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Quantification at a Distance and Iteration

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In this paper I will investigate the relation between the French construction of quantification at a distance (QAD) and iterative interpretation.¹ It has been claimed in the literature that these necessarily go together (cf. Obenauer 1983, 1984 and de Swart 1988), but I will show in this paper that this is not the case.

An example of QAD is given in (1):

- (1) Max a beaucoup / peu vendu de livres
Max has a lot little sold of books
'Max sold a lot of books'

¹ I would like to thank the following people, who all contributed in one way or another to my better understanding of the subject matter of this paper: Rose-Marie Déchaine, Carmen Dobrovie-Sorin, Irene Heim, Teun Hoekstra, Martin Honcoop, Astrid Ferdinand, Angelika Kratzer, Alice ter Meulen, Hans Obenauer, Marga Petter, Johan Rooryck, Bernhard Schwarz, Anna Szabolcsi, Elisabeth Villalta and Anne Zribi-Hertz. Thanks to Ed Rubin for correcting my English. All errors are mine.

this construction consists of those that are ambiguous between an adverb and a determiner (*beaucoup* 'a lot', *peu* 'little', *trop* 'too much', *assez* 'enough' etc.):

- (2) Max a vendu beaucoup / peu de livres
 Max has sold a lot little of books
 'Max sold a lot of/few books'

The semantics of the QAD construction had not received much attention until the early eighties, when Obenauer (1983, 1984) made the observation that there are some subtle interpretative differences between the sentences in (1) and the sentences in (2). Whereas in (2) the Q quantifies over the NP, in (1) it quantifies over the verbal predicate. According to Obenauer, quantification over the verbal predicate necessarily results in a so-called 'X-times interpretation', where X stands for the quantifier under consideration. Thus, (1) varies between the 'many-times' interpretation and the 'few-times' interpretation, depending on which of the two quantifiers is present. The necessity of the X-times interpretation of the quantifier in QAD is also called the 'multiplicity of events requirement' on the QAD construction.

Obenauer convincingly shows that QAD involves quantification over the verbal predicate. However, although at first sight the multiplicity of events requirement he postulates seems to hold, a closer look at the data will show that the quantifier does not have an X-times interpretation in the QAD construction and that QAD is compatible with a unique event interpretation. Whenever we do have a multiple events interpretation this interpretation is triggered by the context.

This paper is organized as follows. In the first section Obenauer's arguments in favour of his hypothesis are presented. In the second section I give empirical evidence against the multiplicity of events requirement. The rest of the paper focusses on contexts in which the multiple event interpretation occurs, and I argue that two different factors are involved. First, I make a distinction between count and mass predicates similar to the one in Bach (1981). I show that QAD with a count predicate gives rise to a multiple events interpretation. Second, I argue that there is an effect of iteration that is evoked by *beaucoup* when it is used as an adverb of relative quantity. Such adverbs require the event to spread over the relevant part of the time axis.

1. Obenauer's Multiplicity of Events Requirement

Obenauer (1983, 1984) observes that contexts triggering a unique event interpretation do not allow for quantification at a distance, whereas the non QAD counterpart is allowed. A convincing minimal pair he gives to show this is (3):

- (3) a. *En soulevant le couvercle il a beaucoup trouvé
 lifting the lid he has a lot found
 de pièces d'or.
 of coins of-gold

- b. En soulevant le couvercle il a trouvé beaucoup
 lifting the lid he has found a lot
 de pièces d'or.
 of coins of-gold
 'Lifting the lid he found a lot of gold coins'

The context *en soulevant le couvercle* forces a reading here in which all gold coins are found at the same time, and this results in ungrammaticality of the QAD construction as we see in (3a). If *en soulevant le couvercle* is replaced by an adjunct that does allow an X-times interpretation, QAD is possible:

- (4) En cherchant partout il a beaucoup trouvé de pièces d'or
 Seeking everywhere he has a lot found of coins of-gold
 'Seeking everywhere he has found a lot of gold coins'

The sentence in (4) implies that there were many findings and it cannot be the case that the result of seeking everywhere was that one huge pot full of gold coins has been found.

More evidence for Obenauer's hypothesis comes from the impossibility of QAD in the complement of *venir de* 'to have just':

- (5) *Il vient de beaucoup boire de lait
 He comes DE a lot drink of milk
 'He just drank a lot of milk'

According to Obenauer, the impossibility of (5) is due to the multiplicity of events requirement. He assumes that the complement of *venir de* denotes a unique event and that therefore QAD is excluded. As we will see below there is evidence that QAD is compatible with a unique event interpretation, and that adverbial *beaucoup* is not allowed in the complement of *venir de* on independent grounds.

2. Against the Multiplicity of Events Requirement

2.1 A brief excursus on DPs

As discussed above, in a QAD sentence the quantifier quantifies over the verbal predicate and in a non-QAD sentence (as in (2)) it quantifies over individuals. This is similar to the difference between Krifka's event related (ER) and object related (OR) readings of DPs, as has been observed by Honcoop (1992). An example will make the comparison clear:

- (6) 4000 ships passed through the lock last year

This sentence has two readings. In the Object Related (OR) reading it states that there were 4000 different *ships* that passed at least once through the lock last year. Under

this reading the total number of ship-passings may be higher than 4000 if one or more ships passed several times. In the Event Related (ER) reading it means that there were 4000 different *ship-passings* last year. The total number of ships can be lower than 4000 if one or more ships passed several times. This last reading is similar to QAD: the cardinal numeral 4000 corresponds to the number of ship-passings, just like *beaucoup* in (1) corresponds to the amount of book-sellings.

The contrast between ER and OR disappears in contexts that force a unique event as we see in (7); here we use the contexts that Obenauer used to show that a unique event is impossible in the case of QAD:

- (7) a. Lifting the lid, he found 4000 gold coins
 b. Il vient de passer 200 bateaux
 it comes DE pass 200 ships
 '200 ships just passed'

In (7) we have 4000 different coins and 200 different ships. In order to have the effect of the ER (less individuals than events) we need a multiplicity of events.²

However, we do not always need a multiplicity of events in order to have the effect of the ER; this becomes clear when we look at the ER of mass nouns. As Krifka stresses, the ER is possible for both count and mass nouns. (8) is an example of the ER in the context of a mass noun:

- (8) 60 tons of radioactive waste passed through the lock last year

A situation that is compatible with the ER but not with the OR of (8) is the following: if the same heap of 20 tons of waste is transported through the lock 3 times last year (8) is true in the ER, but false in the OR. Interestingly, the possibility of having the ER with a mass interpretation permits us to construct examples that denote one continuous event with an ER interpretation. An example is given in (9):

- (9) During the past hour the fountain spouted 200 liters of water in the air

In the most salient reading this example has the ER: the water spouts in the air and falls down in the basin and then spouts up in the air again. We have the effect of the ER because we do not need 200 liters of water in the basin: the same water counts twice if it is spouted up twice. But there is still one continuous event of spouting. This means that the ER does not imply a multiplicity of events in the context of mass NPs.

² The absence of the effect of the ER does not imply that this reading is absent. Notice that the effect of the OR (more events than individuals) cannot be found either in the context of a single event. Cf. Honcoop 1991, Doetjes 1992 for discussion.

2.2 Back to QAD

We have seen that in the contexts that Obenauer uses as evidence for his multiplicity of events requirement we do not have the effect of the ER (cf. (7)), but on the other hand in (9) we do have the ER reading, even if we have one continuous event. This shows that Obenauer's evidence is not complete, and that the missing piece is a context similar to the one in (9). Applying QAD in such a context shows that QAD and the ER pattern alike, which undermines the multiplicity of events requirement. In the examples in (10) we have continuous events:

- (10) a. Pendant ces dix minutes la fontaine a beaucoup craché d'eau
 during these ten minutes the fountain has a lot spouted of water
 'During these ten minutes the fountain spouted a lot of water in the air'
- b. L'oléoduc a beaucoup transporté de pétrole
 the pipeline has a lot transported of oil
 'The pipeline transported a lot of oil'
- c. Pendant les dix minutes du concours Jean a assez bu
 during the ten minutes of the contest Jean has enough drunk
 de bière pour désaltérer un peloton de soldats suisses
 of beer to quench the thirst of a troop of Swiss soldiers
 'During the ten minutes of the contest, Jean drank enough beer to quench the thirst of a troop of Swiss soldiers'

In (10a) we have a burst of water during 10 minutes and not many spouting intervals. In (10b) there has been a lot of oil-streaming through the pipeline over some period of time; there is no implication that there have been many different oil-streaming events. In (10c) Jean has been drinking as much beer as he could for ten minutes and again it does not seem to be appropriate to talk about many drinking events here. Interestingly these examples all imply that the quantity of water, oil or beer involved in the event is considerable. We have an event of much spouting of water because a lot of water is involved (in the ER sense). Notice that these are all verbs that have an object that 'measures out the event' in Tenny's (1987) terms. An event in which 50 liters of water are spouted in the air in ten minutes is 'smaller' than an event of an equal duration in which 500 liters of water are involved.

We have to conclude from these data that the multiplicity of events requirement on QAD must be rejected. Wherever a multiple event reading is necessary in a QAD sentence this cannot be attributed to a general property of QAD, but must be an effect of the context. The main concern of the rest of this paper will be to trace back where this effect comes from.

3. The sources of the multiplicity of events effect

3.1 Mass and count predicates

The data in (10) show that QAD itself is not the source of a multiple event interpretation. QAD is compatible with a unique event interpretation in certain

contexts. On the other hand, there are clear cases in which a multiple event interpretation is necessary. Beside the cases Obenauer discusses (cf. section 1 above) there are QAD sentences discussed in Kanazawa (1993) in which we clearly have a many times interpretation:

- (11) Max a beaucoup photographié d'éléphants
 Max has a lot photographed of elephants
 'Max has photographed a lot of elephants'

This sentence is only true if there are a lot of pictures taken. Two pictures, each with a lot of elephants in it, does not make the sentence true, while a lot of pictures with the same two elephants on it does.³ Thus together with the sentences in (10), where we do not have an X-times interpretation, we have the sentence in (11), where we must have an X-times interpretation. I believe that the difference between (10) (unique event) and (11) (X-times interpretation) lies in the nature of the predicate. We have an X-times interpretation in the context of a 'count' predicate and not in the context of a 'mass' predicate. This analysis is inspired by a proposal that has been made by de Swart (1988), who follows Obenauer in assuming the multiplicity of events requirement on QAD. She argues that this requirement is in fact a requirement on quantification over a count predicate. In the nominal domain, *beaucoup* combines with both mass terms and (plural) count terms as we see in (12):

- (12) a. mass: beaucoup de sucre 'a lot of sugar'
 b. count: beaucoup de bicyclettes 'a lot of bicycles'

According to de Swart, adverbial *beaucoup* is similar to the determiner *beaucoup* and is compatible with mass and count predicates. Quantification over a count predicate is what gives rise to the 'often' interpretation of *beaucoup* and this is what licences the QAD construction. In other words, she derives the multiplicity of events requirement from a requirement on quantification over a count predicate. She holds that count predicates are those predicates which are compatible with a cardinal count modifier:

- (13) a. J'ai bu ce vin trois ou quatre fois
 I-have drunk this wine three or four times
 'I drank this wine three or four times'
 b. Jean a deux fois trouvé ce vin californien à Paris
 Jean has two times found this wine californian in Paris
 'Jean has found this Californian wine twice in Paris'

Since most psych verbs qualify as mass given this test, the assumption that QAD requires quantification over a count predicate explains the incompatibility of these

³ Kanazawa notes that in the situation in which there are a lot of pictures taken with one and the same elephant on it, the sentence is not felicitous. He suggests that this has to do with the plural agreement on the noun *éléphants*.

verbs with QAD. (14a) shows that QAD is excluded in the context of the verb *impressionner* 'to impress', and (14b) shows that this verb does not combine with a cardinal count adverbial:

- (14) a. *Ces histoires ont beaucoup impressionné d'enfants
 These stories have a lot impressed of children
 'These stories have impressed a lot of children'
 b. ??Ce regard m'a deux fois impressionné.
 this look me has two times impressed
 'This look has impressed me twice'

We saw above that predicates such as 'drink beer' do not require a multiplicity of events interpretation in the context of QAD, which suggests that they are not count given the plausible assumption that the countable character of the predicate is responsible for the multiple events interpretation. Thus we have shown that QAD is compatible with both mass and count predicates. There is a multiplicity of events interpretation in the context of a count predicate but not in the context of a mass predicate, and the distinction between the two has to be made in a different way.⁴

According to Bach (1981) there are close parallels between the mass-count distinction in the nominal domain and aspectual properties of verbal predicates. He considers events to be analogous to singular and plural individuals and bounded processes analogous to portions of matter. A plural event consists of several atomic events, while a process cannot be divided into atomic subparts. Going back to the examples in (12) we classify *sugar* as a mass term because it does not contain atomic parts while *bicycles* is a plural count noun because it does contain atomic parts.

In the verbal domain we can use the same test. Before turning to QAD we will have a look at the simpler examples in (15):

- (15) a. Mass:
 Jean a beaucoup dormi
 Jean has a lot slept
 'Jean slept a lot'
 b. Count:
 Jean est beaucoup allé au Louvre
 Jean is a lot gone to the Louvre
 'Jean went to the Louvre a lot'

A subpart of sleeping is also sleeping and (15a) does not imply a lot of sleeping intervals but a lot of sleeping. In (15b) we have a plural count event. A 'going to the Louvre' event is atomic because it is not formed of 'going to the Louvre' subevents (the Louvre is not reached in each of the subevents). Given the presence of *beaucoup*

⁴ The impossibility of (14) is beyond the scope of this paper. Under the present account it cannot be due to the mass character of the predicate.

we must have a plural interpretation of the predicate (i.e. many atomic events) and this yields the *often* interpretation.

Let us now consider the QAD examples in (16):

(16) Mass / no iteration:

a. La fontaine a beaucoup craché d'eau
the fountain has a lot spouted of-water

'The fountain spouted a lot of water'

b. Il a beaucoup bu de lait
he has a lot drunk of milk

'He drank a lot of milk'

Count / iterative interpretation:

c. Il est beaucoup passé de bateaux
it has a lot passed of ships

'A lot of ships passed'

d. Il a beaucoup photographié d'éléphants
he has a lot photographed of elephants

'He photographed a lot of elephants'

In (16a) and (16b) there is nothing we can count, there is much water spouting and much milk-drinking, and there is no multiple event interpretation. What is lacking in such examples, is an atomic or minimal event. In (16c) and (16d), however, there are things we can count: we can define an atomic or minimal event of one boat-passing and of one picture-taking and quantify over them with *beaucoup*, which gives us plurals: many boat-passings and many picture-takings. Here we have a 'many times' interpretation.

This analysis gives us an answer to the question of why we need a multiple events interpretation in some cases but not in others. The multiple event interpretation is triggered by the count character of the predicate and we expect that unique events are possible in the context of mass predicates. We now predict the difference between (10) and (11): in (11) we need a multiplicity of events in order to have many pictures, and in (10) we do not need a multiplicity of events in order to have much water-spouting or beer-drinking.

3.2 Iteration in the context of mass predicates

The mass count distinction cannot, however, account for all iteration effects we find in the context of the QAD construction. There are examples of mass predicates where we do have a multiplicity of events. Some examples are given in (17):

(17) a. Pendant la semaine dernière Jean a beaucoup bu de bière
during the last week Jean has a lot drunk of beer

'Last week John drank a lot of beer'

- b. Pendant la semaine dernière il est beaucoup passé d'ordures
 during the last week there is a lot passed of waste
 par l'écluse
 through the lock
 'Last week a lot of waste has passed through the lock'

In (17a) there are several beer-drinking occasions spread over the week. In a situation in which Jean has been drinking an awful lot of beer once and then got sick (too sick to drink more) for the rest of the week, QAD cannot be used. The same obtains in (17b). Regularly heaps of waste passed by. It cannot be the case that all the waste was on one ship that passed by somewhere in the middle of the week.

Notice however that although we have iteration here, this is not Obenauer's X-times interpretation. *Beaucoup* does not mean many times. We can clearly see this in (18) where *beaucoup* is contrasted with *peu* in the context of a mass predicate:

- (18) J'ai beaucoup / peu dormi ce weekend
 I-have a lot / little slept this weekend
 'I slept a lot (not: a lot of times)/little (not: few times) this weekend'

In a context in which I slept three times this weekend, *beaucoup* and *peu* are both possible, provided that the total amount of sleep is more than average when *beaucoup* is used and below average when *peu* is used.

3.2.1 The 'imparfait'

What happens with *beaucoup* is similar to what happens in the French imperfect tense, or 'imparfait'. Normally the imparfait is used in the context of a long stretched event as in (19):

- (19) L'année dernière Marie vivait à Paris
 last year Marie lived (IMPARFAIT) in Paris
 'Last year Marie lived in Paris'

This example implies that Marie lived in Paris during the whole last year. In (20), however, we have an iterative interpretation:

- (20) L'année dernière Marie allait au cinéma
 last year Marie went (IMPARFAIT) to the movies
 'Last year Marie went to the movies'

Ducrot (1979) discusses these examples and argues that the iterative interpretation in (20) is an effect of the context and not part of the meaning of the imparfait. The imparfait is used, he argues, when the event characterizes the whole period mentioned by the time adverbial (*l'année dernière* 'last year' in (20)). Since 'going to the movies' one time is not very likely to be a characteristic of the entire period, (20)

gets an iterative meaning. This is very similar to what we have seen with *beaucoup*: if the event is likely to be continuous during the whole stretch of time we talk about, as in the examples in (10), we have a continuous event, if not, there is an effect of iteration.

3.2.2 *Beaucoup* versus *souvent*

Adverbs such as *souvent* ‘often’ have a property that is similar to the spreading property of the imparfait (cf. de Swart 1991). These adverbs force a spreading of the events over the relevant part of the time axis (cf. Stump 1981, Kleiber 1987). With respect to this, *souvent* differs from the cardinal count adverbials such as *ten times*. This difference is illustrated in (21):

- (21) a. Pendant le premier semestre Anne est souvent allée au cinéma
 ‘The first semester Anne often went to the movies’
 b. Pendant le premier semestre Anne est allée au cinéma dix fois
 ‘The first semester Anne went to the cinema ten times’

In (21a) Anne went to the movies regularly but in (21b) the ten visits need not be spread over the semester. Adverbs that force a regular distribution of events over (the relevant part of) the time axis are called frequency adverbs, and examples are *souvent* ‘often’, *rarement* ‘seldom’ and *quelquefois* ‘sometimes’. De Swart (1991) suggests that the regular distribution in the context of frequency adverbs is related to the fact that they describe a quantity that is relative with respect to a time period. Cardinal count adverbials describe an absolute quantity and their interpretation is independent of the time interval.

Time adverbials that impose a so called homogeneity requirement on the predicate they combine with are compatible with frequency adverbs but not with cardinal count adverbs:

- (22) For two years Anne played the piano often/*thirty times

Souvent makes a homogeneous interpretation possible because it is interpreted relative to time: for every time interval that is part of the two years Anne played the piano often relative to that time interval. From this it clearly follows that frequency adverbs can characterize a time interval in a homogeneous way, which means that the events are spread over the relevant part of the time axis. The question is why in (21a) this homogeneous interpretation is triggered, given that *pendant le premier semestre* ‘the first semester’ is not a time adverbial that imposes homogeneity, as shown in (21b).⁵

⁵ There is a difference between *pendant* and *durant*, the latter being incompatible with a non-homogeneous event. This is clear in the examples in (i):

- (i) a. Pendant les vacances de Noël Jean a joué au ping-pong avec sa petite soeur
 b. Durant les vacances de Noël Jean a joué au ping-pong avec sa petite soeur
 ‘During the Christmas vacation Jean played ping-pong with his little sister’

I will not answer this question but only sketch two possible approaches. On one account, the spreading of the events might be due to a conversational implicature: because the total number of times *souvent* refers to is related to the length of the time interval, one has to choose the time interval in an appropriate way. On the other account, the time adverbial introduced by *pendant* might be ambiguous and have a homogeneous and a non-homogeneous meaning. This could interact with *souvent* in such a way that *souvent* is only compatible with the former. Dowty (1979) argues that time adverbials introduced by *for* in English impose homogeneity because they are quantifiers that universally quantify over (relevant) subparts of the time interval. This could be one of the interpretations of the time adverbial introduced by *pendant*, and this interpretation is compatible with *souvent*. It might be the case that the non homogeneous interpretation that we need for (21b) is such that it does not provide us with a proper and explicit time interval for *souvent*, and that the homogeneous interpretation is therefore the only possible one.

I assume that *beaucoup* in the QAD construction is similar to *souvent* and requires the event to be spread over the time axis. We have an iterative interpretation, even in the context of a mass predicates as in (19), because there has to be ‘a lot of event’ in every relevant subpart of the time interval. This can be obtained in two ways: the event can be continuous during the time interval, as in (10), or there can be portions of event spread out over the time interval, resulting in iteration, as in the examples in (19).

The claim that *beaucoup* shares the ‘spreading property’ with *souvent* can be further motivated. The contrast in (23) is at first sight evidence in favour of the contrary (cf. Obenauer 1983):

- (23) a. Pendant mon absence on a beaucoup construit dans ce village
 ‘When I was away they built a lot in this village’
 b. Pendant mon absence on a souvent construit dans ce village
 ‘When I was away they built often in this village’

As de Swart (1988) phrases it, (23a) can be uttered if I see just the result of the building and have no idea whether all those buildings have been built simultaneously during a small subpart of the period that I was away. This situation would make (23b) infelicitous.

It is important to note that *beaucoup* is in this case interpreted as the object of the verb and not as a normal adverb. In the absence of an object *beaucoup* can function as a ‘floating quantifier’:

In (ia) there can be one ping-pong game somewhere around Christmas while (ib) implies that ping-pong has been Jean and his little sister’s main activity during the Christmas vacation.

- (24) a. J'ai fait *(mes devoirs)
 I-have done my homework
 'I did my homework'
 b. J'ai beaucoup fait
 I-have a lot done
 'I did a lot'

The verb *faire* 'to do/make' needs an object as (24a) shows. The example in (24b) is fine, which suggests that *beaucoup* is the object or licences an empty object position. It is similar to the floating quantifier *tout* 'everything' in (25):

- (25) J'ai tout fait
 I-have everything done
 'I did everything'

Floating *beaucoup* is similar to a nominal object such as *beaucoup de choses* 'many things' in that it can be interpreted relative to a time interval but does not need to be. The adverb of quantification *souvent*, on the other hand, needs to be interpreted relative to a time interval.⁶

Adverbial *beaucoup* patterns with *souvent* and not with floating *beaucoup*. The use of adverbial *beaucoup* instead of *souvent* does not cancel the effect of a relative distribution over the time axis in (26):

- (26) Pendant le premier semestre Marie est beaucoup/souvent allé au cinéma
 'During the first semester Marie went to the movies a lot/often'

In this example *souvent* and *beaucoup* are almost synonymous, and this is so because the count predicate 'go to the movies' triggers a many event interpretation. The frequency adverb *souvent* inherently describes many events. Contrary to *souvent*, *beaucoup* does not express any notion of frequency, but gets it in the context of a count predicate. We do not need to have many different events in the context of a mass predicate, but we do have iteration as a result of spreading. I assume that the difference between adverbial *beaucoup* and floating *beaucoup* lies in that the former but not the latter must be interpreted relative to a time period. In QAD we have adverbial *beaucoup* (there will be more evidence for this below) and hence iteration as a result of spreading.

3.2.3 Venir de

It has already been mentioned that QAD is excluded in the context of *venir de* 'to have just':

⁶ I do not consider the so-called 'atemporal' uses of *souvent* here, as in *Les cochons sont souvent intelligents* 'Pigs are often intelligent'.

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- (27) *Il vient de beaucoup boire de lait (= (6))
 He comes DE a lot drink of milk
 'He just drank a lot of milk'

Obenauer argues that this sentence is evidence in favour of the multiplicity of events requirement and assumes that this sentence is out, because the complement of *venir de* must denote a unique event. Not only is *beaucoup* excluded in the complement of *venir de*, but so too is *souvent*, whether or not we have QAD:

- (28) ?*Il vient de beaucoup/souvent sauter en l'air, c'est pour cela qu'il est tellement crevé
 'He just jumped a lot/often, that is why he is dead tired'

But we cannot assume that the reason for the impossibility of (27) is a 'unique event requirement' that conflicts with the QAD construction: with mass predicates such as 'drink milk' we can have a unique event as we have seen in (10). There is also an independent reason to exclude this explanation: there is evidence that the complement of *venir de* can be a 'multiple event'. It is possible to have a cardinal count adverbial such as *une centaine de fois* 'about a hundred times' in the complement of *venir de*. This is shown in (29):

- (29) Il vient de sauter en l'air une centaine de fois, c'est pour cela qu'il est tellement crevé
 'He just jumped about a hundred times, that's why he is dead tired'

This means that the ungrammaticality of (27) is independent of a multiple event interpretation, and is not an argument in favour of a multiplicity of events requirement on QAD.

The impossibility of (27) and (28) seems to be related to the similarities between the adverbs of relative quantity and imparfait, discussed in the previous section. It is impossible to specify the right and left boundaries of an event that is rendered by the imparfait (cf. Hoepelman and Rohrer 1980).⁷ The adverbs of relative quantity share this property with the imparfait, hence the impossibility of their

⁷ According to Hoepelman and Rohrer (1980), it is possible to specify the left boundary but impossible to specify the right boundary of the event when we use an imparfait. This is not entirely true: one can specify the left boundary but only with respect to the reference time and not by a point in time:

- (i) Il travaillait depuis deux heures / 'He had been working for two hours'
 (ii) Il travaillait à partir de deux heures / 'He worked starting at two o'clock'

Although (i) can refer to one working event, (ii) cannot; this sentence can only get a habitual reading. Hoepelman and Rohrer argue on the basis of the non-habitual reading of (i) that the imparfait is compatible with a left boundary, but (ii) shows that the imparfait is incompatible with a precise left boundary specification.

occurring in the complement of *venir de*, which specifies the right boundary. Nor is it possible to specify the left boundary:

- (30) *Il est sur le point de beaucoup raconter d'histoires⁸
 he is on the point to a lot tell of-stories
 'He is about to tell a lot of stories'

I assume that the impossibility of the adverbial use of *beaucoup* is due to the incompatibility of an adverb of relative quantity and the specification of a (right or left) boundary.

As has been shown above *beaucoup* can be used as a floating quantifier and then is not necessarily relative to time. It is possible to have this *beaucoup* in the complement of *venir de*:

- (31) (?)Je viens de beaucoup manger
 I come DE a lot eat
 'I just ate a lot'

There is a very clear contrast between (31) and (27). QAD in the complement of *venir de* is always judged to be ungrammatical while (31) is just a bit odd. Moreover *beaucoup* must be interpreted as the object and not as an adverb. This shows again that the *beaucoup* we have in QAD is similar to adverbial *beaucoup* and not to floating *beaucoup*.

4. Conclusions

In this paper I have shown that QAD is not subject to a multiplicity of events requirement, contrary to what has been claimed in the literature (Obenauer 1983, 1984 and de Swart 1988). Certain contexts trigger a multiplicity of events effect, but this is not a necessary feature of QAD. The evidence that forces us to reject the multiplicity of events requirement consists of the sentences in (10), which are QAD sentences that refer to a unique event.

QAD gives rise to a multiplicity of events interpretation in certain contexts. First, quantification over a count predicate results in a multiple event interpretation. A count predicate is a predicate that can be decomposed into minimal events that we can count. In order to have 'a lot' of a count predicate we need a lot of minimal events, and then we obtain a many times interpretation (cf. the example in (11)). The second source of a multiple events interpretation in the context of QAD is the fact that *beaucoup* describes a quantity relative to a time interval, and this yields a relative distribution of the event over this time interval. In the context of a mass predicate this property of *beaucoup* may result in an iterative interpretation but not an many times

⁸ Thanks to Alice ter Meulen for drawing my attention to this point.

interpretation (cf. the examples in (17)). Adverbs of relative quantity have an other property in common which is incompatibility with the specification of a right or a left boundary. Both properties are shared by the imparfait. A unique event interpretation of a QAD sentence is possible (cf. (10)) if we have a mass predicate and the event is continuous during the relevant period of the time axis.

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