Superlatives, NPIs and Strawson-Entailment[*]

1. Introduction

This paper looks at superlative adjectives such as *longest*, *most expensive*, and Negative Polarity Items (NPIs) such as *any* and *ever*. These two separate aspects of language have been extensively discussed in the literature on semantics and syntax, but their interaction seems still to be incompletely understood. The modest goal of this paper is to make a small contribution to a greater understanding of these phenomena through an examination of two current leading theories – those of Heim (1999, 2001) on superlatives, and von Fintel (1999) on NPIs – and of the different consequences of these two approaches.

(1)   This is the <u>longest</u> book I have **ever** read.   (Bhatt 2002)

The fact that an NPI such as *ever* can be licensed by a superlative expression such as *longest*, as in (1), has been well known since at least Hoeksema (1986b). However, the specific property of superlatives that allows them to do so has apparently been subject to little discussion. A tentative attempt to explain this property is made by von Fintel (1999), within the terms of his Strawson-downward entailment account of NPI licensing. As I will demonstrate, von Fintel's theory creates a conflict with the theory of superlatives argued for in Heim (1999, 2001), who proposes an explanation for certain ambiguities of superlative expressions in terms of different scope possibilities for the superlative morpheme.

In Section 2 I will lay out the basic elements of Heim's account, and look at certain arguments for and against her position. In Section 3 I will discuss von Fintel's account and examine in detail the different predictions made by his and Heim's theories of superlatives. In Section 4 I will propose my solution to the problem of reconciling the two views, and present some arguments for my position; Section 5 concludes.[1]

2. Superlatives (Heim 1999)

Following Heim (1999, 2001) I assume that a gradable adjective such as *tall* denotes a two-place predicate which maps pairs of individuals and degrees to truth values (or alternatively, a relation from the domain of individuals to the domain of degrees; I will use these terms interchangeably). A function such as $||tall||$ then maps an individual-degree pair $<x,d>$ to True iff the height of x is at least d. This characterisation depends on the assumption that degree predicates are *downward monotonic*, as defined in (2) (from Heim 2001):

(2)   A function R of type <d,et> is <u>downward monotonic</u> iff

        $\forall x,d,d': [[R(d)(x)=T \ \& \ d>d'] \rightarrow R(d')(x)=T]$

(2) amounts to saying that, if a downward monotonic relation R maps an individual x to a degree d, then R also maps x to every degree lesser than d. Thus *John is 6ft tall* entails that John is 5ft tall, 4ft tall, 3ft 8in tall, etc., in manner similar to that by which *Mary ate 3 biscuits* entails *Mary ate 2 biscuits*.

(3)   Keith is tallest.

Given these assumptions about the meaning of gradable adjectives, a sentence such as (3) can be paraphrased as, "there is some degree d to which $||tall||$ maps Keith, such

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[1] This paper will not touch upon the issues of plural superlatives (for discussion, see Stateva 2005), nor on indefinite superlatives (see Herdan and Sharvit 2006). Nor will I discuss NPIs other than *any* or *ever*, such as *yet*, *lift a finger*, or *give a damn*.

that no other (salient) individual is mapped to *d* by *||tall||*". The addition of "salient"

serves to capture the intuition that someone who utters (3) felicitously is making an

assertion about Keith's height relative only to other relevant people, not to everyone in

the world. Heim (1999) thus proposes the denotation for the superlative morpheme *est*

in (4).

(4) $||est|| = \lambda C_{<et>}.\ \lambda R_{<d,et>}.\ \lambda x_e.\ \exists d:[R(d)(x)=T\ \&\ \forall y:[\ [y \in C\ \&\ y \neq x]\ \rightarrow\ R(d)(y)=F\ ]\ ]$

According to this denotation, the superlative morpheme *est* takes three arguments:

(working backwards) an individual *x*, a degree relation *R*, and a contextually supplied

set of (salient) individuals *C*. With respect to the example (3) then, *||est||*(C)(*||tall||*)

when applied to *Keith* will return True iff Keith is tall to some degree *d* such that all the

members of *C* distinct from Keith are not tall to the degree *d*.

(5)   Keith is the tallest swimmer.

It should be clear that we do not understand an utterance such as (5), where the

superlative adjective appears in a prenominal position, as asserting the conjunction of

the propositions *Keith is the tallest* and *Keith is a swimmer*. Heim assumes that the

combination of *est* and its silent context argument *C* moves from its surface position (in

(6a)) to the edge of the noun phrase, leaving a trace of type *d* (6b). The two <et>

predicates t_d-*tall* and *swimmer* can then compose intersectively; subsequent lambda

abstraction over the degree trace in the resulting <et> predicate forms a <d,et>

predicate (in (6c)), which *est-C* can take as its *R* argument.

(6)   a. [[[*est-C*] *tall*] [*swimmer*]]

b. [*est-C* 1 [[$t_{1,d}$-*tall*] [*swimmer*]]

c. [*est-C* [λd. λx. x is a d-tall swimmer]]

d. [λx. $\exists$d:[x is a d-tall swimmer & $\forall$y:[[y$\in$C & y$\neq$x]$\rightarrow$ y is **NOT** a d-tall swimmer]]]

The function in (6d), when applied to *Keith*, will return True just in case there is some

degree *d* such that Keith is a swimmer whose height is at least *d*, and any member of *C*

other than Keith fails to be a swimmer whose height is at least *d*.

So far I have been looking at the appearance of the superlative morpheme in

simple predicative utterances, where *est* can straightforwardly take the sentential

subject as its external argument. The superlative morpheme can, of course, occur with

an adjective which modifies a noun in an argument position.

(7)   James climbed the highest mountain.

Heim (1999) observes that (7) can be understood two different ways: as asserting

either that James climbed the highest of all mountains, or that the mountain that James

climbed was the highest among those that some relevant individual climbed. These two

interpretations, which Heim, following Szabolcsi (1986), refers to respectively as the

"absolute" and the "comparative", can be said to differ crucially in that with the

"absolute" construal of (7), all mountains are compared, whereas with the

"comparative", the mountains under consideration are restricted to those climbed by

relevant people. If we assume the Logical Form (LF) in (8), derived in the same way as

in (6) above, then we can derive these two meanings by assigning different values to *C*:

(8)   *James climbed* [*the* [*est-C* [λd. λx. x is a d-high mountain]]]

    C_1 = {y: y is a mountain}   ("absolute")

    C_2 = {y: y is a mountain & for some salient person z, z climbed y} ("comparative")

In (8), the combination of *est-C* with its degree relation sister produces a function of

type <et>, to which the definite determiner then applies to return the unique salient

entity which satisfies it[2]. When *C* contains all the mountains on Earth (C_1), then the

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[2] I assume the following lexical entry for *the*, from Heim and Kratzer (1998):
(i) $||the||$ = λf∈$D_{<et>}$ and there is a unique x∈D_e such that *f(x)*=1. the unique x∈D_e such that *f(x)*=1

entity picked out in (8) is Mt Everest; whereas setting C_2 could give rise to Mont Royal,

if this is the highest mountain climbed by any of the people under consideration.

As Heim (1999) notes, a sentence like (9), uttered with a neutral intonation, is also

ambiguous in a way in which (9b) and (9c) are not (where the use of block capitals

represents main sentential stress):

(9)   a. Lisa gave the tallest plant to Keith.

        b. Lisa gave the tallest plant to KEITH.

        c. LISA gave the tallest plant to Keith.

In addition to an absolute reading, (9a) also has a comparative reading corresponding

to that brought out in (9b), which one could describe as comparing people to whom

Lisa gave plants, and another in (9c), as comparing people who gave plants to Keith. If

we assume the LF in (10), we can derive the two desired truth conditions of (9b) and

(9c) by restricting the comparison set to C_1 and C_2 respectively.

(10)   *Lisa* [*gave* [*the* [*est-C* [λd. λx. x is a d-tall plant]]] [*to Keith*]]

        C_1 = {x: x is a plant & for some person y, Lisa gave x to y}

        C_2 = {x: x is a plant & for some person y, y gave x to Keith}

In the absence of prosodic cues, other contextual information presumably contributes

to determining the intended meaning of sentences such as (9a). Heim (1999) offers an

account for the disambiguating effect of contextual or prosodic cues in terms of a

theory of Focus, developing work of Rooth (1985, 1992) and von Fintel (1994). She

demonstrates how it is possible, given focus on a particular phrase, to derive the

corresponding value for the comparison set C; thus, for example, focusing the phrase

to Keith gives rise to the comparison set C_1. The implementation of her proposal

involves more extra assumptions than I wish to invoke here; I merely wish to remark the

role played by focus in determining the meaning of superlative utterances. For

example, stressing the subject of a sentence like (7) strongly prefers the "comparative"

reading, as in (11):

(11) JAMES climbed the highest mountain[3].

Another element which seems to contribute to fixing the set of objects compared

in a superlative expression is the addition of a phrase introduced by the preposition *of*,

as noted by Heim (1985).

(12) a. Of the Scots, Keith is the tallest.

b. Of the boys, James climbed the highest mountain.

It makes sense to assume that these *of*-phrases restrict the comparison set of the

superlative morpheme in the ways suggested in (13). Clearly, (12a) makes an assertion

about Keith's height with respect to other Scots, so we would want C to be restricted for

this sentence as in (13a). Interestingly, (12b) seems to have lost the absolute reading

of (7); the only reading available, where the mountain James climbed is compared to

those climbed by other boys, would require C to have the value in (13b):

(13) a. C = {y: y is a Scottish person}

b. C = {y: y is a mountain & for some salient boy z, z climbed y}

The addition of an *of*-phrase seems not only to restrict the domain of comparison, but

also to have a presuppositional effect, as (14) and (15) suggest:

(14) Ian doubts that, of the Scots, Keith is the tallest.[4]

a. He suspects that James is taller.

b. #He suspects that Keith is Welsh.

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[3] (11) could of course be used felicitously to express an "absolute" meaning in order to deny an immediately prior utterance:
(i) A: Bob climbed the highest mountain.
    B: No, JAMES climbed the highest mountain.

[4] This test is modelled on one in Herdan and Sharvit 2006.

(15) A: Of the Scots, Keith is the tallest.

B: Hey, wait a minute! I had no idea Keith was Scottish.

B': #Hey, wait a minute! I had no idea Keith was the tallest.

The relative oddity of (14b) as a continuation of the discourse in (14) suggests that

(12a) presupposes that Keith is Scottish, on the assumption that Ian cannot doubt *p*

unless he believes the presuppositions of *p* (see Karttunen 1974). This result is

confirmed by von Fintel's (2004) *Wait-a-minute!* test in (15). Whereas B legitimately

challenges a presupposition of A's utterance, B' inappropriately makes a parallel

complaint about an asserted, non-presuppositional component of A's statement.

Heim (1999) assumes that *est* presupposes that its external, individual argument

is an element of the comparison set *C*: we can capture the presuppositional effect just

noted by writing this condition into the value description of the external argument.

(16) $||est|| = \lambda C_{<et>}. \lambda R_{<d,et>}. \underline{\lambda x_e: x \in C}. \exists d:[R(d)(x)=T \text{ \& } \forall y:[[y \in C \text{ \& } y \neq x] \rightarrow R(d)(y)=F]$

$]$

Thus, the function *||est||*(C)(R) is only defined for an individual *x* if $x \in C$; otherwise,

||est||(C)(R)(x) receives no truth value. For example, (12a), with *C* set as in (13a), will

receive no truth value if Keith is not Scottish.

The data considered so far seems to support the assumption that a comparison

set enters into the calculation of truth conditions of superlative utterances. This

approach is compatible with a reasonably simple way of deriving LFs and captures

intuitions about the meanings of such sentences; and combined with the amended

denotation for *est* in (16), it offers an account for the presupposition facts. Although I

have not attempted to specify how Focus or *of*-phrases interact with the contextually-

supplied comparison set, it seems that it should be possible to do so. For example, in

(12a) *Of the Scots, Keith is the tallest*, it seems as if the comparison set is simply a

(perhaps pragmatically constrained) subset of the extension of (or the set characterised

by) the *of*-phrase. With cases like (12b), the relationship between the *of*-phrase and the

comparison set in (13b) seems to be more complex, but no doubt an algorithm could be

designed to map one to the other, as Heim claims to have managed for the cases of

Focus.

There is, of course, a "however": in the approach sketched out so far, the contrast

in (17) is unexpected.

(17) a. Of the boys, James climbed the highest mountain.   (=(12b))

b. #Of the boys, Lisa climbed the highest mountain.

Recall what we thought the LF and the comparison set for (7) would be, repeated here:

(18) *James climbed* [*the* [*est-C* [λd. λx. x is a d-high mountain]]]

C = {y: y is a mountain & for some salient boy z, z climbed y}

The definite DP in (18) picks out the unique entity that is the highest element of the set

of mountains that some relevant boy climbed, and then the utterance as a whole

asserts that James climbed that entity. If the analysis is correct, then nothing should go

wrong when we replace *James* with *Lisa*; but apparently (17b) only makes sense if Lisa

is in fact a boy.

The intuition to be captured here is that the presence of the *of*-phrase is in some

way connected with the presupposition that the sentential subject is a member of its

extension. A solution which can account for this additional fact with the minimum of

tinkering is surely to be preferred; and in an alternative analysis which she considers,

and finally argues for, Heim (1999) offers precisely that. Giving *est* the same denotation

as in (16), but allowing it to move out of the DP and take scope above the VP,

produces the following LF for (7):

(19)   *James* [*est-C* [λd. λx. x climbed a d-high mountain]]

     James [λx: x$\in$C. $\exists$d:[x climbed a d-high mountain &

               $\forall$y:[[y$\in$C & y$\neq$x]$\rightarrow$ y did **NOT** climb a d-high mountain]]]

According to (19), (7) *James climbed the highest mountain* is True on its comparative reading iff there is some degree *d* such that James climbed a mountain of height *d* and no other member of *C* climbed a mountain of height *d*. Instead of comparing mountains climbed by people, here we are directly comparing people who climbed mountains; it would make sense then to assume that, in (17a), the comparison set simply is the set {y: y is a boy}. Going one step further, one could assume, with Heim (1985), that the *of-phrase* directly supplies the domain of comparison, reconstruct it into the position of *C*, and allow *est* to take it as its first argument.

(20)   *James* [[*est* [*of the boys*]] [λd. λx. x climbed a d-high mountain]]

     James [λx: x is a boy. $\exists$d:[x climbed a d-high mountain &

               $\forall$y:[[y is a boy & y$\neq$x]$\rightarrow$ y did **NOT** climb a d-high mountain]]]

This analysis then straightforwardly predicts the oddness of (17b); the function in (20) is not defined for girls, and so delivers no truth value when it applies to *Lisa*.

Allowing the *of*-phrase to directly act as the comparison set may have the advantages just outlined, but this suggestion clearly does not supply the whole story. As the presence of an *of*-phrase is plainly optional, some mechanism must fill in *est*'s *C* argument when an *of*-phrase is absent; and when an *of*-phrase is present the comparison set must nonetheless be pragmatically restricted to salient individuals. Furthermore, as Heim (1985) also points out, it is easy to find sentences like (21) that contain an *of*-phrase and yet are still ambiguous (analogously to (9)):

(21)   Of the boys, James is the most jealous of Keith.

However, by adopting Heim's (1999) movement analysis, and assuming that *Keith* can

quantifier-raise (QR) out of the AP, one can derive LFs corresponding to the possible

readings.

(22)   *James* [[*est* [*of the boys*]] [λd. λx. x is d-jealous of Keith]]

     James [λx: x is a boy. $\exists$d:[x is d-jealous of Keith &

                     $\forall$y:[[y is a boy & y$\neq$x]$\rightarrow$ y is **NOT** d-jealous of Keith]]]

(23)   *Keith* [[*est* [*of the boys*]] [λd. λx. James is d-jealous of x]]

     Keith [λx: x is a boy. $\exists$d:[James is d-jealous of x &

                     $\forall$y:[[y is a boy & y$\neq$x]$\rightarrow$ James is **NOT** d-jealous of x]]]

In summary then, absolute readings follow when *est* remains within the DP,

comparative readings can be derived when *est* scopes out, and Focus cases may be

resolved by QR of the focused constituent. The movement analysis adopted in Heim

(1999) thus accounts for all the data seen so far, and permits a unique denotation for

the superlative morpheme. This has been at the cost of complicating the LFs, positing

additional movements, and furthermore assuming that what appears on the surface to

be the definite determiner may be realised at the level of semantic representation as an

indefinite. Such assumptions require more motivation than I have been able to survey

here; the last part of this section will sketch a further argument for the *est* movement

account.

Heim (1999) provides further support for the *est* movement proposal with data

involving intensional operators such as *want* and *need*. In (24a), *the highest mountain*

can as usual be interpreted *de re* or *de dicto*, each possibility giving rise to a potential

absolute/comparative ambiguity. In addition, Heim reports that (24a) gives rise to a fifth

reading, where *est* is interpreted outside the scope of the intensional verb *wants*, whilst

mountain is interpreted *de dicto*. This reading comes out most clearly in a "survey"

scenario, where John has been asked about his mountain-climbing ambitions without

having in mind any particular mountain, or knowing the responses given by the other

people surveyed.

(24) a. John wants to climb the highest mountain.

b. *John wants* [PRO *to climb* [*est-C* [λd. λx. x is a d-high mountain]]]

c. *John* [*est-C* [λd. λx. x wants [PRO to climb a d-high mountain]]]

Heim argues that there is no way of setting the value of the comparison set *C* to derive

the "split" reading from the LF in (24b); thus she concludes that the only viable option is

(24c), where *est-C* has moved long-distance to a position where it outscopes *wants*.

Sharvit and Stateva (2002) contest Heim's solution to the problem of this data

point, providing an analysis which they claim derives the correct meaning without

resorting to movement of *est* out of the DP. For further discussion of the issue,

including detailed description of the readings in question and scenarios which

verify/falsify them, I refer the reader to the two papers in question. My interest lies in

one counterargument which Sharvit and Stateva pose against Heim's analysis.

In (25), the intensional verb is *needs*, which is similar to *wants* in the relevant

respect (of introducing a universal quantifier over possible worlds), and Sharvit and

Stateva also use *least* instead of *est* in their example, but the point is the same.

(25) John doesn't need to recommend a 5000m mountain to any student.

(= S&S's (105))

(26) a. Mary needs to recommend the least high mountain to some student.

(= S&S's (109))

b. *Mary needs to recommend the least high mountain to any student.

(= S&S's (110))

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In (25), negation appears (and is interpreted) in a position which c-commands *needs* and the indirect object of the verb *recommend,* and is apparently able to license the NPI *any* in this latter position. According to Heim's analysis, on the "split" reading analogous to that of (24a), *est* is interpreted in (26a) in the same position as negation occupies in (25) (analogously to the LF in (24c)). Sharvit and Stateva argue that if the superlative morpheme is an NPI licenser, then on the relevant reading of (26b), it should be able to license an NPI in the same position as negation does in (25). They take the ungrammaticality of (26b) then to be evidence against the putative movement of *est* to such a structurally higher position.

It should be clear that this argument stands or falls on the truth of the assumption that the superlative morpheme does indeed license NPIs in the same way as negation. I will discuss the property of superlatives that allows them to license NPIs in the next section, and will show that there is good reason to believe that Sharvit and Stateva's reasoning is unsound due to the falsity of their assumption.

3. NPI Licensing and Strawson-Downward Entailment (von Fintel 1999)

According to an analysis which von Fintel (1999) attributes to Fauconnier (1975, 1979) and Ladusaw (1979), an NPI is only grammatical within the scope of a downward-entailing operator.

(27)   *Cross-categorical entailment* ($\Rightarrow$)

    a. For *p, q* of type *t*: $p \Rightarrow q$ iff *p* = False or *q* = True.

    b. For *f, g* of type $<\sigma, \tau>$: $f \Rightarrow g$ iff for all *x* of type σ: $f(x) \Rightarrow g(x)$.

(28)   A function *f* of type $<\sigma, \tau>$ is <u>downward entailing</u> (DE)

    iff for all *x, y* of type σ such that $x \Rightarrow y$: $f(y) \Rightarrow f(x)$.

The notions defined in (27) and (28), from von Fintel (1999), permit the characterisation

of a well-known class of NPI licensers, including sentential negation, *no*, and *every* (on

its restrictor) amongst others. For example, in (29) sentential negation permits the use

of the NPI *any*, and in (30) reverses the intuitive entailment *Swedish cook* $\Rightarrow$ *cook*:

(29) a. *Gordon insulted **any** cook.

     b. Gordon didn't insult **any** cook.

(30) Gordon didn't insult a <u>Swedish cook</u>.

     $\Rightarrow$ Gordon didn't insult a <u>cook</u>.

An apparent longstanding cause of dismay for proponents of this analysis of NPI

licensing is the existence of certain recalcitrant counterexamples such as superlatives

and expressions of the form *only NP*.

(31) Only John **ever** ate **any** kale for breakfast.

(32) a. Only John <u>ate vegetables for breakfast</u>.

     //$\Rightarrow$ b. Only John <u>ate kale for breakfast</u>.

While (31) shows that *only John* can license NPIs in its scope, it fails to reverse the

intuitively valid entailment *eat kale* $\Rightarrow$ *eat vegetables* in (32), as it is possible for (32a)

to be true while (32b) is false; say, if at breakfast John had eaten spinach, but no-one

else ate any vegetables.

In his attempt to bring these apparent counterexamples to the Fauconnier-

Ladusaw generalisation into the fold, von Fintel (1999) proposes a slightly weakened

version: an NPI must appear within the scope of a Strawson-downward-entailing (SDE)

operator.

(33) A function of type $<\sigma, \tau>$ is <u>Strawson downward entailing</u> (SDE)

     iff for all x, y of type σ such that $x \Rightarrow y$ and $f(x)$ is defined: $f(y) \Rightarrow f(x)$.

(34) An NPI is only grammatical if it is in the scope of a SDE operator.

With respect to the case of *only*, von Fintel observes that (32b) <u>presupposes</u> that John

did in fact eat kale for breakfast. With the additional assumption that any

presuppositions of (32b) are satisfied – or in other words, that *||only John||* is defined

for *||ate vegetables for breakfast||* – then the entailment from (32a) to (32b) goes

through.

The revised analysis which von Fintel proposes carries over to cases involving the

superlative morpheme.

(35) a. Emma is the tallest girl in her class.

  b. Emma is the tallest girl in her class to have learned the alphabet.   (= vF's (76))

Although (35a) does not straightforwardly entail (35b), one can infer (35b) from (35a)

and the extra assumption that all the presuppositions of (35b) – crucially, that Emma

has learned the alphabet – are satisfied. Since the superlative morpheme does permit

set-to-subset inferences in this weakened sense, the licensing of the NPI *ever* in (36) is

predicted:

(36) Emma is the tallest girl in her class to **ever** win a spelling bee.

Furthermore, von Fintel claims that NPI licensing must be local, as the superlative

morpheme still seems to license NPIs when embedded in an argument position, even

though the host sentence frame does <u>not</u> constitute a SDE environment.

(37) The tallest girl in Emma's school is over four feet tall.

DOES NOT STRAWSON-ENTAIL

  The tallest girl in Emma's class is over four feet tall.   (= von Fintel's (80))

(38) The tallest girl in Emma's school to **ever** win a spelling bee is over four feet tall.

The semantics von Fintel proposes for the superlative morpheme is as follows[5]:

(39) $||est_{vF}|| = \lambda R_{<d,et>}. \lambda f_{<et>}. \lambda x_e: f(x)=T. \exists d:[R(d)(x)=T \ \&$

$$\forall y:[[f(y)=T \ \& \ y \neq x] \rightarrow R(d)(y)=F]]$$

The denotation in (39) is superficially quite different from that which appears in von Fintel (1999), who assumes an "exactly" semantics for degrees. I have translated, I believe harmlessly, his denotation using a notation similar to that adopted by Heim (1999), for ease of comparison. Hopefully my conclusions will not turn out to be merely an artefact of this assumption.

(40) $||est_H|| = \lambda C_{<et>}. \lambda R_{<d,et>}. \lambda x_e: x \in C. \exists d:[R(d)(x)=T \ \& \ \forall y:[[y \in C \ \& \ y \neq x] \rightarrow$
$R(d)(y)=F]]$

(Heim (1999), repeated from (16))

The parallels and differences between the two denotations should be transparent: von Fintel's *est* has no comparison set argument; whereas Heim's *est* must at least move to the edge of the NP in order to compose with a derived <d,et> predicate, von Fintel's *est* remains *in situ*, taking the gradable adjective *R* as its first argument and the rest of the NP (*f*) as its second argument. The composition of *tallest girl* is sketched in (41) by way of illustration:

(41) [[*tall est_vF*] *girl*]

   $||est_{vF}||(||tall||)(||girl||)$

   $\lambda x_e: x$ is a girl. $\exists d:[x$ is d-tall $\& \ \forall y:[[y$ is a girl $\& \ y \neq x] \rightarrow y$ is **NOT** d-tall]]

The presupposition of *est_vF* is assured by the value description of the external argument *x*; for example, the function in (41) is only defined for girls. If this condition is not satisfied for a given *x*, then $||est_{vF}||(R)(f)(x)$ fails to receive a truth value. This

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5 Since the following discussion will make frequent reference to von Fintel's and Heim's proposed denotations for the superlative morpheme, I henceforth attach a subscript "vF" or "H" when necessary to distinguish the two.

restriction on the value of *est*'s external argument is analogous to that of Heim's

condition that *x* be an element of *C.*

According to (39), downward inference in the position of *f* is "Strawson-valid"; and

we can, making use of von Fintel's notion of cross-categorical entailment (as defined in

(27)), show that this holds generally:

(42) **PROOF**: Suppose that R is a relation between individuals and degrees, that f and g are functions from individuals to truth values such that $f \Rightarrow g$, that a is a member of the domain of individuals such that $||est_{vF}||(R)(g)(a)$=True, and that $||est||(R)(f)(a)$ is defined (to show that $||est_{vF}||(R)(f)(a)$=True). Since $||est_{vF}||(R)(g)(a)$=True, it follows by (39) that there is a degree – call it d' – such that $R(d')(a)$=True and for all y, if $g(y)$=True & $y{\neq}a$, then $R(d')(y)$=False. Now suppose that b is an arbitrarily chosen member of the domain of individuals distinct from a such that $f(b)$=True (to show that $R(d')(b)$=False). Since $f(b)$=True and $f \Rightarrow g$, it follows by (27) that $g(b)$=True. But for all y, if $g(y)$=True & $y{\neq}a$, then $R(d')(y)$=False, and since $b{\neq}a$, it follows that $R(d')(b)$=False. Since b is arbitrarily chosen, it follows that for all y, if $f(y)$=True & $y{\neq}a$, then $R(d')(y)$=False. Thus there is a degree – namely d' – such that $R(d')(a)$=True and for all y, if $f(y)$=True & $y{\neq}a$, then $R(d')(y)$=False. Since $||est_{vF}||(R)(f)(a)$ is defined, it follows by (39) that $||est_{vF}||(R)(f)(a)$=True. QED.

Thus the superlative morpheme, as characterised by von Fintel, is a SDE operator on

its second argument (or rather, for all R, R-*est*$_{vF}$ denotes a SDE function).

The puzzle for superlatives and NPI licensing is then how to reconcile Heim's

scope-movement analysis of superlatives with von Fintel's approach to NPI licensing. It

should be obvious that von Fintel's denotation has a resolutely *in situ* semantics – if the

est in (39) tried to move, it would have difficulty finding its second argument. Let us

then exclude for the moment the possibility that von Fintel's denotation for *est* is

compatible with a movement analysis and ask whether Heim's denotation can account

for von Fintel's SDE property.

The first task is to check that the Heim's denotation for *est* will allow for Strawson-downward inferences in the same contexts that von Fintel's does. Let us look again at von Fintel's example from (35) (simplified in (43)).

(43) a. Emma is the tallest girl.

   b. Emma is the tallest girl to have learned the alphabet.

The truth conditions for (43a,b) according to (40) are represented in (44), using some obvious metalanguage abbreviations.

(44) a. $||est_H\text{-}C||(\lambda d.|| [[t_1 \text{ } tall] [girl]] ||^{1\to d})(||Emma||)$ = T iff

$\exists d'$:[$[\lambda d. \lambda x. \text{TALL}(x,d) \text{ \& GIRL}(x)](d')(e)$ = T &

$\forall y$:[$[y \in C \text{ \& } y \neq x] \to [\lambda d. \lambda x. \text{TALL}(x,d) \text{ \& GIRL}(x)](d')(y)$=F]]   iff

$\exists d'$:[[TALL(e,d') & GIRL(e)] & $\forall y$:[$[y \in C \text{ \& } y \neq x] \to$ **NOT** [TALL(y,d') & GIRL(y)]]]

   b. $||est_H\text{-}C||(\lambda d.|| [[t_1 \text{ } tall] [\text{girl to have learned the alphabet}]] ||^{1\to d})(||Emma||)$ = T iff

$\exists d''$:[$[\lambda d. \lambda x. \text{TALL}(x,d) \text{ \& GIRL}(x) \text{ \& LEARN}\alpha(x)](d'')(e)$ = T &

$\forall y$:[$[y \in C \text{ \& } y \neq x] \to [\lambda d. \lambda x. \text{TALL}(x,d) \text{ \& GIRL}(x) \text{ \& LEARN}\alpha(x)](d'')(y)$=F]] iff

$\exists d''$:[[TALL(e,d'') & GIRL(e) & LEARNα(e)] &

$\forall y$:[$[y \in C \text{ \& } y \neq x] \to$ **NOT** [TALL(y,d'') & GIRL(y) & LEARNα(y)]]]

From the last line of (44b), we see that for (43b) to be true, Emma must have some degree of height *d''* such that she is a girl and she knows the alphabet, and that anyone else in *C* must either not be a girl or not be *d''*-tall or not know the alphabet. But since we are assuming the truth of (43a), from (44a) we learn that Emma has some degree of height, namely *d',* such that she is a girl, and that the condition on the other members of *C* – i.e. that they are either not a girl or not *d'*-tall – is in fact <u>weaker</u> than in (44b), thus ensuring that no taller individual can have "sneaked in". The only element missing to guarantee the truth of (43b) is, as one would expect, the famous presupposition that Emma knows the alphabet.

To supply this last piece of information, we can appeal to what Heim takes to be

the presupposition of *est*. Recall that she assumes that est_H triggers the presupposition

that its external argument is a member of *C*. Heim (1999) (p.4, fn.8) also suggests that

est_H further presupposes that all the members of *C* are related to some degree by the

degree relation argument. Since Emma is presupposed by (43b) to be a member of *C*,

this entails that for some degree *d'''*, [λd. λx. TALL(x,d) & GIRL(x) &

LEARNα(x)](*d''*)(Emma) = True; by which, Emma has learned the alphabet.

In light of the reasoning pattern sketched above, Heim's semantics seems to

account for the SDE inference available in simple predicative utterances such as (43).

Such an inference is impossible when est_H is embedded within an argument position,

such as in the following:

(45) a. James climbed the highest mountain.

b. James climbed the highest Scottish mountain.

If (45a,b) are construed "absolutely", then the DPs *the highest mountain* and *the*

highest Scottish mountain potentially pick out quite different objects; a further,

unavailable assumption – namely, that of their being identical – would be necessary to

infer (45b) from (45a). Under the "comparative" reading, according to Heim, (45b)

presupposes that James climbed a Scottish mountain of some height. However, given

a context where James climbed a 6,000 ft mountain in Sweden and a 3,000 ft mountain

in Scotland, while Ian had climbed a 4,000 ft Scottish mountain, (45a) is true while

(45b) is false: thus the inference fails to go through.

The failure of the superlative morpheme to permit SDE inferences from an

argument position is noted by von Fintel, whose proposed constraint merely requires

an NPI to appear within the scope of a SDE operator, not within a SDE sentence frame

(cf (38)). The question therefore arises as to whether Heim's *est* is in fact a SDE

operator. The answer is No, as the following counterexample shows (making use of von Fintel's notion of cross-categorical entailment to establish the relationship between the two degree relations):

(40) $||est_H|| = \lambda C_{<et>}. \lambda R_{<d,et>}. \lambda x_e: x \in C. \exists d:[R(d)(x)=T \ \& \ \forall y:[\ [y \in C \ \& \ y \neq x] \rightarrow$

$R(d)(y)=F]]$

(46) **COUNTEREXAMPLE**:

$D_e = C_R = C_S = \{a,b\}$, $D_d = \{1,2,3\}$

$R = \{<a,1>,<b,1>,<b,2>\}$, $S = \{<a,1>,<a,2>,<a,3>,<b,1>,<b,2>\}$

R, S are relations between individuals and degrees such that

$\forall x,d: [R(d)(x)=T \rightarrow S(d)(x)=T]$ (i.e., $R \Rightarrow S$);

$S(3)(a)=T \ \& \ S(3)(b)=F$

so $\exists d:[S(d)(a)=T \ \& \ \forall y:[\ [y \in C \ \& \ y \neq a] \rightarrow S(d)(y)=F] \ ]$

so $||est_H\text{-}C||(S)(a)=$True.

However $R(1)(a)=T \ \& \ R(1)(b)=T$

$R(2)(a)=F \ \& \ R(2)(b)=T$

so it is not the case that $\exists d:[R(d)(a)=T \ \& \ \forall y:[\ [y \in C \ \& \ y \neq a] \rightarrow R(d)(y)=F] \ ]$

so $||est_H\text{-}C||(R)(a)=$False.

This abstract counterexample corresponds to the situation described in the discussion of (45), where S is $\lambda d. \ \lambda x. \ x \ climbed \ a \ d\text{-}high \ mountain$ and R is $\lambda d. \ \lambda x. \ x \ climbed \ a \ d\text{-}high \ Scottish \ mountain$.

According to von Fintel's condition on NPI licensing in (34), NPIs are only licensed within the scope of a SDE operator. Since Heim's *est* does not Strawson-downward entail on its degree relation argument R, it is therefore not predicted to license NPIs anywhere within R. An immediate consequence of this finding is that Sharvit and Stateva's (2002) argument in (26b), repeated here as (47a), no longer holds. To see this, consider the LF in (47b), derived according to Heim's analysis:

(47) a. *Mary needs to recommend the least high mountain to any student.

   b. *Mary* [*est*$_H$-*C*

            [λd. λx. x needs [PRO to recommend a d-high mountain to any student]]]

In (47b), *est*$_H$-*C* has moved to outscope *needs*, thus deriving the <d,et> function on the

second line. Note that the infinitival complement of *needs*, including the illegitimate NPI

any student, is held fast within this <d,et> function, where *est*$_H$ is not predicted to

license NPIs.

   However, the problem remains of how to account for the cases where the

superlative morpheme <u>does</u> license NPIs. This is, in fact, the problem which this paper

sets out to address, and that I am now in a position to state: Given that Heim's analysis

can be shown to be incompatible with that of von Fintel's, how do we account for NPI-

licensing property of superlatives in light of the movement analysis of

absolute/comparative ambiguities? I have shown that Heim's *est* is not an SDE

operator, whereas von Fintel's *est*, as I noted earlier, is set up to be only interpretable

in situ and appears to be unable to move at all, let alone long-distance as suggested by

Heim's analysis.

   One route that one might take to tackle this problem is to reject Heim's analysis

and assume an *in situ* semantics compatible with von Fintel's proposal. Such an

approach is adopted by Herdan and Sharvit (2006); their proposal is presumably

compatible with Sharvit and Stateva's (2002) *in situ* analysis of comparative readings of

superlatives. The solution that I will propose, however, goes in the opposite direction,

that of incorporating von Fintel's insights to Heim's analysis. I will argue for my

proposed solution to the problem in the following section, showing that it makes

accurate and nontrivial predictions.

4. Proposal

In this section I lay out my proposal for the reconciliation of Heim's (1999) *est* -

movement analysis with von Fintel's (1999) generalisation on NPI-licensing, in light of

the fact that Heim's denotation for *est* does not Strawson-downward entail with respect

to the derived degree relation it takes as its argument.

A first observation which follows from the investigation in Section 3 is that Heim's

est is in fact SDE on its *C* argument. One can easily verify this by making appropriate

substitutions in the proof in (42). That the SDE property holds of Heim's *est* can be

seen to correspond to intuitions if we take an *of*-phrase to stand for the *C* argument. As

discussed in Section 2, the presence of an *of*-phrase triggers the presupposition that

est's external argument is an element of the extension of the *of*-phrase.

(48) a. Of the Scots, Keith is the tallest.

b. Of the Scots who play the piano, Keith is the tallest.

(49) a. Of the boys, James climbed the highest mountain.

b. Of the Scottish boys, James climbed the highest mountain.

In (48) and (49), the *of*-phrase in the (b) sentences is a subset of (or, denotes the

characteristic function of a subset of the set characterised by the function denoted by)

the *of*-phrase in the (a) sentences. The (a) sentences clearly Strawson-entail the (b)

sentences; to take (48) for example, given (48a)'s assertion that there is some degree

d to which Keith is tall and no other Scot is tall, together with (48b)'s presupposition that

Keith is a Scot who plays the piano, we can infer the truth of (48b).

Given that Heim's *est* is SDE on its *C* argument, it is predicted to license NPIs in

an *of*-phrase; this prediction is borne out in (50) and (51):

(50) a. Of my friends who have **ever** learned to play the piano, Keith is the tallest[6].

    b. */??Of my friends who have **ever** learned to play the piano, Keith is tall.

(51) a. Lisa has the largest collection of single malt whiskies of **any**one I know.

    b. *Lisa has a large collection of single malt whiskies of **any**one I know.

In the (a) sentences, an NPI is licensed by the presence of the superlative, in contrast to the ungrammatical (b) sentences where an NPI licenser is absent. This result provides support for my extension of Heim's (1999) analysis to include *of*-phrases, in light of von Fintel's theory of NPI licensing.

    A further observation I wish to make is that, where the superlative morpheme can license an NPI, a comparative reading seems to be unavailable, or at least strongly dispreferred.

(52) a. James climbed the highest mountain.

    b. James climbed the highest mountain in **any** European country.

(53) a. John read the longest book.

    b. John read the longest book that Tolstoy **ever** wrote.

In (52b) and (53b), the NPIs are licensed in the NP modifiers by the presence of *est*, and in contrast to the (a) sentences, comparative readings are difficult to obtain, if they are available at all. (52b) seems an inappropriate description of a context where James climbed Ben Nevis, while the others under consideration went rambling in Belgium; rather, it seems to assert that John climbed Mont Blanc. Similarly, (53b) seems to

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[6] For reasons that I do not as yet understand, it seems that an NPI in a preposed *of*-phrase needs to be embedded in other material in order to be licensed. Thus (i) is seriously downgraded compared to (50a):
(i) */??Of any of my friends, Keith is the tallest.
This peculiar fact might be due to a more general property of NPI licensing. Although one might wish to explain the unavailability of (iia) as a surface c-command condition on the relationship between the NPI *any* and its licenser *never*, embedding the NPI apparently circumvents this in (iib).
(ii) a. */??<u>Any</u> thought of my feelings <u>never</u> crossed his mind.
   b. The thought that <u>anyone</u> would care <u>never</u> crossed his mind.
I have at present no explanation for these contrasts.

unambiguously assert that John read "War and Peace". The contrasts in available

meanings in (52) and (53) suggest an inverse correlation between NPI licensing and

comparative readings of superlatives[7].

To summarise what we have learned so far in this section: On the one hand, *est* is

found to be able to license NPIs in *of*-phrases, which were argued in Section 2 to be

associated with comparative readings – which are in turn analysed by Heim as

resulting from the movement of *est*. On the other hand, the presence of an NPI within

the superlative-modified NP renders a comparative reading unavailable; indeed, it

forces an absolute reading – which arises, again according to Heim's analysis, when

est remains within the DP. This second observation, that the presence of an NPI within

NP is incompatible with a comparative interpretation of a superlative, is unsurprising

given the finding of Section 3: moved *est* should not license NPIs within its derived

degree relation sister. The remaining puzzle from Section 3 was how to account for the

fact that *est* can license NPIs sometimes – which turns out to be when it remains within

DP. Recall also that von Fintel's denotation for *est*, which is predicted to license NPIs

within the NP, takes the NP and the gradable adjective as separate arguments, unlike

Heim's *est* which takes both merged together as a derived degree relation.

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[7] The unavailability of comparative readings in (52b) and (53b) may turn out to be instances of Farkas and Kiss's (2000) observation that, where a superlative-modified noun is constrained by a PP, comparative readings become unavailable (as discussed in Sharvit and Stateva (2002)):
(i) John visited the largest city in Europe.
In light of this observation, we should check that comparative readings are available in the control sentences in (ii), to verify that their absence in (52b,53b) is due to the presence of the NPIs.
(ii) a. James climbed the highest mountain in a European country.   (cf (52b))
     b. John read the longest book that Tolstoy wrote.   (cf (53b))
Although the contrast is subtle, my own judgement is that (iia) is more acceptable in a comparative situation (e.g. the scenario provided in the text) than (52b). I hope that in spite of this potential source of objection, the rest of my arguments will provide compelling support for my proposal.

My solution to the problem of how to reconcile Heim's and von Fintel's analyses has the merit of simplicity: adopt Heim's movement analysis but assume von Fintel's denotation.

(54) $||est_{vF}|| = \lambda R_{<d,et>}. \lambda f_{<et>}. \lambda x_e: f(x)=T. \exists d:[R(d)(x)=T \, \&$

$$\forall y:[\, [f(y)=T \, \& \, y\neq x] \rightarrow R(d)(y)=F]\,]$$

Whereas Heim's analysis required *est* to move to the edge of the NP to be interpreted, the denotation for *est* in (54) is interpretable *in situ*, as illustrated with respect to (53b) in (55)[8]:

(55)   *John read the* [[*long est*$_{vF}$] [*book that Tolstoy ever wrote*]]

      John read the [$||est_{vF}||(||long||)(||book\ that\ Tolstoy\ ever\ wrote||)$]

      John read the [λx_e: x is a [book that Tolstoy ever wrote]. $\exists d$:[x is d-long &

               $\forall y$:[[y is a [book that Tolstoy ever wrote] & $y\neq x$] $\rightarrow$ y is **NOT** d-long]]]

Once the <et> function in the last line of (55) is taken as the argument of $||the||$, the DP picks out the unique object satisfying it – i.e. "War and Peace" – and the sentence as a whole asserts that John read this unique object, as expected given its absolute construal. The acceptability of the NPI *ever* in the position of *est*'s second argument *f* is predicted by von Fintel's SDE licensing condition.

Following Heim, I propose that *est* moves in order to generate comparative readings, by means of the compositional mechanisms discussed in Section 2. When an *of*-phrase is adjoined, *est*$_{vF}$ can take it as its domain argument *f*, given that it is a predicate of the right type (<et>); where this is unavailable, the domain argument *f* can be satisfied by a contextually supplied (or Focus-derived) predicate *C*, somewhat as

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[8] In order to simplify the derivations, I leave the relative clause *that Tolstoy ever wrote* unanalysed in the metalanguage.

envisaged by Heim. As an illustration, consider the putative LF for the unavailable

comparative reading of (53b)[9]:

(56) *John* [[*est*$_{vF}$ [λd. λx. x read a d-long [book that Tolstoy ever wrote]]] -*C*]

    John [λx$_e$: C(x)=T. ∃d:[x read a d-long [book that Tolstoy ever wrote] &

        ∀y:[[C(y)=T & y≠x] → x did **NOT** read a d-long [book that Tolstoy ever wrote]]]]

In (56), the NPI *ever* is interpreted within *est*$_{vF}$'s derived degree relation argument *R*,

where it cannot be licensed, thus deriving the unavailability of the comparative reading

for (53b).

One prediction which follows straightforwardly from my account is that NPIs

should not be allowed within a superlative-modified NP when only a comparative

construal is available for the host utterance. As I showed in Section 2, focusing another

NP within the utterance strongly prefers a comparative reading, with the domain of

comparison restricted to salient alternatives to the focused element.

(57) JOHN read the longest book.

The utterance in (57), with prosodic focus on the subject, contrasts with (53a) in that an

absolute reading is strongly dispreferred[10]. Therefore, in contrast to the grammatical

(52b) and (53b), pronounced with neutral intonation and acceptably containing NPIs,

variants where the subject receives main stress are predicted to be ungrammatical.

This prediction is borne out in (58):

(58) a. */?JAMES climbed the highest mountain in **any** European country.

    b. */?JOHN read the longest book that Tolstoy **ever** wrote.[11]

---

[9] When *C* receives a null pronunciation, it must be interpreted in an appropriate structural position to be
taken as the second argument of *est*$_{vF}$. I illustrate it as adjoining to the right in (56), although nothing in
my proposal hangs on this particular choice.
[10] Putting aside use in denial contexts; see Section 2, fn.3.
[11] In fact it seems that the most natural intonation pattern for a sentence containing a superlative-
modified NP with an NPI assigns main stress to this NP. I have to stress the importance of controlling for
prosody when testing such sentences.

Similarly, when a comparative reading is forced by the adjunction of an *of*-phrase, NPIs

are predicted to be unacceptable:

(59) a. *Of the boys, James climbed the highest mountain in **any** European country.

b. *Of the boys, John read the longest book that Tolstoy **ever** wrote.

The ungrammaticality of the utterances in (59), once again in contrast to (52b) and

(53b), confirms the incompatibility of a comparative reading for a superlative with an

NPI within the modified NP.

So far I have shown that my analysis is coherent with data concerning the position

of *est*, as indicated by the availability of comparative readings, and its ability to license

an NPI within the NP its host adjective modifies. Another consequence of my analysis

concerns the interpretation of a prepositional phrase headed by *of*, and *est*'s ability to

license an NPI within it. Such PPs can of course play all kinds of roles in English, so it

is unsurprising to discover that, depending on the context, content, and linear position,

an *of*-phrase may be interpreted as the domain argument of *est* or as the complement

of another lexical category.

(60) Kirsty bought the most expensive picture of all of John's friends.

The utterance in (60) is three-ways ambiguous: in addition to the absolute/comparative

ambiguity, the PP headed by *of* has two possibilities, appearing as it does after the

noun, and thus can be interpreted either as complement to the noun or as *est*'s domain

argument. The structures I assume for these three interpretations are given in (61) (I

write *est* in the LFs instead of *most*, assuming that the latter is the surface reflex of the

former):

(61) a. *Kirsty bought the* [[*most expensive*] [*picture of all of John's friends*]]

b. *Kirsty* [est [λd. λx. x bought a d-expensive [picture of all of John's friends]]-*C*]

c. *Kirsty* [est [λd. λx. x bought a d-expensive picture] [*of all of John's friends*]]

The structure in (61a) corresponds to the absolute reading, as the superlative

morpheme is interpreted *in situ*; the PP *of all of John's friends* must be interpreted as

complement to the noun. When *est* moves, the PP can have either interpretation, as in

(61b,c). I find that these are all viable structures; to see this, consider the following

scenarios:

(62)   Scenario 1: John is exhibiting his artwork, which consists of three group portraits
          of all of his friends – Alfred, Beatrice and Charles – and the paintings are on sale
          at various prices. One is priced at $100, one at $500, and one at $1000. Kirsty,
          who has never met John...
          a: ... bought the $1000 picture.
          b: ... bought the $500 picture and someone else bought the $100; no-one bought
          the $1000 picture.

Scenarios 1a and 1b correspond to (61a) and (61b) respectively. Structure (61c) is

inappropriate in these situations, as Kirsty would have to be one of John's friends for it

to be true. (60) then contrasts with (63), where Condition C plays a role.

(63)   Kirsty bought his$_i$ most expensive picture of all of John$_i$'s friends.

The utterance in (63) is falsified by both scenarios in (62), and would only be

appropriate under the reading where Kirsty is a friend of John's. This contrast is

explained by the structures in (61), under the assumption that the positions there

occupied by the determiners indicate those occupied by the possessive pronoun *his* in

the LFs for (63). Only in a structure analogous to that in (61c) would the coindexed r-

expression *John* escape a Condition C effect.

        Now consider what happens in a similar example with an NPI:

(64)   Kirsty bought the most expensive picture of any of John's friends.

          a. *Kirsty bought the* [[*most expensive*] [*picture of any of John's friends*]]

          b. **Kirsty* [*est* [λd. λx. x bought a d-expensive [picture of any of John's friends]]-*C*]

          c. *Kirsty* [*est* [λd. λx. x bought a d-expensive picture] [*of any of John's friends*]]

The three structures in (64) mirror those in (61); the asterisked (64b) is unavailable due

to the illegitimate presence of an NPI within *est*'s degree relation argument. Thus a

situation corresponding to Scenario 1b in (62) falsifies (64):

(65) <u>Scenario 2</u>: John is exhibiting his artwork, which consists of three single portraits
      of his friends, and they are on sale at various prices. The portrait of Alfred is
      priced $100, the portrait of Beatrice $500, and the portrait of Charles $1000.
      Kirsty, who has never met John, bought the Beatrice picture and someone else
      bought Alfred; the picture of Charles went unsold.

This is in contrast to a variant on (64) without an NPI:

(66) Kirsty bought the most expensive picture of one of John's friends.

On a comparative reading for the superlative, (66) is an appropriate report of Scenario

2, as there is no NPI within the *of*-phrase to block its construal as the complement of

the noun.

Thus the analysis proposed here makes complex and accurate predictions with

respect to the interactions between the availability of certain interpretations and the

presence of NPIs in noun complements. At present I cannot see how one could

account for these complex interactions within a purely DP-internal analysis of

superlatives, nor the ancillary assumptions one would have to make within such a

framework so as to correctly constrain the available readings; unfortunately a thorough

treatment of the various DP-internal proposals is beyond the scope of this paper (see

Sharvit and Staveva (2002), Herdan and Sharvit (2006), and references therein for

discussion of such proposals).

5. Conclusion

In this paper I have shown that there are good grounds to adopt Heim's (1999, 2001) *est* movement analysis of absolute/comparative ambiguities with superlatives. I have furthermore demonstrated that Heim's account, taken as is, is incompatible with von Fintel's (1999) Strawson-downward entailment condition on NPI licensing. I have proposed a straightforward means of reconciling the two which appeals to a minimum of extra assumptions. I have also demonstrated that my solution has desirable consequences, particularly in bringing to light certain environments where *est* fails to license an NPI. I hope that in this paper I have clarified issues concerning *est*'s NPI licensing property, and that my proposal will stimulate further research, particularly in leading to an informed reappraisal of studies which have assumed a simpler relationship between the superlative morpheme and the NPIs it licenses than that which I have illuminated here.

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