

Remarks on the polar orientation of *almost**

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There is a solid intuition that at least the following two components are part of the meaning of the sentence *Travis almost died*:

- (1) Travis came close to dying.
- (2) Travis did not die.

Following Horn (2002), I will refer to (1) as the proximal meaning component of *almost*, while (2) will be called the polar component. With respect to (1), the obvious question arises what it means exactly to be close to something and on what scale this notion of proximity is measured. With respect to (2), a more pragmatic question is salient, namely whether the denial of the complement of *almost* is asserted, presupposed, or conventionally or conversationally implicated.

In this paper, I will focus on what predictions different analyses of the two meaning components illustrated in (1) and (2) make with respect to what may be called the *polar orientation* of *almost* and which manifests itself in two distinct ways. First of all, despite the negative polar component, utterances with *almost* do not seem to make this negative aspect very prominent. Consider (3).

- (3) Fortunately, almost all my friends attended my wedding.

Regardless of the fact that part of this sentence conveys that not all the speaker's friends attended his wedding, the speaker still marks his statement as being fortunate. This is in stark contrast with the following example where *almost* is replaced by *not quite all*, which, on first sight, seems to have a similar meaning.

- (4) Fortunately, not quite all my friends attended my wedding.

Whereas we may infer from (3) that the speaker is pleased that most his friends attended the wedding, (4) seems to suggest she is pleased that some of them failed to turn up. In other words, whereas in (3) the evaluative adverb *fortunately* cannot focus on the negative component that says that not all the friends

came to the wedding, in (4) it is this part of the sentence that is marked as being fortunate.¹

The second aspect of the polar orientation of *almost* is that its proximal component seems to be *directed*. Consider (5):

- (5) Almost 200 guests attended my wedding.

One can only truth-fully utter (5) when the number of guests was *less* than 200. Clearly, (5) is false when the actual number of guests at the wedding was 202.

In sum, *almost* appears *positive* in two distinct ways. First of all, its negative polar component is backgrounded, which means the non-negative proximal component is most salient. Second, this proximal component is upwards directed. In the remainder of the paper, I will be focusing on data that force us to abandon the latter part of this characterisation. While I will argue that the polar component is indeed in some sense not part of what is been asserted, I will show that the directedness that comes with *almost* depends crucially on the context.

I first of all look into an interesting relationship between the two meaning components of *almost*. The polar component is often used to explain the directedness of proximity. Consider, for instance, (5) once more. The proximal component merely says that the number of guests was close to 200: the number of guests that attended the speaker's wedding was somewhere in the range of 196–204. The polar component denies the rest of the sentence *almost* occurs in. It says that it is not the case that 200 guests attended the speaker's wedding. Sadock (1981) notes that this is normally understood as there being *fewer* than 200 guests at the wedding. The upward directedness is therefore a result of the polar component, not of the proximal one.

Penka (2005) is more explicit and reasons that the directedness is the result of the denial of the sentence without *almost* and the monotonicity inferences this sentence allows for. It follows from (6) below that denying there are 200 guests entails that there were fewer than 200 guests. Consequently, if the sentence *Almost 200 guests attended my wedding* triggers the denial of there being 200 guests, it follows from this sentence that there were fewer than 200 guests.

- (6) There are 201 guests at the wedding $\Rightarrow$ There are 200 guests at the wedding $\Rightarrow$ There are 199 guests at the wedding $\Rightarrow$ etc.

This interaction between the polar and proximal component is somewhat mysterious given that, as we saw above, the polar component is invisible to adsentential evaluatives like *fortunately*. On numerous occasions (e.g. Sadock 1981, Ziegeler 2000), it has even been argued that the polar component is a conversational implicature, albeit a rather strong one. Sadock offers support for

such a view on the basis of two observations of features the polar component shares with conversational implicatures. First of all, the negation implicit in *almost* can be non-redundantly reinforced, as in *almost, but not quite all*. This is in contrast to something like *#many, and some*, where the addition of *some*, which is included in the meaning of *many*, is infelicitous. Second, the polar component is, like most conversational implicatures, non-detachable. That is, it occurs with expressions that are synonymous to *almost*. For instance, *nearly every* triggers the same inference of *not everyone* as *almost everyone* does. The implicature is calculated using the context and the conventional meaning of the expression. Therefore, as expected, an expression that has the same conventional meaning as *almost* gives rise to the same conversational implicature. (See Sadock 1978 for discussion.)

These observations are hardly conclusive evidence for a conversational implicature analysis, however. First of all, it is well known that these tests give neither necessary nor sufficient conditions for being characterised as a conversational implicature (see, again, Sadock 1978, but also Horn 2002). Second, one of the most suggestive tests, namely the cancellability of the implicature, fails in the case of *almost*. It is clearly infelicitous to state that *almost, in fact exactly, 200 guests attended the wedding*.

The alternatives offered to Sadock's radically pragmatic proposal range from categorising the polar component as part of conventional meaning, as a presupposition, as a conventional implicature or as a non-asserted entailment. (See Horn 2002 for an overview). As we will see, of these only the latter three potentially offer an explanation for the reason why the negation is not so prominent. Consider the following examples:

- (7) Fortunately, John's son is 8 years old.
- (8) Fortunately, Jake, who by the way is a movie star, did not come.
- (9) Fortunately, some students attended the wedding.

A speaker cannot use (7) to mark John having an 8-year-old son as being fortunate. The presupposition that John has a son escapes the scope of the sentence adverbial. Similarly, (8) cannot be used to express that it is fortunate that Jake is a movie star. (I will assume with Potts 2005 that appositive relatives like the one in (12) can be seen as triggers of a conventional implicature.) Finally, in (9) the conversational implicature that not all students attended the wedding escapes predication by *fortunately* as well.

The above examples show that were we to assume that the polar component of *almost* is either a presupposition, a conventional implicature or a conversational implicature, then we immediately have an explanation for the

non-negative flavour of *almost*. If the negation in the polar component is part of the conventional meaning of *almost*, however, then we cannot explain why the negation is invisible to *fortunately*. Strong support for the fact that the polar component is not part of conventional meaning comes from (10).

- (10) If you want to pass the exam, you have to answer almost all questions correctly.

Were the negation part of the sentence's conventional meaning, then we would expect (10) to mean that only if one answers close to, but not all questions correctly, does one pass the exam. But clearly, (10) allows for exams being passed where all questions were answered correctly. For extra support, note the contrast with (11).

- (11) If you want to pass the exam, you have to answer not quite all questions correctly.

Taking stock, I offer the weak conclusion that the polar component of *almost* is not part of conventional meaning. It is not generally cancellable, however, which suggests that it may interact with conventional meaning.

Bearing the above discussion in mind, we can now turn to the question of the directedness of *almost* and whether or not this is a result of there being a polar component that involves negation. Let us first look at two kinds of existing theories of the semantics of the proximal component. I distinguish between:

- A. THE INTENSIONAL APPROACH: *almost p* is true if and only if there is a world which is not very different from the actual world in which *p* is true.
- B. THE SCALAR ALTERNATIVE APPROACH: *almost p* is true if and only if there is a contextually salient, focus-induced or lexically motivated scalar alternative *p'* which is close to *p* on the scale of alternatives and which is true.

Given an example like *Almost 200 guests came*, the intensional theory now says that this is true if we can find a nearby world in which 200 guests came, while the scalar approach says the example is true in case an alternative proposition *n guests came*, with *n* close to 200, is true in the actual world.

A prime example of a theory like (A) is Sadock 1981, while a prime example of the theory in (B) is Penka 2005. The latter kind of theory is more explicit than the intensional one, since it is intuitively easier to associate scales with a notion of proximity than it is to decide how close two possible worlds are to one another. It is reasonably straightforward, however, to spell out intensional proximity in somewhat more detail. Suppose we view possible worlds as mappings from constants to set-theoretic constructs based on some domain of entities. For ease of exposition, let us only focus on first order unary

predicates, that is, set denoting constants. I define a minimal notion of distance between two worlds by saying that w is 1-removed from w' if and only if there exists a constant P and an entity d such that either $w(P) = w'(P) \cup \{d\}$ or $w'(P) = w(P) \cup \{d\}$, while w and w' agree on the extension of all other constants. A world w is 2-removed from w' if there is a world w'' that is 1-removed from both w and w' . In general, w_1 is n -removed from w_n if there exists a sequence $w_n, w_{n-1}, \dots, w_1$ such that for all $n \geq i > 1$, it holds that w_i is 1-removed from w_{i-1} . The intensional proximity approach can now be redefined as: *almost p* is true if and only if p is true in some n -removed world, where n is small.²

Both approaches perform equally well in explaining the following well-known restrictions on the distribution of *almost*: (i) as a DP-modifier, *almost* can only combine with universal quantifiers and (ii) the case of numerals forms an exception to (i). These facts are illustrated by the following examples.

(12) Almost every/all student(s) came.

(13) *Almost a/some student(s) came.

(14) Almost 200 students came.

Penka (2005) explains as follows. If not every student came, then there are many possible alternatives left open. For instance, *all but one*, *many*, *few* or even *no* students could have come. All these alternatives are on different parts of the scale of quantifiers and *almost* picks out those that are relatively close to the end-point represented by *every*. This is in contrast to what happens when *almost* combines with *some*. If it is not the case that *some* student came, then the only alternative is that no student came. That is, there is no notion of proximity that can apply, since *some* is at the very bottom of the scale. The case of the numeral in (14), however, is fine again, since here there are 200 (this is including the proposition that no student came) ranked alternatives, which clearly provides a measure of proximity.

The intensional theory I worked out above can account for these examples in a similar way. Say, there are 300 contextually salient students. A world in which every student came is then 1-removed from a world in which 299 of the students came and 300-removed from a world in which no student came. So, (12) says that, for instance, in some at most 10-removed world everybody came. In other words, it says that, in the actual world, between 290 and 300 students came.³ In the case of *some*, a similar reasoning fails. This is because all worlds in which it is not the case that some student came are 1-removed from a world in which some student did come. One only has to add one student to the denotation of *come*, to turn a no-student-came-world into a some-student-came-world.

The above shows that the reasoning used by a scalar alternatives-based theory of the distribution of *almost* also works for the intensional proposal. With respect to explaining the limitations of *almost* as a DP-modifier, the approaches therefore do equally well. With respect to the VP domain, however, the intensional proposal appears far more suitable to offer an analysis. Consider (15).

- (15) Travis almost qualified for the long-jump final.

Assume that one has to jump 6 metres to qualify for the final. Let us consider three possible scenarios: (I) Travis jumps 2 metres, (II) Travis jumps 5 metres and 90 centimetres and (III) Travis jumps 6 metres and a half. The second of these scenarios is the only one in which (15) is true. In (III), the polar component of *almost* is not fulfilled. Intuitively, (15) is false in (I) because 2 metres is not close enough to 6 metres. But how do we account for this in the two theories of proximity we have seen so far?

The notion of proximity in the scalar approach is based on scales of alternative propositions. Crucially, these scales are based on ordered sets of natural language expressions (such as the Horn-scale $\langle no, some, \dots, many, \dots, all \rangle$). Consequently, we have no hope of accounting for the long-jump scenario, since there seems to be only one relevant alternative to the VP *qualify for the long-jump final* and that is *did not qualify for the long-jump final*. The result is a scale consisting of two alternatives, which does not suffice for a measure of proximity.

Alternatively, one could advance a notion of scale that is independent of scales of natural language expressions, one based on the VP denotation only. This will not work either, however. The reason is that the meaning of the example in (15) cannot be expressed in terms of the set denoted by the VP. The set of qualifiers is irrelevant to the truth of *Travis almost qualified*. The only thing that matters is Travis' efforts.

But how would the intensional theory fare? What would a world that is nearby a world in which Travis qualifies look like? The above shows that the denotation of the predicate *qualify* is not where we should look. What a scenario like the above makes clear is that predicates that indirectly influence the proposition are relevant. For instance, we could represent the two situations described above in which Travis did not qualify in terms of the denotations of *qualify* and Travis' jump.

- (I) $[[qualify]] = \{Betsy, Iris\}$
 $[[\lambda x. jump(Travis, x)]] = \{0.00, \dots, 2.00\}$
- (II) $[[qualify]] = \{Betsy, Iris\}$
 $[[\lambda x. jump(Travis, x)]] = \{0.00, \dots, 2.00, \dots, 5.90\}$

I am assuming here that degree predicates are monotone (Kennedy 2001, Heim 2000). That is, if Travis jumped 5 metres, he also jumped 4 metres, 3 metres etc. So, the set of degrees jumped by Travis in situation (II) consists of more degrees than the one in (I). The following would now be an imaginable similar situation in which Travis did manage to qualify for the long-jump final.

- (X) $[[\text{qualify}]] = \{\text{Betsy, Iris, Travis}\}$
 $[[\lambda x.\text{jump}(\text{Travis}, x)]] = \{0.00, \dots, 6.00\}$

Clearly, the intensional theory of proximity would say that (II) is closer to (X) than (I), simply because many more degrees should be added to Travis' jump to go from (I) to (X) than should be added for the transition from (II) to (X).⁴

In sum, the flexibility offered by the intensional theory of proximity is needed to account for *almost* as a VP modifier. The scalar approach cannot offer a scale that is fine-grained enough. The proximity expressed by *almost* does not limit itself to scales consisting of alternative propositions.

Notice, however, that (as does the scalar alternative approach) the intensional approach presupposes that the proximity expressed by *almost* is related to a form of monotonicity. It is questionable, however, whether *almost* only combines with monotone expressions. Consider (16).

- (16) It is now almost 3.00AM.

Whereas it is felicitous to utter (16) at 2.55AM, it is infelicitous to utter this sentence at 3.05AM. Our explanation of this type of directedness was based on entailment. Such an explanation will not work here, since, surely, *it is now 3.05AM* does not entail that *it is now 3.00AM*.

The following example is also problematic, this time with respect to the measure of proximity.

- (17) Travis was almost on time.

Imagine two situations, one in which Travis was 1 hour late (A) and one in which Travis was 1 minute late (B). We want to say that the latter situation is closer to a world in which Travis was on time than the former. But how do we decide this if there is no entailment scale which orders time? For the intensional theory to work, we need to assume that the worlds (A) and (B) and the on-time worlds (C) look like this:⁵

- (A) $[[\lambda x.\text{arrive}(\text{Travis}, x)]] = \{0, \dots, t, \dots, t+1 \text{ minute}, \dots, t+1 \text{ hour}\}$
 (B) $[[\lambda x.\text{arrive}(\text{Travis}, x)]] = \{0, \dots, t, \dots, t+1 \text{ minute}\}$
 (C) $[[\lambda x.\text{arrive}(\text{Travis}, x)]] = \{0, \dots, t\}$

Obviously, however, these denotations are based on the problematic presumption that if Travis arrives at 3 o'clock, he also arrives at a quarter to 3.

It is easy to think of similar examples in other domains. For instance, *it is now almost 20°C* is false when it is in fact 21°C. Also, if the record temperature for de Bilt is 45°C, then obviously it is less felicitous to utter *today's temperature in de Bilt was almost a record* when it is in fact 0°C than it is when the temperature is 44°C. But, again, there is a lack of entailment. When it is 45°C, it is not 0°C as well.

Or is it? Obviously, when water is boiling it does not freeze at the same time, but temperatures are clearly ordered in some sense. For the temperature to rise from -100°C to 100°C, it will have to pass 0°C at some point or another. In that sense, 100°C does contain 0°C. A similar point can be made with time. It cannot turn 3 o'clock without it being a quarter to 3 slightly earlier. Domains like time and temperature are overladen with order. The best illustration of this is the availability of polar degree predicates, like *late*, *early*, *warm*, *cool*, etc. These presuppose an ordering of time and temperature degrees. Consider, for instance, the following combinations with *too*.

(18) The water is 2 degrees too warm.

(19) The water is 2 degrees too cold.

If the water was intended to be 20°C, then (18) implies that instead the water is 22°C, while (19) implies it is 18°C. So, *2 degrees too X* says that the measure of *X* is 2 degrees off the mark. *X* itself, however, expresses the directionality we should take into account.⁶

Importantly, the examples in (18) and (19) show that there is not one fixed ordering of temperature degrees. The ordering is filled in by the chosen predicate and, in fact, the orientation of *almost* can also be influenced by predicate choice:

(20) Yesterday, it was 10°C. Today, it was almost that warm.

(21) Yesterday, it was 10°C. Today, it was almost that cold.

Whereas (20) says that today the temperature was less than 10°C, (21) says the temperature was more than 10°C. The reason seems to be that *warm* invokes an ordering [... < 9°C < 10°C < 11°C < ...], while *cold* invokes an ordering [... < 11°C < 10°C < 9°C ...]. In the recent literature, the polar opposition of predicates like *warm* and *cold* is formally analysed by assuming an interval- or extent-based ontology of degrees (Kennedy 2001, Meier 2003). In such an approach, degrees are not simple primitives, but correspond to intervals on a scale. Positive degrees are extents that start at the lower end of the scale, while

negative degrees are extents that end at the top end of the scale.⁷ This is best illustrated with an example. Say, it is 10°C. This temperature corresponds to a different degree on the scale of warmness than it does on the scale of coldness.

$$\begin{array}{ll} (\text{warmness}) & d = [-273^{\circ}\text{C}, \dots, 10^{\circ}\text{C}] \\ (\text{coldness}) & d = [10^{\circ}\text{C}, \dots, \infty^{\circ}\text{C}] \end{array}$$

To be 20°C *warm* now means that 20°C is a member of the positive degree that represents the temperature. Clearly, an approach like this provides the intensional account of proximity with a appropriate measure. A world in which the temperature is 20°C is further removed from a 30°C-world than it is from a 21°C-world, irrespective of whether or not we are interested in positive or negative degrees. Negation, however, does interact with the positive/negative distinction for extents. If something is *not 20°C warm*, then it will be colder, since positive degrees that do not contain 20°C range from the absolute zero to any °C that is less than 20. This is supported by the following observation.

(22) Yesterday, it was 10°C. Today, it is not that warm.

(23) Yesterday, it was 10°C. Today, it is not that cold.

Although, both examples deny the fact that it is 10°C today, (22) says it is colder, while (23) says it is warmer, as predicted by the use of positive and negative extents. The data in (20) and (21) can then be explained as a side-effect caused by the negation in the polar component of *almost*. The polar component for *almost that warm* (*almost that cold*) negates predication over a positive (negative) degree and therefore indicates that the actual temperature is colder (warmer).

If the extent approach is on the right track, then we expect that depending on the context, the orientation of *almost* can be pointed in any direction. With a little bit of imagination it is quite easy to come up with examples in which *almost* expresses proximity from a different direction than is normally the case:

(24) [A man in a time machine observing a clock that says 3.05AM:]
It is now almost 3.00AM!

(25) [A hopeful organiser of an outdoor ice skating event observing a thermometer that reads 1°C:]
It is now almost 0°C!

What the use of extents shows is that it is possible, and indeed desirable, to impose scales on degree predicates, like *warm* and *cold*.⁸ Nevertheless, as discussed above, we have clear intuitions that these scales are, most often, absent. Boiling water is not 0°C. This means that while polar degree predicates or strong contextual clues may impose an entailment scale on the degree, there

is no entailment when these are absent. So, a strong non-scalar reading is preferred when nothing indicates that a weaker reading was intended. *Almost* is one such way of indicating that a scalar reading was intended. This is because *almost*'s proximal component presupposes that times, temperatures, heights etc. are not simply names for degrees, but interrelated ordered sets. If 3.00AM in *it's now almost 3.00AM* denoted merely an independent name for a moment in time, then there would be no measure for proximity that could apply, since there is no notion of distance between these names for times.

One way to enforce a non-polar reading is by using *exactly*. Given what I have said above, we would expect *almost* not to combine with this modifier. Saddock (1981), however, observes that *almost* loses its directionality when combined with this modifier. An example like (27) contrasts with (16), repeated here as (26), since it may be true both when uttered prior to 3.00AM and when uttered after 3.00AM.

(26) It is now almost 3.00AM.

(27) It is now almost exactly 3.00AM.

I propose to account for (27) by assuming that *exactly* maximises the level of precision by which its complement is interpreted. Normally, when one utters *it is 3.00AM* it does not seem to matter that, in fact, it is a few seconds before or after 3.00AM. In fact, often when one utters such a sentence there might even be 'pragmatic slack' of several minutes. What *exactly* seems to do is remove such imprecision. A side effect of this is that *exactly* excludes the possibility of a scalar reading for the degree expression, since the entailments such a reading licenses would yield no level of precision at all.

The example in (27) can then be explained as follows. Exact degree expressions denote singleton sets of values. The less precise one construes an expression, the larger the set of values it denotes is. This can be illustrated with the following time construals:

$[[\text{time}]]_{\text{exact}}$	=	{3:00:00}
$[[\text{time}]]_{\text{quite-precise}}$	=	{2:59:50,...,3:00:00,...,3:00:10}
$[[\text{time}]]_{\text{not-so-precise}}$	=	{2:55:00,...,3:00:00,...,3:05:00}
$[[\text{time}]]_{\text{not-precise}}$	=	{2:45:00,...,3:00:00,...,3:15:00}

There is an inclusion relation between these different construals of the time, viz. $[[\text{time}]]_{\text{exact}} \subseteq [[\text{time}]]_{\text{quite-precise}} \subseteq [[\text{time}]]_{\text{not-so-precise}} \subseteq [[\text{time}]]_{\text{not-precise}}$. Consequently, we can apply the intensional proposal to proximity. A world in which the time-measurement is not precise is further removed from a world in which the time is exact than a world in which the time is measured with more precision. Note that we have to assume that worlds differ with respect to

precision. However, since we view worlds as interpretation possibilities, this is only to be expected.

This explanation of the interaction of *almost* with *exactly* is in harmony with what I consider the main result of this study: that the two meaning components of *almost* depend on an inclusion scale which decides polar orientation. The reasoning behind this result can be summarised as follows. Following Sadock (1981) and Penka (2005), I proposed that the directedness of *almost* is the result of the polar component. This can only be so, however, if the possible worlds in which the sentence without *almost* is false can be mapped to some inclusion scale of denotations. *Almost*, in fact, presupposes the existence of such a scale since a measure of proximity depends on there being some kind of ordering. I have shown that one can formally account for the observations on the polar orientation of *almost* using an extent-based ontology for degrees. I moreover argued that one must assume that degree expressions are underspecified with respect to whether they are interpreted positively, negatively or neutrally. Given this underspecification, the intensional theory of proximity I have presented, which is based on scales of worlds that differ only with respect to the denotation of some predicate(s), explains the variation in polar orientation that we observe with *almost*.

Notes

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1. See Nouwen 2005 for an analysis of the interaction between evaluative adverbs like *fortunately* and polarity.
2. Note that n -removed is monotonic, symmetric and reflexive. Since $w(P) \cup \{d\} = w(P)$, if w, w' are n -removed from one another they are also $n+1$ -removed from one another (hence monotonic). (Consequently, what we are interested in is the minimal n such that two worlds are n -removed from each other). Since $w(P) \cup \{d\} = w(P)$, it follows that every world that yields a non-empty extension for at least one constant (and we assume all worlds to do this) is 1-removed from itself. Given monotonicity, it follows that for every n , for every w , w is n -removed from w (hence reflexive). It follows moreover directly from the definition of 1-removed that if w is 1-removed from w' , w' is also 1-removed from w . Given monotonicity, it follows that for every n , for every w, w' , it holds that w is n -removed from w' if and only if w' is n -removed from w (hence symmetric).
3. Similar reasoning applies to (14). Moreover, it can also be explained why lower numerals cannot be modified by *almost*. An example like *#Almost 2 students came*, for instance,

is in sharp contrast with (14). This is to be expected since worlds in which it is not the case that 2 students came, are either 1- or 2-removed from worlds in which 2 students did come. Consequently, there is no basis for a measure of proximity.

4. This presupposes that we do not take there to be an infinity of possible distances for Travis' jump that lie between (I), (II) and (X). As an anonymous reviewer warns, if you partition the distance between 0 and 6 metres in infinitely many segments, you predict that there will have to be as many degrees added to Travis' jump to go from (II) to (X) as there will have to be added in a transition from (I) to (X) (namely infinitely many). I assume, however, that there are limits to how precise one can measure Travis' jump. The scale of degrees that comes with long-jump is therefore not dense.

5. I'll leave it to the imagination of the reader to decide what 0 is supposed to indicate here. Basically, any moment that is sufficiently far in the past will do.

6. See Meier 2003 for a detailed study of *too*.

7. Based on such an ontology, the semantics for the comparative turns out to be rather straightforward and needs not to distinguish between positive and negative comparisons: $d > d'$ iff $d \cap d' = d'$. See, again, Kennedy 2001 and Meier 2003 for details on the use of extents.

8. Kennedy (2001), moreover, argues that the use of extents is necessary.

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