beszélgetek, János néha_Q köhécselek.
 when phone-on speak J-nom sometimes coughs
 ‘When I talk on the phone, János sometimes coughs (possibly repeatedly).’
- (b) Amikor telefonon beszélgetek, János rendszeresen_F köhécselek.
 when phone-on speak J-nom regularly coughs
 ‘When I talk on the phone, János coughs repeatedly regularly.’

3.2.3. Unique situations

Unique situations, which can hold for the same participants only once, also distinguish freq-adverbs and Q-adverbs: Q-adverbs are acceptable, but freq-adverbs are marked.

In the examples considered below, the events are unique: a rose is normally planted only once, and a sandwich is eaten only once. Q-adverbs

permit an interpretation where there are multiple roses and sandwiches involved, yielding a well-formed example. Freq-adverbs, in contrast, do not permit such an interpretation, and allow only a single rose and sandwich to be assumed. The resulting interpretation is marked.

- (17) (a) János gyakran_Q el ültetett egy rózsát.
 J-nom often part planted a rose-acc
 ‘János often planted a rose.’
- (b) ??János sűrűn_{RF} el ültetett egy rózsát.
 J-nom frequently part planted a rose-acc
 ‘János frequently planted a rose.’
- (18) (a) János gyakran_Q meg evett egy szendvicset.
 J-nom often part ate a sandwich-acc
 ‘János often ate a sandwich (sometime before lunch).’
- (b) ??János sűrűn_{RF} meg evett egy szendvicset.
 J-nom frequently part ate a sandwich-acc
 ‘János frequently ate a sandwich’ (sometime before lunch).’

In contrast with the preceding criteria, fixed freq-adverbs pattern with Q-adverbs rather than relative freq-adverbs. That is, fixed freq-adverbs are acceptable, and permit multiple roses or sandwiches to be considered:

- (19) (a) János naponta_{FF} el ültetett egy rózsát.
 J-nom daily part planted a rose-acc
 ‘János planted a rose daily.’
- (b) János két óránként_{FF} meg evett egy szendvicset.
 J-nom two hour-on-by part ate a sandwich-acc
 ‘János ate a sandwich every two hours.’

3.2.4. A heuristic

In addition to the above tests, the form of the adverb also provides a useful heuristic for distinguishing adverbs. First, only freq-adverbs have a non-temporal use. Specifically, fixed freq-adverbs contain a suffix that has distributive interpretation. The temporal and non-temporal uses are illustrated for both suffixes, *-Vnként* and *-OntA*, both of which can be glossed as ‘by’.

(20) -Vnként

- | | | | |
|-----|---------|---------|-----------------------|
| (a) | óra | -nként | |
| | hour | by | ‘hourly, by the hour’ |
| (b) | mérföld | -enként | |
| | mile | by | ‘by mile’ |
| (c) | szelet | -enként | |
| | slice | by | ‘by slice’ |

(21) -OntA

- | | | | |
|-----|-------|-------|-----------------------|
| (a) | het | -ente | |
| | week | by | ‘weekly, by the week’ |
| (b) | darab | -onta | |
| | piece | by | ‘by piece’ |

Relative freq-adverbs display a more striking similarity; the same form has both spatial and temporal use. The familiar, temporal use is illustrated in (22a), and the spatial use is shown in (22b).

- (22) (a) János sűrűn_F/ ritkán_F/ rendszeresen_F sütött pizzát.
 J-nom frequently rarely regularly baked pizza-acc
 ‘János baked pizza frequently/rarely/regularly.’
- (b) János sűrűn_F/ ritkán_F/ rendszeresen_F ültette a virágokat.
 J-nom densely thinly regularly planted the flower-pl-acc
 ‘János planted the flowers densely/thinly/regularly.’

The parallelism between spatial and temporal use is not surprising, given the similarities in modification in these domains. Ordering (e.g., *before*, *after*, *next*) and measure expressions (e.g., *for/in two hours*, *for/in two miles*) are also expressions which can be used with both interpretations (cf. Alverson 1994; Lakoff–Johnson 1980; 1999, among others).

Freq-adverbs contrast with Q-adverbs in this respect. The latter lack both a distributive component and a clearly spatial use. It is worth noting, however, that a number of Q-adverbs are morphologically regular and display a quantificational component. The Q-adverb, the quantificational component and a related form are all supplied in the following table.

(23)	Q-adverb	Q component	Related form
	<i>néha</i> ‘sometimes’	<i>né-</i>	<i>néhány</i> ‘few’, <i>néhol</i> ‘someplace’
	<i>míndig</i> ‘always’	<i>mínd-</i>	<i>mínden</i> ‘every’, <i>míndenhó</i> ‘everywhere’
	<i>gyákrán</i> ‘often’	<i>gyákr-</i>	<i>gyákor</i> ‘frequent’ ⁵

The morphological form of adverbs of counting is fairly transparent. The form reliably identifies multiplicatives (cf. section 3.1), as well as freq-adverbs. While no watertight morphological property identifies all Q-adverbs as such, the discernible quantificational component reveals a rather systematic pattern.

3.2.5. Differences between adverb types

The following table summarizes the results of the tests mentioned above. The remainder of this section sketches how a simple view of freq-adverbs and Q-adverbs accounts for these differences.

(24)	Test	Adverb type	Behavior
Indiv.-level predicate		Q-adv	grammatical
		Rel. freq-adv	?
		Fixed freq-adv	??
Punctual <i>when</i> -cl.		Q-adv	grammatical
		Rel. freq-adv	*
		Fixed freq-adv	*
Durative <i>when</i> -cl.		Q-adv	no necessary iteration
		Fixed freq-adv	iteration within <i>when</i> -time
		Rel. freq-adv	iteration
Unique event		Q-adv	grammatical
		Rel. freq-adv	??
		Fixed freq-adv	grammatical

While the diagnostics clearly establish a difference between Q-adverbs and freq-adverbs, the behavior of the adverbs also follows from the basic assumptions concerning the properties of adverbs.

Let us assume that Q-adverbs are purely quantificational (quantifying over time intervals corresponding to some situation). As we will see,

⁵ The interpretation of *gyákrán* ‘often’ is similar to (the morphologically unrelated) *sok* ‘many’.

Q-adverbs can quantify over other, non-temporal variables as well. Freq-adverbs denote the frequency of the occurrences of situations—rather, multiple occurrences of the same type of situation—within a time interval, which is an argument of these adverbs.

With respect to individual-level predicates, let us adopt the view of de Swart (1991), who argues that there is a single spatio-temporal location associated with individual-level predicates. No iteration and thus no freq-adverb modification is possible. Fixed freq-adverbs, in particular, are marked because the truth of individual-level predicates does not vary according to time intervals, contrary to the requirements of fixed freq-adverbs, which are distributive over specified times. Q-adverbs, which are grammatical with individual-level predicates, quantify over individual arguments of the predicate rather than time intervals; thus these adverbs are acceptable when modifying such predicates.

The difference in acceptability with punctual *when*-clauses also follows from the basic assumptions noted above. First, a note on terminology: we will refer to the simple event in the main clause, which excludes the *when*-clause, as the ‘core’ event. The core event is interpreted as ongoing, and it has to be contained within the time interval described in the *when*-clause.

Whenever the *when*-clause is punctual, at most punctual events can be contained in this time. This restriction excludes freq-adverbs from the core event: since freq-adverbs require iteration, they cannot be both punctual and have some duration (which would accommodate iteration) at the same time. Q-adverbs are acceptable. The difference arises because the Q-adverb does not quantify over the core event described in the main clause, but over the entire complex event description. The interpretation resulting for (14a) can be paraphrased as follows: *every time I get home, János coughs*. Coughing, even though minimally iterated, can still be seen as instantaneous and as being contained within the time of the *when*-clause.

The difference in interpretation with durative *when*-clauses can be similarly accounted for. It was noted that with Q-adverbs, no iteration is necessary for the core event described in the main clause, but multiple events are required by freq-adverbs. Again, Q-adverbs can quantify over the entire situation (including the *when*-clause), yielding a unique, non-iterated core event in the matrix clause. This is not possible for freq-adverbs, which require multiple occurrences of core events.

Finally, unique situations were shown to distinguish relative freq-adverbs from Q-adverbs and fixed freq-adverbs. It is only the latter two types that are acceptable when modifying unique situations. Intuitively, this is not surprising; freq-adverbs require iteration, and unique situations (as their name suggests) cannot be iterated with the same arguments. Q-adverbs exhibit the quantificational force seen before; they permit an interpretation where multiple individuals and multiple situations are present. Fixed freq-adverbs pattern with Q-adverbs in this case, a fact which is ascribed to a generic quantificational component in fixed adverbs (cf. section 3.3). Similarly to Q-adverbs, fixed freq-adverbs can modify the descriptions of unique events; in (19a), for example, a different rose is planted on each day.

To summarize: the distinctions among relative/fixed freq-adverbs and Q-adverbs rely on the following assumptions:

- (25) (a) Relative freq-adverbs require plural events, but do not yield a plurality of events on their own.
 (b) Freq-adverbs have a (durative) time interval argument.
 (c) Fixed freq-adverbs have quantificational force.
 (d) Q-adverbs can quantify over individuals as well as over times, and they can quantify over complex event descriptions (including a *when*-clause).

3.3. Adverb interpretation

The section presents a more detailed view on the interpretation of adverbs of counting, building on Bende-Farkas (2009); Cohen (1999); Jóhannsdóttir (2005; 2007); Lewis (1975); de Swart (1991; 1996) and van Geenhoven (2004; 2005). The characterizations are not fully explicit and focus on those details that are relevant to the issues at hand.

3.3.1. Restrictions on interpretation

Concerning multiplicatives, let us assume that they count occurrences of situations of a given type. The situation occurrences are all located within a time span—for example, within the span of yesterday in (26).

- (26) János kétszer_M sétált el a ház előtt
 J-nom twice walked part the house in.front
 ‘János walked past the house twice.’

This temporal limitation is treated here as arising from a contextual restriction; only the number of occurrences within a contextually salient situation or time span are relevant (for concreteness, time intervals are adopted as the relevant entities here). It is also possible to specify the relevant time interval overtly, as shown below. The underlined constituent explicitly specifies the time during which a specific number of events transpired.

- (27) (a) Hétvégén János kétszer_M sétált el a ház előtt.
weekend-on J-nom twice walked part the house in.front
'During the weekend, János walked past the house twice.'
- (b) Csütörtökön János kétszer_M sétált el a ház előtt.
Thursday-on J-nom twice walked part the house in.front
'On Thursday, János walked past the house twice.'

Under this view, multiplicatives can be treated like quantificational expressions, where the first argument of the quantifier can be contextually determined.

Q-adverbs behave similarly. Often the first argument of the adverb is left implicit (cf. (28a)); in this case, the interpretation is contextually determined. For the Q-adverb *mindig* 'always', the set of contextually relevant time intervals form a subset of the set of times that correspond to an event of János being late. The first argument of the Q-adverb can be specified explicitly as well, as shown in (28b,c).

- (28) (a) János mindig_Q el késett.
J-nom always part was.late
'János was always late.'
- (b) Hétvégén János mindig_Q el késett.
weekend-on J-nom always part was.late
'János was always late on the weekend.'
- (c) Amikor havazott, János mindig_Q el késett.
when snow-past.3sg J-nom always part was.late
'When it snowed, János was always late.'

Freq-adverbs behave unlike Q-adverbs and multiplicatives. Let us assume that freq-adverbs have a time interval argument, and frequency is determined relative to that time interval. The time argument can be explicitly modified, as in (29b), where the time argument of the frequency adverb is a subinterval of last week.

- (29) (a) János sűrűn_F el késett.
 J-nom frequently part was.late
 ‘János was frequently late.’
- (b) A múlt héten János sűrűn_F el késett.
 the past week-on J-nom frequently part was.late
 ‘János was frequently late last week.’

3.3.2. Interpretation

The restrictions on multiplicatives and Q-adverbs follow if they are similar to the usual generalized quantifiers, with two differences: (a) they quantify over time intervals (or situations corresponding to the time intervals) and (b) the first argument can be left implicit, with the interpretation contextually determined.

For present purposes, we assume that relative frequency adverbs (e.g., *sűrűn* ‘frequently’) require a time interval argument and an argument of an iterated event, where the iterated events are distributed over the time interval with the frequency specified. Fixed frequency adverbs (e.g., *naponta* ‘daily’) are assumed to involve generic quantification over times, with the restrictor of the quantifier provided by the freq-adverb itself. The event description provides the nuclear scope, yielding the interpretation that in general, a day contains an event time of the event specified.

The requirement of a plural event as an argument, noted above in connection with unique events, is shown in the following examples. Certain verbs, generally with the suffix *-int*, only allow a semelfactive interpretation, with a single occurrence of the event. With the semelfactive suffix, relative freq-adverb modification is marked. Q-adverbs and fixed freq-adverbs are grammatical. With fixed freq-adverbs, the resulting interpretation is the following: in general, there was one event of the relevant type within each time interval of the length specified by the adverb.

- (30) (a) János köhintett/ koppintott.
 J-nom cough-sem-past.3sg knock-sem-past.3sg⁶
 ‘János coughed/knocked once.’
- (b) János gyakran_Q köhintett/ koppintott.
 J-nom often cough-sem-past.3sg/ knock-sem-past.3sg
 ‘János often coughed/knocked.’

⁶ In these examples, a more detailed gloss is provided for verbs, to highlight the presence of a semelfactive or iterative suffix.

- (c) János naponta_{FF} köhintett/ koppintott.
 J-nom daily cough-sem-past.3sg/ knock-sem-past.3sg
 ‘János coughed/knocked once every day.’
- (d) ??János sűrűn_{RF} köhintett/ koppintott.
 J-nom frequently cough-sem-past.3sg/ knock-sem-past.3sg
 ‘János frequently coughed/knocked.’

These verb roots can appear with an iterative suffix (*-Og*) which is in complementary distribution with the semelfactive suffix. The iterative suffix yields multiple events, and as expected, the resulting predicates can be modified by relative freq-adverbs as well as fixed freq-adverbs and Q-adverbs.

- (31) (a) János köhögött/ kopogott.
 J-nom cough-iter-past.3sg knock-iter-past.3sg
 ‘János coughed/knocked once repeatedly.’
- (b) János gyakran_Q köhögött/ kopogott.
 J-nom often cough-iter-past.3sg/ knock-iter-past.3sg
 ‘János often coughed/knocked repeatedly.’
- (c) János naponta_{FF} köhögött/ kopogott.
 J-nom daily cough-iter-past.3sg/ knock-iter-past.3sg
 ‘János coughed/knocked repeatedly once every day.’
- (d) János sűrűn_{RF} köhögött/ kopogott.
 J-nom frequently cough-iter-past.3sg/ knock-iter-past.3sg
 ‘János frequently coughed/knocked repeatedly.’

The relative freq-adverb is thus not a pluractional operator by itself, as noted above. Rather, it requires a plurality of events, and determines their distribution over the time argument of the adverb.

4. Adverb positions

The positions occupied by adverbs of counting in a neutral clause differ according to the adverb types identified in the preceding section. It is argued below that most generalizations concerning adverb distribution follow from inherent properties of the adverbs; it is not necessary to specify the distribution independently. The observation is in line with the general approach of Ernst (2002), who argues that the distribution

of adverbs is largely determined by semantic properties of adverbs, and selectional restrictions which can be derived from such properties.

This approach contrasts with the cartographic approach of Cinque (1999), where the distribution of adverbs is determined by a hierarchical structure. Under this approach, specific functional heads are inherently ordered and the adverbs appear as specifiers of certain designated heads. While syntactic head ordering may be affected by semantic factors, the ordering of adverbs is ascribed to the relative position of syntactic heads.

Contrary to the Cinque-type approach, I suggest that no externally determined ordering is necessary to account for the distribution in Hungarian. The clausal structure, sketched in section 2, suffices to determine the distribution of adverbs of counting. Section 4.1 provides a general description of the distribution of adverbs, and section 4.2 offers an account of the distribution.

4.1. Data

It is assumed that adverbs appear as specifiers if they are focused (in Spec,FP); otherwise the adverbs are adjoined to a maximal projection. The clausal structure adopted here is repeated below.

(32) [_{TopP}* [_{FP} [_{NegP} [_{Non-NeutP} [_{PredP} [_{vP} ...]]]]]]]

4.1.1. Basic distribution

The discussion first focuses on preverbal positions, followed by some remarks on postverbal patterns in section 4.1.3.

Multiplicative adverbs have a rather free distribution; they can freely adjoin to a PredP, NegP, FP or TopP projection. In addition, they can be focused, as shown below.

- (33) (a) János kétszer_M el késett.
 J-nom twice part was.late
 ‘János was late twice.’ (adjunction to PredP)
- (b) János háromszor_M nem késett el.
 J-nom three.times not was.late part
 ‘Three times János was not late.’ (adjunction to NegP)
- (c) János négyszer_M A GOMBÁBÓL vett.
 J-nom four-times the mushroom-FROM took
 ‘János took some MUSHROOM four times.’ (adjunction to FP)

- (d) A pincér négyszer_M a boros pohárba töltött.
 the waiter-nom four-times the wine-adj glass-into poured
 ‘The waiter poured (some wine) into the wine glass four times.’
 (adjunction to TopP)
- (e) János ÖTSZÖR_M kóstolta meg a csirkét.
 J-nom five-times tasted part the chicken-acc
 ‘János ate some chicken FIVE TIMES.’ (Spec,FP)

Multiplicatives which appear with *is* ‘too, even’ (e.g., *kétszer is* ‘even twice’) can only appear in a more restricted set of environments; they have the same distribution as other constituents with *is* (e.g., *két vendég is* ‘even two guests’) do. These expressions all appear in the same positions as (distributive) quantifiers; that is, they are adjoined to some projection below TopP, but they cannot be focused. Two representative examples are given below.

- (34) (a) Két vendég is háromszor is minden fogásból vett.
 two guest-nom too three-times too every dish-from took
 ‘Even two guests took some from every dish even three times.’
 (*is*-multiplicative adjoined)
- (b) *János ÖTSZÖR IS kóstolta meg a csirkét.
 J-nom five-times too tasted part the chicken-acc
 ‘János tasted the chicken EVEN FIVE TIMES.’ (Spec,FP)

The distribution of both freq-adverbs and of Q-adverbs is more restricted than the range of positions a multiplicative can occupy. In addition, the distribution shows a variation that is puzzling at first sight.

Some Q-adverbs are marked when they appear between negation and a finite verb. Other Q-adverbs and freq-adverbs are felicitous (35).

- (35) (a) János nem gyakran_Q/ ??néha_Q/ ??rendszerint_Q késett el.
 J-nom not often sometimes habitually was.late part
 ‘János was not often/sometimes/habitually late.’ (Q-adverb)⁷

⁷ All Q-adverbs are felicitous if an explicit contrast is given, as illustrated in (i).

(i) János was not SOMETIMES late, but frequently.

Such an instance of corrective negation, however, does not signal an unmarked position. Even structurally high sentence adverbs, which normally precede foci and negation (cf. Egedi 2009) can be forced to appear in a similar environment:

- (b) János nem sűrűn_F/ naponta_F késett el.
 J-nom not frequently daily be.late-past.3sg part
 ‘János was not frequently/daily late’ (Freq-adverb)

Q-adverbs, but not freq-adverbs, can appear in positions which precede quantifiers, such as *mindenkit* ‘everyone-acc’:

- (36) (a) János gyakran_Q/ néha_Q/ rendszeresen_Q mindenkit meg hívott.
 J-nom often sometimes habitually everyone-acc part invite-past.3sg
 ‘János often/sometimes/habitually invited everyone.’ (Q-adverb)
- (b) [?]János sűrűn_F/ naponta_F mindenkit meg hívott.
 J-nom frequently daily everyone-acc part invite-past.3sg
 ‘János frequently/daily invited everyone.’ (Freq-adverb)

When appearing between two topicalized constituents, only Q-adverbs are acceptable. Freq-adverbs are all ungrammatical, and some Q-adverbs are marked as well:

- (37) (a) A főszakácsok gyakran_Q/^{??}mindig_Q a mártás elkészítését
 the chef-pl-nom often always the sauce preparation-poss-acc
 csak a kuktáknak engedik meg.
 only the assistant-dat permit part
 ‘Chefs often/always allow only assistants to prepare the sauce.’ (Q-adverb)
- (b) *A főszakácsok naponta_F/ sűrűn_F a mártás elkészítését
 the chef-pl-nom daily frequently the sauce preparation-poss-acc
 csak a kuktáknak engedik meg.
 only the assistant-dat permit part
 ‘Chefs daily/frequently allow only assistants to prepare the sauce’
 (Freq-adverb)

Let us consider some higher adverbs as well. Evidential adverbs like *látszólag* ‘apparently’ (cf. Egedi 2009; É. Kiss 2009c) are ambiguously ordered with Q-adverbs, but they must precede freq-adverbs.

- (38) (a) A főszakács gyakran_Q látszólag igazságtalan.
 the chef-nom often apparently unfair
 ‘The chef often appears to be unfair.’ (Q-adverb)

-
- (ii) János nem SZERENCSÉRE jött későn, hanem sajnos.
 J-nom not fortunately arrived late but unfortunately
 ‘János did not arrive late FORTUNATELY, but unfortunately.’

- (b) A főszakács látszólag gyakran_Q igazságtalan.
 the chef-nom apparently often unfair
 ‘Apparently the chef is often unfair.’ (Q-adverb)
- (c) ??A főszakács sűrűn_F látszólag igazságtalan.
 the chef-nom frequently apparently unfair
 ‘The chef is frequently apparently unfair’ (Freq-adverb)
- (d) A főszakács látszólag sűrűn_F igazságtalan.
 the chef-nom apparently frequently unfair
 ‘Apparently the chef is frequently unfair’ (Freq-adverb)

In terms of the clause structure adopted, repeated below, freq-adverbs are restricted to positions within FP. Q-adverbs, in contrast, show varied distribution. Some Q-adverbs—such as *néha* ‘sometimes’ and *rendszerint* ‘habitually’—are marked in positions below FP (e.g., when following negation), but can appear among topics. Other Q-adverbs—including *mindig* ‘always’—can follow negation and appear among quantifiers, but are marked when preceding a topic. Even for those adverbs that can appear below FP, the position is somewhat marked (cf. the discussion in the following section). In general, however, Q-adverbs precede—and are therefore structurally higher than—freq-adverbs.⁸

The distribution with respect to evidential adverbs is also consistent, on the assumption that evidentials appear below TopPs, but above FP (cf. the projection Speaker Deixis Phrase in Egedi 2009). A Q-adverb adjoined to TopP precedes evidentials, and one adjoined to FP, NegP or PredP follows evidential adverbs. Freq-adverbs, which are restricted to positions internal to FP, can only follow evidentials, as shown above.

The domains where the two types of adverbs can appear are schematized in the following example, with square brackets indicating universal restrictions on distribution, and angled brackets showing restrictions applying to a subset of the adverbs.

- (39) [Freq-adverbs]
 [TopP* [FP [NegP [Non-NeutP [PredP [vP ...]]]]]]
 < Q-advs > (néha)
 < Q-advs > (gyakran)
 < Q-advs > (mindig)

⁸ The possible higher structural position of Q-adverbs is also consistent with the theory of Jóhannsdóttir (2007). For Icelandic, she notes that only Q-adverbs (but not freq-adverbs) can be preposed. This is consistent with a lower position of freq-adverbs, from which preposing is (apparently) impossible.

Conspicuously, Q-adverbs show a heterogeneous distribution. The remainder of this section and section 4.2 offer a more detailed discussion and an account of the distinct distribution patterns.

4.1.2. More on ordering among adverbs

The ordering between preverbal freq-adverbs and Q-adverbs is rigid: the latter must precede the former. Rigid ordering is predicted for the Q-adverb *néha* ‘sometimes’ (cf. (39)). Concerning *gyakran* ‘often’ and *mindig* ‘always’, which also precede freq-adverbs, it is tentatively assumed that their lower position is marked, hence dispreferred when they would follow freq-adverbs preverbally.

Given the flexible distribution of multiplicatives, it is expected that these adverbs can either precede or follow both Q-adverbs and freq-adverbs. These predictions are borne out.

Q-adverbs consistently precede freq-adverbs (both fixed and relative freq-adverbs) when both occur preverbally. As expected given pervasive surface scope, Q-adverbs have wide scope. A paraphrase for the marked order, showing that ineffability is not at play, is also provided. The paraphrases show that it is not the different length of time interval that is at the heart of the contrast between the two types of adverbs (cf. Ernst 2002, 126).

- (40) (a) János *gyakran*_Q *sűrűn*_F el *ájult*.
 J-nom often frequently part fainted
 ‘It often happened that János fainted frequently.’
- (b)?? János *sűrűn*_F *gyakran*_Q el *ájult*.
 J-nom frequently often part fainted
 ‘It frequently happened that János fainted often.’
- (c) *Sűrűn*_F *előfordult*, hogy János *gyakran*_Q el *ájult*.
 frequently happened that J-nom often part fainted
 ‘It frequently happened that János fainted often.’
- (41) (a) János *gyakran*_Q *naponta*_F el *ájult*.
 J-nom often daily part fainted
 ‘It often happened that János fainted daily.’
- (b) ?János *naponta*_F *gyakran*_Q el *ájult*.
 J-nom daily often part fainted
 ‘It happened daily that János fainted often.’

- (c) János minden nap gyakran_Q el ájult.
 J-nom every day often part fainted
 ‘János fainted often every day.’

With multiplicatives, flexible ordering is possible, and scope relations correspond to surface order, as expected. However, the examples can be marked, partly due to coercion (cf. section 5).

- (42) (a) János ?sűrűn_F/ rendszeresen_F háromszor_M kopogott.
 J-nom frequently regularly three.times knocked
 ‘János frequently/regularly knocked three times.’
 (b) ?János háromszor_M/ sokszor_M gyakran_Q el késett.
 J-nom three-times many.times often part was.late
 ‘It happened three times/many times that János was often late.’

4.1.3. Postverbal positions

In the postverbal domain word order is more flexible, as predicted by the freedom of linearization noted in section 2. More surprisingly, however, the scope of the adverbs is also ambiguous, a generalization that extends to all Q-adverbs in Hungarian.

- (43) (a) JÁNOS ájult el mindig_Q sűrűn_F.
 J.nom faint.past.3sg part always frequently
 ‘It was János who always fainted frequently’/‘It was János who frequently always fainted.’
 (b) JÁNOS ájult el sűrűn_F mindig_Q.
 J.nom faint.past.3sg part frequently always
 ‘It was János who frequently always fainted’/‘It was János who always fainted frequently.’

The variation in linear order can be ascribed to the linearization process, which does not need to reflect syntactic structure. Variable scope, however, is unexpected; if Q-adverbs are consistently introduced at a point higher than freq-adverbs, then Q-adverbs should always have wide scope.

In order to resolve this conflict, I suggest—in line with É. Kiss (2009c) and Bende-Farkas (2009)—that in the presence of focus, Q-adverbs can be adjoined to either FP (as assumed earlier) or to PredP.⁹ This

⁹ The scope facts in the preverbal field are also consistent with Bende-Farkas (2009) as well as the surface scope hypothesis. In the discussion of the relative scope of

flexibility in the position of Q-adverbs suffices to derive ambiguous readings, as shown in the schematized structures below. The c-commanding adverb has wide scope:

- (44) (a) [FP [FP XP [Non-NeutP [PredP [PredP [vP ...]] freq-adv]]] Q-adv]
 (Q-adv > freq-adv)
 (b) [FP XP [Non-NeutP [PredP [PredP [PredP [vP ...]] Q-adv] freq-adv]]]
 (freq-adv > Q-adv)

As expected given the structure above, a postverbal Q-adverb can take narrow scope with respect to focus. The following example shows that the Q-adverb can take either narrow or wide scope, depending on the adjunction site (cf. Bende-Farkas 2009, who also addresses the role of stress in disambiguating the two structures).

- (45) SOK EMBER késett el mindig.
 many person-nom was.late part always
 ‘MANY PEOPLE were always late’
 (many > always, always > many)

Before concluding this discussion, let us address a concern about the direction of adjunction. Recall that in focus constructions, the verb moves to the Non-Neut head. After this movement all PredP-adjoined constituents—both left- and right-adjoined elements—will follow the verb.

If it was an option for Q-adverbs to be left-adjoined to PredP, then they would be indistinguishable from their right-adjoined counterparts: they would follow the verb and take narrow scope with respect to a c-commanding freq-adverbs.

The possibility of left-adjoining Q-adverbs to PredP is excluded by appealing to two considerations. First, it was noted that preverbal Q-adverbs exhibit rigid ordering with respect to freq-adverbs, an ordering that is unexpected if both (a) Q-adverbs can left-adjoin to PredP (by assumption) and (b) freq-adverbs can left-adjoin to PredP, as shown below.

- (46) János [PredP sűrűn [PredP el késett].
 J-nom frequently part was.late
 ‘János was frequently late.’

focus and Q-adverbs, Bende-Farkas notes that Q-adverbs have wide scope in the preverbal domain, but are ambiguous with respect to focus when following the verb.

It can be concluded that Q-adverbs cannot left-adjoin to PredP.

Further support is provided by the following pair of English examples from Cinque (1999, 26). If the Q-adverb *often* is preverbal, it can bind an indefinite expression. No unselective binding is possible, however, if the Q-adverb is postverbal:

- (47) (a) Texans often drink beer. (*Texans* bound by *often*)
 (b) Texans drink beer often. (*Texans* bound by GEN, not by *often*)

In present terms, the contrast can be explained if in English, Q-adverbs must be left-adjoined in a higher position (when preverbal) but right-adjoined at a lower site (when postverbal).

For Hungarian, there are apparently more possibilities; it is only left-adjunction to PredP, the lower position, which is ruled out.

4.2. Accounting for the distribution

The distribution of adverbs of counting, in spite of the complex distributional patterns, is determined by relatively simple and natural regularities.

4.2.1. Multiplicatives and freq-adverbs

Bare multiplicatives, which are not modified by *is* ‘too’, have a rather free distribution, as noted above. Essentially, they can either adjoin to any projection or they can be focused, as long as the expression in the scope of the multiplicative is countable. The scope principle leads to the requirement that the c-command domain of preverbal multiplicatives denote a countable event description. The requirement accounts for the markedness of the following example (cf. section 5):

- (48) ??János háromszor aludt.
 J-nom three-times slept
 ‘János slept three times.’

As noted above, the distribution of *is*-multiplicatives is identical to that of other expressions with *is*, including *három pincér is* ‘even three waiters/three waiters, too’. All of these expressions occupy the adjoined positions of quantifiers.

Concerning the distribution of freq-adverbs, note that the domain where freq-adverbs appear is the focus position and the domain where temporal intervals can appear as arguments. The clause structure, amended with time intervals, is repeated below from section 2.

- (49) [[_{TopP*} [_{FP} [_{Non-NeutP} [_{TP} t_{speech} T ... [_{AspP} $t_{\text{reference}}$ ASP ...
{vP} t{event} v ...]]]]]]

This correlation is not accidental; it can be reduced to the assumption that freq-adverbs require a time interval argument (cf. section 3). If time intervals can only appear below FP (more specifically, below Non-NeutP) in the clause structure, and if arguments must be local to their respective predicates, then it follows that freq-adverbs are restricted to FP and constituents contained within FP.

4.2.2. General distribution, multiplicatives and freq-adverbs

Before addressing the distribution of Q-adverbs, let us embark on a short detour.

Within the clause structure adopted in section 2, the general distribution of constituents can be described by appealing to quantificational/referential properties and specificity. Only specific, referential and non-distributive elements can appear in Spec,TopP. Distributive, quantificational elements can be adjoined to projections other than TopP. Among others, it follows that distributive quantifiers can appear between topics and a focused constituent. A focused constituent occupies Spec,FP (including constituents that are obligatorily focused; cf. É. Kiss 2009b). Spec,PredP and postverbal positions can be occupied by non-specific expressions (cf. Szabolcsi 1997; É. Kiss 2002, 174 and references cited there).

- (50) [_{TopP*} [_{FP} [_{NegP} [_{Non-NeutP} [_{PredP} [_{vP} ...]]]]]]

Based on these generalizations, an indefinite expression such as *egy gyerek* ‘a child’ can appear as Spec,TopP (if interpreted specifically); as Spec,FP (if focused); and as Spec,PredP or as a postverbal constituent if it is nonspecific. A universal expression, like *mindenki* ‘everyone’, appears in an adjoined position, similarly to other quantificational expressions which can be interpreted distributively.

With these observations in place, let us return to adverbs of counting. Among these adverbs, *is*-multiplicatives conform to the previous gener-

alizations; they have the same distribution as other expressions modified by *is* do—they are adjoined, identically to other (distributive) quantificational expressions.

Multiplicatives and freq-adverbs, however, differ in behavior from their non-counting counterparts. First, multiplicatives can appear between preverbal quantifiers, but indefinite expressions (whether specific or nonspecific) cannot do so. The bracketed constituents are quantifiers and appear in adjoined positions (lowercase *q* in the subscript indicates quantifiers; uppercase *Q* marks *Q*-adverbs, as before).

- (51) (a) ^{??}[Két vendég is]_q három tányérra [mindenből]_q vett.
 two guest-nom too three dish-onto everything-from took
 ‘Even two guests took some food onto three dishes.’
- (b) [Két vendég is]_q háromszor_M [mindenből]_q vett.
 two guest-nom too three-times everything-from took
 ‘Even two guests took some three times from every dish.’

It was suggested in section 3 that fixed freq-adverbs involve generic quantification. The distribution of freq-adverbs and generic expressions is distinct, though. While generically interpreted expressions can precede preverbal quantifiers (*a leveleket* ‘the letters’ in (52a)), this is not possible for fixed freq-adverbs (52b).

- (52) (a) A leveleket [több postás is]_q délután hozza ki.
 the letter-pl-acc more mailman-nom too afternoon brings part
 ‘Letters are delivered in the afternoon by several mailmen.’
- (b) ^{??}Naponta_{FF} [több postás is]_q délután hozza ki a leveleket.
 day-by more mailman-nom too afternoon brings part the letter-pl-acc
 ‘Letters are delivered in the afternoon by several mailmen daily.’

Fixed freq-adverbs also differ from universally quantified expressions in the positions they can occupy. Only the latter can precede quantifiers:

- (53) (a) Minden nap [mindenki]_q el késett.
 every day everyone-nom part was.late
 ‘Everyone was late every day.’
- (b) ^{??}Naponta_{FF} [mindenki]_q el késett.
 day-by everyone-nom part was.late
 ‘Everyone was late daily.’

The distribution of multiplicatives and freq-adverbs cannot be assimilated to the general distributional restrictions, but they follow from natural considerations, as detailed above. The behavior of Q-adverbs, however, conforms to the general pattern.

4.2.3. Q-adverbs

Recall from section 4.1 that Q-adverbs vary with respect to a position following negation, among others. The Q-adverbs *gyakran* ‘often’ and *mindig* ‘always’ can appear between negation and a verb, while *rendszerint* ‘habitually’ and *néha* ‘sometimes’ are excluded from this position. This difference shows a striking similarity to the following contrast:

- (54) (a) János nem [sok süteményt]/ [minden süteményt] evett meg.
 J-nom not many cake-acc every cake-acc ate part
 ‘János didn’t eat many cakes/all the cakes’
- (b) *János nem [néhány süteményt] evett meg.
 J-nom not some cake-acc ate part
 ‘János did not eat some cakes.’

It was noted in section 3 that Q-adverbs contain a quantificational component. *Gyakran* ‘often’ contains a component corresponding to *sok* ‘many’; *mindig* ‘always’, to the universal *minden* ‘all/every’; and *néha* ‘sometimes’, a component that corresponds to the existential *valami* ‘something’ (cf. Bende-Farkas 2009).¹⁰ The preceding examples show that as far as negation is concerned, the distribution of Q-adverbs is identical to that of comparable quantificational elements.

In addition, Q-adverbs and comparable quantifiers also behave identically with respect to focusing. *Gyakran* ‘often’ and *sok* ‘many’-phrases can appear in Spec,FP (55), while *mindig* ‘always’, *néha* ‘sometimes’ and the corresponding expressions are excluded from this position (56).

- (55) (a) János SOK SÜTEMÉNYT evett meg.
 J-nom many cake-acc ate part
 ‘János ate MANY CAKES.’
- (b) János GYAKRAN evett meg egy süteményt.
 J-nom often ate part a cake-acc
 ‘János OFTEN ate a cake.’

¹⁰ *Rendszerint* ‘habitually’ lacks an appropriate quantificational counterpart.

- (56) (a) *János MINDEN SÜTEMÉNYT/ NÉHÁNY SÜTEMÉNYT evett meg.
 J-nom every cake-acc some cake-acc ate part
 ‘János ate EVERY CAKE/SOME CAKES.’
- (b) *János MINDIG/ NÉHA evett meg egy süteményt.
 J-nom always sometimes ate part a cake-acc
 ‘János ALWAYS/SOMETIMES ate a cake.’

In addition to the preceding structures, topics also constitute an environment where the distribution of Q-adverbs resembles that of comparable quantificational expressions. *Mindig* ‘always’ and universally quantified expressions cannot precede topics, but *néha* ‘sometimes’, *gyakran* ‘often’ and related quantificational expressions can do so. The topicalized constituent is bracketed in the following examples, and is identified by a subscript *t*.

- (57) (a) *Mindig_Q [a postás]_t A FÖLDRE dobta a leveleket.
 always the mailman-nom the ground-on threw the letter-pl-acc
 ‘Always the mailman threw the letters on the ground.’
- (b) *Minden levelet [a postás]_t A FÖLDRE dobott.
 every letter-acc the mailman-nom the ground-on threw
 ‘The mailman threw every letter on the ground.’
- (58) (a) Néha_Q/ gyakran_Q [a postás]_t A FÖLDRE dobta a leveleket.
 sometimes/ often the mailman-nom the ground-on threw the letter-pl-acc
 ‘The mailman sometimes/often threw the letters on the ground.’
- (b) Néhány levelet/ sok levelet [a postás]_t A FÖLDRE dobott.
 some letter-acc/ many letter-acc the mailman-nom the ground-on threw
 ‘The mailman threw some letters/many letters on the ground.’

To summarize: Q-adverbs behave similarly to related quantificational expressions as far as focusing, appearance below negation, and preceding topics are concerned. In this respect, the behavior of Q-adverbs is unremarkable, since it follows the general pattern in Hungarian clause structure. Q-adverbs are adjoined, but the domains where they can appear conforms to more general restrictions.

In addition, Q-adverbs can either left-adjoin or right-adjoin to an appropriate projection. It was suggested that if they adjoin from the left, Q-adverbs must appear in a relatively high position; they must adjoin to some projection above PredP. No such restriction is operative if they adjoin from the right. In this case, the adverbs can be adjoined in a lower

position as well, accounting for narrow scope with respect to freq-adverbs and focus.

4.3. Adverbs in marked positions: focus and contrastive topic

As noted above, several adverbs of counting can also appear in focus position, in Spec,FP (for some exceptions, see the preceding subsection):

- (59) János KÉTSZER_M/ SŰRŰN_F/ GYAKRAN_Q késett el.
 J-nom twice frequently often was.late part
 ‘János was late TWICE/FREQUENTLY/OFTEN.’

What has been conspicuously missing from the earlier discussion is the distribution of the freq-adverb *ritkán* ‘rarely’. This adverb, in contrast with other freq-adverbs, is obligatorily focused:

- (60) (a) János ritkán_F késett el.
 J-nom rarely was.late part
 ‘János was rarely late.’
 (b) *János ritkán_F el késett.
 J-nom rarely part was.late
 ‘János was rarely late.’

É. Kiss (2009b) explores an account of obligatory focusing of *ritkán* ‘rarely’ and of similar elements, including *rosszul* ‘badly’ and *kevés* ‘few’. She argues that obligatory focusing arises because the relevant expressions are members of a pair where the pair refers to the lower and upper domain of a bidirectional scale (bidirectional scales proceed from a central point to the lower and upper domains of the scale). Under this view, *ritkán* ‘rarely’ and *sűrűn* ‘frequently’ refer to the lower and upper domain of a frequency scale, respectively.

In general, non-focus positions allow upward implicatures; an indefinite expression such as *egy gyerek* ‘one child’ in non-focus position refers to at least one child. In Spec,FP positions the implicature is unavailable; a focused *egy gyerek* ‘one child’ can only refer to exactly one child.

In the case of *ritkán* ‘rarely’, upward implicatures are not available; the adverb cannot denote a frequency that is higher than the contextually determined average. É. Kiss (2009b) suggests that the lack of upward implicature can be tied to the fact that the relevant scale for freq-adverbs is

bidirectional, and the upper domain is not entailed by elements denoting a point in the lower domain. Given that positions other than Spec,FP give rise to upward implicatures, adverbs like *ritkán* ‘rarely’ are excluded from non-Spec,FP positions.

Obligatory focusing reveals a contrast between the freq-adverb *ritkán* ‘rarely’ and the Q-adverb *néha* ‘sometimes’. The former must be focused, as shown above, while the latter does not require focusing. This distributional difference is consistent with the differences in implicature, shown below.

The freq-adverb *sűrűn* ‘frequently’ and the Q-adverb *néha* ‘sometimes’ can give rise to upward implicatures; the frequency can be made more specific by an expression that refers to a higher degree of frequency or to a higher quantity (61a,c). This is not possible for *ritkán* ‘rarely’; no higher frequency is implicated in (61b).

- (61) (a) János sűrűn_F köhögött. Sőt, szinte egyfolytában.
 J-nom frequently coughed rather almost continuously
 ‘János coughed frequently. More specifically, he coughed almost continuously.’
- (b) János ritkán_F köhögött. #Sőt, elég sűrűn.
 J-nom rarely coughed rather fairly frequently
 ‘János rarely coughed. More specifically, he coughed fairly frequently.’
- (c) János néha_Q köhögött. Sőt, elég gyakran.
 J-nom sometimes coughed rather fairly often
 ‘János sometimes coughed. More specifically, he coughed fairly often.’

The contrast between *ritkán* ‘rarely’ and *néha* ‘sometimes’ is consistent with the characterization of *néha* mentioned in the preceding subsection, where it was noted that *néha* involves existential quantification. The Q-adverb generally has an interpretation of low quantity (similarly to *seldom*). This interpretation is probably due to the Gricean maxim of Quantity.

Finally, all adverbs of counting can appear as contrastive topics; this is independent of the distribution patterns described above. Contrastive topics (e.g., É. Kiss–Gyuris 2003) are usually at the left edge of the clause, but can be interspersed among topicalized constituents as well. Prosodically, they involve rising contour and an intonational break following the contrastive topic. As for the interpretation, they require comparable entities that the contrastive topic can be contrasted with.

Since contrast is required, the availability of contrasting elements often affects the grammaticality of certain contrastive topics. In the following example *ritkán* ‘rarely’, an adverb that must be focused otherwise, appears as a contrastive topic.

- (62) *Ritkán_F* János evett a házi szalonnából.
 rarely J-nom ate the home bacon-from
 ‘Rarely, János ate home-made bacon (others ate it frequently)’

The example is often judged to be marked, unless a more specific context (with some people eating home-made bacon frequently) is set up. Still, once that interpretation is available, *ritkán* is not confined to a focus position. Contrastive topic position is thus available for all adverbs of counting.

As shown in this section, the distribution of adverbs of counting can be characterized by appealing to the adverb classes established in section 3. The distribution of these adverb classes can be described based on general distributional patterns and on regularities of specific types of adverbs of counting. Within the confines of these distributional restrictions, adverbs can also be iterated. The following section discusses iterated adverbs and the interpretation of these constructions.

5. Coercion and adverb iteration

All of the adverbs discussed here—multiplicatives, freq-adverbs and Q-adverbs—apply exclusively to delimited, countable event descriptions. This is expected, since counting occurrences of situations or determining the frequency of multiple recurring situations requires bounded descriptions.

For bounded event descriptions, the possibility of multiplicative, frequency or Q-adverb modification is expected. In addition, unbounded situation descriptions (including atelic, iterated or habitual descriptions) can also be modified by these adverbs, as long as some (arbitrary) limit is imposed. These externally imposed boundaries, which I assume to arise from coercion,¹¹ have different degrees of acceptability. The natu-

¹¹ The relevant coercion operation can be described as an application of the Universal Packager or as the operation realized by a relevant coercion operator (e.g., BOUND of de Swart 1998).

ralness of contextually available limits, among others, significantly affects acceptability of examples that require coercion.¹²

The following examples illustrate environments where a non-delimited situation description must be reinterpreted as a delimited, countable description:

- (63) (a) János kétszer_M aludt itt.
 J-nom twice slept here
 ‘János slept here twice (e.g., spent two nights here).’
- (b) János sűrűn_F futott.
 J-nom frequently ran
 ‘János ran frequently (e.g., ran a race or a certain distance frequently).’
- (c) János gyakran_Q olvasott.
 J-nom often read
 ‘János often read (e.g., was often engaged in reading).’

A structure containing multiple adverbs can also require coercion. Freq-adverbs, Q-adverbs and vague multiplicatives, among those discussed, convert delimited entities into non-delimited, non-countable descriptions. Thus if the complex description containing the adverb is modified by an additional multiplicative, freq-adverb or Q-adverb, coercion is required.

- (64) János gyakran_Q ritkán_F aludt itt.
 J-nom often rarely slept here
 ‘János often rarely slept here.’

There are two instances of coercion in (64). First, the non-delimited sleeping eventuality is reinterpreted as being bounded—for instance, as being restricted to one night’s sleep. This coercion is required by *ritkán* ‘rarely’. Second, the non-delimited situation of János rarely sleeping here is delimited, as required by the adverb *gyakran* ‘often’. The resulting interpretation can be paraphrased as follows:

¹² Speakers also vary with respect to the extent to which they allow the marked, coerced reading. This view of coercion (and the markedness due to the necessity of coercion) thus differs from the view of markedness in Ernst (2002). He notes that some examples require context, but he claims that all examples are fine once the context has been established (cf. *op.cit.*, 15).

- (65) It occurred often that there were periods during which János rarely spent nights here.

For instance, (64) can describe a situation where János is in an unstable relationship. He often spends time at his partner's place, but there are also frequently recurring periods during which he spends the night there only infrequently.

Similarly, coercion operations are responsible for yielding an interpretation for examples where a specific adverb is iterated. The following examples are synonymous:

- (66) (a) János $súrún_F$ aludt itt $súrún_F$.
 J-nom frequently slept here frequently
 'János frequently slept here frequently.'
 (b) János $súrún_F$ $súrún_F$ aludt itt.
 J-nom frequently frequently slept here
 'János frequently slept here frequently.'

The two occurrences of *súrún* 'frequently' specify the (high) frequency of (a) sleeping situations and that of (b) frequent situations of sleeping.

The examples shown above involve up to two adverbs of counting, but as long as coercion operations are available, any number of adverbs of counting can cooccur. That is, the number of cooccurring adverbs of counting is not inherently constrained, but the multiple coercion operations lead to markedness with a high number of adverbs. The claim that coercion allows the theoretically unlimited iteration is at odds with the position of Cinque (1999, 26; 2004, 692), who argues that adverbs of counting (specifically, freq-adverbs) can appear as specifiers of two distinct heads; a maximum of two of these adverbs is predicted to be possible under his approach.

Even though coercion operations are available and permit multiple iterations, they still cannot yield orderings that would contradict the restrictions on adverb distribution noted in section 4. A freq-adverb such as *súrún* 'frequently' cannot take wide scope over a clausemate Q-adverb like *gyakran* 'often' if both are preverbal.

- (67) (a) János $súrún_F$ aludt itt $gyakran_Q$.
 J-nom frequently slept here often
 'János frequently slept here often.'

- (b) ??János sűrűn_F gyakran_Q aludt itt.¹³
 J-nom frequently often slept here
 ‘János frequently slept here often.’

6. Conclusion

It was shown that among adverbs of counting, it is necessary to distinguish multiplicatives, freq-adverbs and Q-adverbs. In addition to a number of differences, the distributional properties of these adverbs also differentiate between the three groups of adverbs.

The distribution of some of these adverbs—specifically, that of multiplicatives and freq-adverbs—was argued to follow from independent factors: the requirements of (a) countable, bounded event descriptions and of (b) a time interval argument (the latter for freq-adverbs). No independent, external specification or hierarchical structure is required to account for these adverbs. At the same time, the distribution of Q-adverbs can be assimilated to that of comparable quantificational expressions. It is not necessary to specify the distribution of Q-adverbs independently; it follows from more general guidelines which regulate the distribution of quantificational elements.

In the account advocated in this paper, adverbs of counting are flexible; they can be freely iterated, as long as a coercion operation can yield a plausible interpretation. The adverbs also show flexibility appearing in a number of distinct positions, if the positions are consistent with the distributional restrictions presented above.

The significant transparency between the interpretational properties and the behavior of adverbs of counting, as well as scope relations and the interaction of coercion processes and adverb distribution all reveal a tight connection between semantic properties and syntax. Other issues—including prosodic characteristics and the properties of adverbs in focus or postverbal positions—in light of this view of adverbs is left for further research.

¹³ Main stress on *sűrűn* ‘frequently’ can ameliorate the example for some speakers, yielding an interpretation similar to *It happened frequently that János often slept here*. This effect of main stress (especially on adverbs not in Spec,FP) is, however, ignored here, but it is tentatively ascribed to a contrastive, focus-like interpretation of the stressed constituent.

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