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The *the... the...* construction: Meaning and readings

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Abstract

The meaning and interpretational effects of the *the... the...* construction (the comparative correlative) in English have often been ill-described. This paper examines some plausible-sounding but unwarranted semantico-pragmatic aspects that have explicitly or implicitly been suggested in the literature: (i) the construction only involves two scales, (ii) the truth of *the more... the more...* invariably allows the inference *the less... the less...*, (iii) the construction conveys linear proportionality and (iv) it expresses the same kind of simple conditionality as some other types of asyndetic patterns.

This paper argues that the comparative correlative conveys that if two randomly chosen entities differ with respect to one or more parameters, these entities differ correspondingly or inversely with respect to one or more other parameters. This analysis, which this paper is not the first to defend, is compared to an alternative analysis in terms of correlated differentials.

New insights are offered on the relation between the comparative phrase and the clause it introduces in each half of the construction. First, the comparative phrase can sometimes be given a wide-scope, ‘exophrastic’ reading. Second, the scope of *the {less/fewer} (...)* vis-à-vis a deontic modal is exactly like that of the negator *not* in canonical sentences.

Keywords:

comparative correlative; scalarity; conditionality; deontic modality; negation; scope

The *the... the...* construction: Meaning and readings

1. Introduction

The English *the... the...* construction, known as the comparative correlative (CC) construction and exemplified in (1), has been studied extensively, both on its own terms and in relation to its counterparts in other languages (Abeillé and Borsley, 2006, 2008; Beck, 1997; Borsley, 2004a, 2004b; Brasoveanu, 2008; Culicover, 1999: 83-85; Culicover and Jackendoff, 1999, 2005: 500-529; Declerck and Reed, 2001: 28; Den Dikken, 2003, 2005; Fillmore, 1986: 164-166, Fillmore, Kay and O'Connor, 1988: 506-508; Hoffmann, 2010; McCawley, 1988; Michaelis, 1994; Resnik et al., 2005; Sag, 2008; Taylor, 2004, 2005; Thiersch, 1982).

(1) The faster we drive, the sooner we'll get there.

Most studies have focussed on the syntactic oddities of the construction, such as the fact that both clauses have to contain a preposed comparative element preceded by *the*, the fact that the second clause can have subject auxiliary inversion (e.g. ... *the sooner will we get*

there), or the fact that the two halves can be reversed in a related construction with the comparative appearing *in situ* in the first clause (e.g. *We'll get there sooner the faster we drive*). However, the semantic and pragmatic properties of the construction have not been given the attention it deserves, a notable exception being Beck (1997) and Brasoveanu (2008), and descriptions of the construction's meaning and interpretation have often been unsatisfactory. Inherent semantic aspects have frequently been mistaken for occasional pragmatic effects.

This study aims to elucidate the construction's meaning and to discuss some pragmatic properties that have hitherto been left unmentioned in the literature. We will do so without taking recourse to extreme formalization, opting instead for formulations which are stated in plain English. The argumentation is predominantly based on authentic examples, most of them extracted from Google (and checked for native-speaker authenticity). Examples were chosen manually in a trial-and-error fashion. This means that the study does not adopt a quantitative approach to the several kinds of interpretations the CC can obtain in a pre-defined corpus of examples. Our interest lies in stating what the CC inherently means and which interpretations can *in principle* arise (based on authentic attestations), not in offering a numerical breakdown of these interpretations.

This paper is structured as follows. After discussing two central and rather uncontroversial aspects of the construction's meaning (section 2), I will critically survey some overly simplistic semantic analyses. In particular, I will examine four properties which can be found in the literature, either explicitly or implicitly: (i) the CC involves two (and not more than two) scales (section 3); (ii) *the more... the more...* entails *the less... the less...*, and vice versa (section 4); (iii) the CC always expresses proportional changes between two values (section 5); (iv) the CC can be given a straightforward conditional paraphrase, of the kind given for asyndetic sentences like *You call me "honey" one more time, I'm gonna kick your ass* (section 6). I will then present a more adequate semantic analysis of the CC, based in essence on Beck's (1997) formal-semantic approach (section 7), and discuss an alternative analysis, proposed by Brasoveanu (2008) (section 8). Finally, I will offer some new insights on the semantic role of the comparative phrase vis-à-vis the clause it precedes, the focus being on (i) the difference between endophrastic and exophrastic functions (section 9) and (ii) the scope relation between a 'negative' comparative (*the less (...); the fewer (...)*) and a deontic modal, if there is one (section 10). A summary with the main claims is offered in a concluding section (section 11).

2. Dynamicity and directionality

In this section, I will provide a first approximation of the CC's meaning by discussing two very general semantic aspects of the correlative comparative: dynamicity and directionality.

First, as regards its dynamic aspect, note that using the CC construction is not the only way of expressing a comparison involving joined scales. In a sentence like *The knife is longer than the drawer is wide*, the value of the knife on a length scale is compared to the value of the drawer on a commensurate width scale. However, such a sentence expresses a *stable* relationship between what a given item's position is on a scale and what another item's position is on another commensurate scale—or, as the case may be, what *the same* item's position is on another commensurate scale, as in, for example, *He is almost as wide as he is tall* (Figure 1, 2).¹

XX Figures 1 and 2 about here XX

The CC, by contrast, provides a concise way of conveying the idea that there is a (direct or inverse) correlation between 'movement' on one scale and 'movement' on another. For example, *The more you work, the more you earn* expresses the idea that as you move along a

work scale, you correspondingly move along an earnings scale (Figure 3). In other words, the correlative comparative expresses a dynamic and not a static relationship.

XX Figure 3 about here XX

Note that our distinction between ‘static’ vs. ‘dynamic’ meaning corresponds with the distinction between ‘referential’ and ‘quantificational’ meaning, which are terms more customarily used in the semantic literature. The reader should feel free to substitute familiar terms for the terms chosen here, and I will henceforth add the more common terms in brackets to my own terms.

Second, there is directionality between the two scales (but see the next section for cases with more than two scales). That is, the scale evoked by the first part of the construction (scale X) specifies the independent variable and the scale evoked by the second part (scale Y) the dependent variable. Thus, Fillmore (1986: 166) paraphrases the sentence *The more harshly I scold him, the worse he behaves* as “Changes in the degree of harshness in my scolding *yields* corresponding changes in the degree to which he behaves badly” (my emphasis). Similarly, Fillmore, Kay and O’Connor (1988: 506-507) argue that a sentence like *The more carefully you work, the easier it will get*, “is

¹ The sentence *He’s almost as wide as he is tall* is of course a hyperbole, even accounting for the hedge *almost*. Figure 1 is therefore not intended as a faithful repre-

paraphrasable as something like ‘The degree to which you do your work carefully *will determine* the degree to which your work gets easy’” (again my emphasis). The element of directionality is also clearly present in Declerck and Reed’s (2001) characterization of CCs:

[They] imply the existence of paired scales and the idea that a change of position of the relevant value on the one scale *triggers* the corresponding or opposite change of position of the relevant value on the other scale.

(Declerck and Reed, 2001: 334; my emphasis)

Crucially, a CC does not tell us anything about whether a change of the relevant value along the Y-scale also has an impact on the position of the relevant value on the X-scale. While such mutual, reinforcing correlations do exist (e.g. *The more he drinks, the more depressed he gets over his alcohol problem, and vice versa*), we are in general not allowed to reverse the directionality of the effect (cf. De Cornulier, 1988). For example, switching the two clauses of the CC in (2a) results in the highly improbable scenario expressed in (2b). (The exclamation mark preceding the sentence indicates pragmatic incongruity.)

(2) (a) the more fish I ate, the more I discovered that the breading was undercooked – yuck!

(www.torontobrunch.com/article.php?a_id=866, accessed 5 June 2008)

(b) !the more I discovered that the breading [of the fish] was undercooked, the more fish I ate.

The dynamic character of the construction and the directionality in the relation of changes it refers to are generally recognized aspects of the CC. In the following sections (3 to 6), I will discuss some semantico-pragmatic aspects of the CC which have often been unnoticed or misunderstood.

3. More than one scale per part is possible

The CC is usually assumed to express a correlation between two scalar situations *and two scalar situations only*. In actual fact, though, the CC can involve more than two scales, since either or both of the construction's major parts can itself constitute a pair or potentially a larger series of scales (cf. also Den Dikken, 2005: 503). This is illustrated in the following examples taken from the British National Corpus (BNC), with the conjunction *and* highlighted in boldface:

- (3) (a) Whatever the products you sell, the more you know about them, **and** the more you show that knowledge to potential customers, the better you will be at making sales. (BNC)
- (b) But the more these greenhouse gases build up in the atmosphere, the more heat is trapped **and** the more the Earth warms. (BNC)
- (c) The more History attempts to transcend its own rootedness in historicity, **and** the greater the efforts it makes to attain, beyond the historical relativity of its origin and its choices, the sphere of universality, the more clearly it bears the marks of its historical birth, **and** the more evidently there appears through it the history of which it is itself a part (BNC)

In (3a), the first part of the construction contains a pair of scales; in (3b), the second part contains a pair of scales; in (3c), both parts of the construction are made up of a pair of scales.

The (last two) scales within each half can be linked not only by the conjunction *and*, as in the examples above, but also by the conjunction *or*, as in (4a–b), or by *and/or*, as in (5a-b):²

² Hoffmann (2010) discusses an asyndetic example encountered in the British component of the International Corpus of English (ICE-GB):

(i) The more opaque that atmosphere is, the less conductive it is, the bigger the temperature difference you need to cross it. (ICE-GB)

Hoffmann notes that the first two clausal parts are characterized here by a rise in intonation, whilst the third clausal part has a fall in intonation. This sentence also

- (4) (a) If we are doing something that isn't working, then the more choices we have, **or** the more flexible we can be, the more likely we are to find something that does work.

(www.aeona.co.uk/aeonanlp.htm, accessed 5 June 2008)

- (b) The smaller the individuals, the more frequently they molt **or** the more rapid are their growth rates.

(links.jstor.org/sici?sici=0006-

3185(195412)107%3A3%3C433%3ATMCOTS%3E2.0.CO

%3B2-B, accessed 5 June 2008)

- (5) (a) The more exotic the wood **and/or** the more ornate the cabinet style, the more the basic value increases.

(www.player-care.com/pp_faq.html, accessed 5 June 2008)

- (b) the higher the risk, the more likely the accident will occur **and/or** the more severe will be the consequence.

(www.caa.co.uk/docs/33/CAP760.PDF, accessed 5 June 2008)

differs from the ones discussed in our main text in that there is no conceptual fusing here of any two clauses as either a complex protasis (cp. (3a)) or a complex apodosis (cp. (3b)); rather, the middle clause functions as an apodosis to the first and at the same time as a protasis to the third. That is, the interpretation is 'The more opaque that atmosphere is, the less conductive it is; and the less conductive it is, the bigger the temperature difference you need to cross it'.

This possible clustering of scales obviously complicates the visual representation of the sentence in a graph with axes if one wanted to provide such a representation. A formally precise treatment of the CC should be able to account for this complication, but we will not be concerned with such cases in what follows.

4. *The more... the more... need not imply the less/fewer... the less/fewer...*

A paraphrase like “changes along the X-scale yield changes along the Y-scale” (cf. section 2) is not entirely accurate, in that it suggests that if an increase in the X-value yields an increase in the Y-value (i.e. *The more... the more...*) then a *decrease* in the X-value should also yield a *decrease* in the Y-value (i.e. *The less/fewer... the less/fewer...*). This does not always have to be the case, however. For example, the truth of the sentence in (6a) does not automatically imply the truth of the sentence in (6b):

(6)(a) The more one eats, the more health risks one runs.

(b) The less one eats, the fewer health risks one runs.

As anyone knows, there is a more or less ideal amount of food intake and the higher the deviation from this norm *in either direction*, the higher and more numerous the health risks. Thus, *The more one eats, the more health risks one runs* and *The less one eats, the more health risks one runs* are statements which do not contradict each other (as long as *health risks* remains underspecified, because overweight and underweight people might have different *kinds of* health risks). In other words, *The more... the more...* only implicates but does not entail *The less/fewer... the less/fewer....* Context, including knowledge of the world, can cancel this implicature (Figure 4).

XX (Figure 4 about here) XX

Considering again example (2a), repeated here as (7a), we can clearly see that the variant in (7b) with *The less/fewer... the less/fewer...* does not make sense either, for entirely extra-linguistic (encyclopedic) reasons.

- (7) (a) the more fish I ate, the more I discovered that the breeding was undercooked – yuck!
- (b) !the less fish I ate, the less I discovered that the breeding was undercooked.

Obviously, when consuming a meal, one cannot eat *less* of something; unless one stops eating, one can only consume more of it. (Hence the term ‘incremental theme’ to denote the object of *eat (up)*, used in the literature on aspect and argument structure.) Likewise, with respect to the second clause, one cannot learn or discover less and less that something is the case, but only more and more.

By the same token, if a change in one direction on the X-scale is inversely correlated with a change in the opposite direction along the Y-scale (i.e. *The more... the less/fewer...* or *The less/fewer... the more...*), this does not necessarily mean that a change in the *other* direction along the X-scale is again inversely correlated with an opposite change along the Y-axis (i.e. *The less/fewer... the more...* and *The more... the less/fewer...*, respectively). For instance, *the more money you have, the less happy you are* doesn’t necessarily entail the *less money you have the happier you are*. Again, common knowledge tells us that in order to lead a happy life one should at least have *some* income, and that while money doesn’t make you happy—as witness the often unfulfilled lives of the very rich—a lack of money certainly doesn’t make you happy either.

5. The CC does not express (linear) proportionality

The CC is sometimes assumed to convey proportionality (e.g., Longacre, 1996: 70-71; Quirk et al., 1985: 1111; Thiersch, 1982): change along the one scale corresponds *proportionally* with change along the other. Older varieties of English even allowed overt proportional markers in the CC (8a–b) or in related sentence patterns (9a–b). The following examples are cited by Jespersen (1940: 383) and in turn by Den Dikken (2005: 502):

- (8) (a) Philautus *by how much* the lesse he looked for this discourse,
by so much the more he lyked it
 (Lyly, John. 1868 [1579/1580]. *Euphues*. London: Arber's English Reprints, 49. [frequent in Lyly's work, according to Jespersen])
- (b) *By how much* the better man you are yourself, *by so much* the more will you be inclined to believe me
 (Fielding, Henry. 1782 [1742]. *Tom Jones*, vol. 1. London [no publisher mentioned by Jespersen], 121.)
- (9) (a) *By how much* better then [sic] my word I am, *By so much* shall I falsifie mens hopes

(Shakespeare, William. 1866. [1598]. *First part of Henry the Fourth*, I. 2.233. [line numbers as in the Globe Edition, 1866; spelling as in the First Folio, 1623])

- (b) *In proportion as* the listener ... becomes an active interpreter, *in that proportion* does he lose, the kind of consciousness which it is the purpose of the art to produce

(Spencer, Herbert. 1902. *Facts and comments*. London [no publisher mentioned by Jespersen], 34.)

Of course, a strictly proportional reading makes little sense for the correlations expressed in these sentences. Rather, these sentences con-
tort or construe the correlations *as if they were* proportional, probably because we find such correlations more interesting than the weak and more messy correlations we find in reality.

Even without overt proportional markers, we often interpret CCs as referring to proportional correlations. Moreover, there is often an added implicature that the proportional correlation is *linear*. For instance, *The more you work, the more you earn* will typically be understood as conveying the idea that if you work *just a bit* more, you'll earn *just a bit* more and that if you work *a lot* more, you'll earn *a lot* more, with the extra suggestion that increased efforts will produce increases in your rewards *by a (more or less) constant factor* (cf. again Figure 3).

However, while the CC does indicate covariation between two scalar values, there certainly need not be a linearly proportional relation between them, as has been argued by Jespersen (1924: 251-252), De Cornulier (1988), Beck (1997: 246) and Den Dikken (2005: 515-516, fn. 23). Consider the following translation of a German example provided by Beck (1997: 246):

(10) The greater a natural number is, the greater its square is.

(Beck, 1997: 246)

Greater natural numbers always have greater squares than smaller natural numbers, but this perfect correlation is not a linearly proportional one, since as you increase the magnitude of natural numbers (e.g. 1, 2, 3, ...), the magnitude of their squares increases exponentially (1, 4, 9, ...). In other words, constant increases in the value of the X-scale do not correspond with constant increases in the value of the Y-scale.

The same is true, in fact, for the sentence in (1), repeated here as (11).

(11) The faster we drive, the sooner we'll get there. (= (1))

The correspondence between one's driving speed and one's 'earliness' of arrival resembles a logarithm (Figure 5): if one drives at zero speed, one will reach the destination at infinitely many minutes (i.e. never) and in order to reach the destination in zero minutes (i.e. in no time at all) one would have to drive infinitely fast, which is of course a physical impossibility.

XX (Figure 5 about here) XX

Suppose now that one has to drive to a place which is ten miles away from the point of departure. If the average driving speed is 10 miles per hour, the destination will (obviously) be reached in an hour, and if one drives at an average of 60 mph, the destination will be reached in ten minutes. However, equal increments in average driving speed do not linearly correspond with equal reductions of the traveling time. While the sentence in (11) correctly states that the destination will be reached sooner with an increase in driving speed, it does not capture the reality that if one drives at 20 mph instead of at 10 mph to travel 10 miles, the gain in driving time will be half an hour, but that if one drives at 30 mph instead of at 20 mph, the gain will only be 10 minutes. For each equal increase in average driving speed, the gain gets smaller and smaller. Thus, if one drives at 40 mph rather than at 30 mph, one only gains 5 minutes; if one drives at 50 mph

rather than at 40 mph, one only gains 3 minutes; if one drives at 60 mph rather than at 50 mph, the gain is a futile 2 minutes; and so on.

This decrease in the significance of the gain is not expressed by the CC. One might therefore suspect that the CC could be held in part responsible for much pointless (let alone dangerous) speeding: *the faster one drives, the sooner one gets somewhere* is commonsensical and true, but potentially misleading because the CC does not specify the nature of the correlation. Some drivers might wrongly take it to be linearly proportional.

The CC in fact need not refer to a proportional (whether linear, exponential or logarithmic) correlation at all. Consider the following three examples, taken from De Cornulier (1988, cited in Abeillé and Borsley, 2006), Beck (1996) and Den Dikken (2005), respectively:

(12)(a) The balder one is, the more intelligent one is.

(b) In last year's games, the warmer it was, the more often Louise scored.

(c) The later it got, the fewer the customers that entered the shop.

In (12a), the general intended message is that bald people tend to be intelligent, but not, of course, that there is a strict inverse correlation between the number of one's hairs and, say, one's IQ or the number of one's neurones. Next, the sentence in (12b) could refer to a situation

in which on two consecutive days with the same temperature, Louise scored a different numbers of goals, as long as on warmer days she scored even more goals than the highest number of goals scored on a cooler day. That is, the CC does not allow us to infer that identical values for the independent variable correspond to identical values for the dependent value. Finally, (12c) need not be taken to mean that the number of customers entering the shop declined in a perfectly gradual way (i.e. by a fixed percentage) as time passed. It only states that over time there were fewer and fewer customers entering the shop. These drops in customers can vary in a non-predictable way. For example, this sentence could truthfully refer to a scenario in which from 2 p.m. to 3 p.m., 10 customers entered, from 3 p.m. to 4 p.m., 8 customers entered (= minus 2), from 4 p.m. to 5 p.m. only 4 customers entered (= minus 4) and from 5 p.m. to 6 p.m., only 1 customer entered (= minus 3). Again, a proportional analysis would exclude such a scenario.

From these examples, it is clear the CC by itself expresses nothing more than that there is a correspondence (positive or inverse) between differences in values on one scale and differences in values on another scale. While language users may have the tendency to interpret this correspondence in terms of a nicely linear proportionality relation, such an interpretation is not part of the semantics of the CC. The CC can be exploited to encode in language a wide range of mathematical functions as well as relationships that are not functions in the mathe-

matical sense but much vaguer generalizations about how changes in one domain correspond to changes in another. In some cases, this versatility may come in handy—we do not have to use a different construction for each possible kind of correspondence relation. In some other cases, however, the CC is a rather blunt instrument for the expression of complex relationships. The constructional arsenal of the English language (or, presumably, of languages in general) does not contain specific patterns which allow speakers to indicate more explicitly what the nature of a correspondence relation is beyond the fact that the correspondence is positive or inverse. It is for this reason that some language users appear to fiddle with the CC by adding explicit markers, not altogether unlike what we saw in (8a–b) above. I have not added acceptability judgements, but the grammaticality of the result is always questionable, wherever the adverb is placed—before, in between or after *the* + comparative:

(13)(a) However, the higher the number of analysts, *proportionally*, the more effective the seat inventory control system seems to be.

(dspace.mit.edu/bitstream/handle/1721.1/14572/19284012.pdf?sequence=1, accessed 3 May 2009)

(b) The more knowledge we have as sapient beings then, *exponentially*, the more good or evil we can do to ourselves, those

around us, and ultimately quite a swathe of our local universe.

(www.unexplained-mysteries.com/forum/lofiversion/index.php/t148775.html, accessed 3 May 2009)

(14)(a) ... the greater the mass, the *disproportionally* more tracheae are required to reach the deepest muscles, and respiration becomes very inefficient.

(Grimaldi, David and Michael S. Engel, 2005. *The Evolution of the Insects*. Cambridge: Cambridge University Press, p. 178)

(b) The longer the password is, the *exponentially* more difficult it becomes to crack.

(www.microsoft.com/smallbusiness/resources/technology/security/5-tips-for-top-notch-password-security.aspx, accessed 3 May 2009)

(c) The *linearly* easier you make a process, the *logarithmically* more times people will use that process, would be my bet.

(markmail.org/message/yz673kgkeorpd6wd, accessed 3 May 2009)

(15)(a) The more questions that are added to an electronic program or card set, the more *exponentially* the correct responses will grow.

(www.naemd.org/articles/ProtocolSystems.html, accessed 9 May 2009)

(b) The longer the password the more *exponentially* difficult it becomes to crack. (cp. (14b)!)

(www.ritraining.co.uk/site/faq , accessed 9 May 2009)

To conclude this section, the default interpretation of the CC is probably a linearly proportional one, but it should be clear that the actual meaning of the CC is much leaner: it only expresses a positive or inverse correlation *of some sort* between two gradable situations. The construction therefore allows many readings with respect to the specific nature of the correlation it expresses. In order to narrow down the range of possible readings, some language users appear to add such adverbs as *disproportionately* or *exponentially*, at the cost of full grammaticality.

6. No ‘simple’ conditionality

The CC is sometimes considered to be a conditional structure and is often accordingly called a “comparative conditional” (e.g. McCawley, 1988; Beck, 1996; Declerck and Reed, 2001). Quite often, a CC can indeed be paraphrased as an *if... then...* conditional. Consider again the sentence in (1), repeated below as (16a), and its conditional paraphrase in (16b):

(16)(a) The faster we drive, the sooner we’ll get there.

(b) If we driver faster, we’ll get there sooner.

It is a fact that asyndetic structures sometimes receive a conditional interpretation (Declerck and Reed, 2001: 407-408; Dancygier and Sweetser, 2005: 255-262). For example:

(17)(a) You help us, we help you. [‘If you help us, we will help you’]

(b) You need anything, you come to me. [‘If you need anything, (you) come to me’]

(c) No pain, no gain. [‘If there is no pain, there is no gain’, that is, ‘if you don’t make an effort, you won’t achieve anything’]

(d) No shoes, no shirt – no service. [‘If you don’t wear shoes and a shirt, we won’t serve you any food’]

Because of the formal similarity with this conjunction-less paratactic sentence type and because of the directional semantic relation mentioned in section 2, positing a conditional semantics for the CC seems plausible. However, the undeniable directionality of the correlation does not by itself warrant a straightforward conditional analysis of the first part of the CC as the protasis and of the second part as the apodosis of a simple conditional structure. There are two reasons why such a simple conditional analysis should be rejected. These are discussed in the two subsections which follow.

6.1. Simple if... (then)... paraphrase not always possible

A simple conditional analysis of the CC is problematic in that an *if... (then)...* paraphrase like the one offered in (16b) for (16a) cannot always be given. If we consider example (7a) once again, repeated below as (18a), it can be noticed that we cannot turn this CC into the conditional given in (18b), which is pragmatically odd (hence the exclamation mark):³

³ This sentence is preceded not only by an exclamation mark signalling nonsensicality but also by an asterisk because its syntax is anomalous. *More* cannot appear *in situ* here. I will elaborate on this in section 8.

(18)(a) the more fish I ate, the more I discovered that the breading
was undercooked – yuck!

(b) !*if I ate more fish, (then) I more discovered that the bread-
ing was undercooked – yuck!

Declerck and Reed (2001: 28) argue that only *some* instances of the CC have a conditional connotation. They give a few similar problematic examples:

A sentence like *The longer I knew him, the less I understood him* is not interpreted as ‘If I knew him longer, I understood him less.’

There is no conditional interpretation either in *The more I listened to him yesterday, the less I could believe him*.

(Declerck and Reed, 2001: 28)

A paraphrase which works more often in these cases is one which uses *as* rather than *if*, e.g. ‘As I knew him longer, I understood him less’ (cf. Culicover and Jackendoff, 1999: 545).

6.2. Counterfactual tense forms usually excluded

Culicover and Jackendoff (1999: 545) point out that the CC cannot be analysed as having a straightforward conditional meaning because it does not allow the expression of counterfactuality, as standard conditionals do. Thus, a tense combination of the so-called second canonical pattern (i.e. the past tense combined with *would* + present infinitive) is not allowed in the CC but is perfectly fine in a standard conditional sentence. Compare:

(19)(a) *The faster we drove now, the sooner we would get there.

(b) If we drove faster now, we would get there sooner.

Note that these tense forms are allowed in the CC if they are not used to express counterfactuality. This is the case in a past narrative or in past reported speech or thought, where present and future tense forms are ‘backshifted’:

(20) Mr. Rabbit was driving and thankfully, as I had no clue where we were going, or how to handle driving behind a garbage truck (which we found ourselves behind) that one would naturally want to overtake, knowing full well the faster we drove the quicker we would get to our destination.

(deuslovult.wordpress.com/page/49/, accessed 3 May 2009)

Counterfactual tense combination of the so-called third canonical pattern (i.e. the past perfect combined with *would* + past infinitive) cannot generally be used in the CC either. Compare:

- (21)(a) *The faster we had driven, the sooner we would have got there.
 (b) If we had driven faster, we would have got there sooner.

Again, if this tense combination is not used to express counterfactuality, it can in principle be found in the CC, but this possibility is rare. Here is nonetheless an authentic example:

- (22) Her paper, the thesis of which was something like “a good top is hard to find,” showed no patience for the swooning lover, no tolerance for the passive admirer. I knew then that the more my desire had been evident to her, the more she would have sneered at my bottom ways. I had been disdained.

(www.salon.com/books/it/1999/05/17/professor_s_confessional/print.html, accessed 5 June 2008)

Here, too, the tense forms are arguably backshifted. The reconstructed present-time version might be something like (23):

(23)... I now know that the more my desire has been evident to her [—
and it has!—] the more she will have sneered at my bottom ways.

Clearly, there is no counterfactuality involved.

7. More sophisticated conditionality

Despite the objections formulated in the previous section, it could still be argued that the CC does have a conditional meaning, albeit one that is more complicated than the kind of reading we have discussed so far. A conditional semantic structure of the CC would account for the occasional presence of the adverb *then*, linking the two clauses (cf. Taylor, 2004). Incidentally, sentence (13b) above already provided an example of this possibility. Here are some further illustrations from *the British National Corpus*:

- (24)(a) The faster something is, then the better it is! (BNC)
- (b) We feel that the more we know about Michael, then the more we can help him. (BNC)
- (c) Generally speaking, the higher the creature is on the scale of consciousness, then the longer is its period of adolescence,

and the more is it reliant upon its parents, because the greater is the scope for learning.⁴ (BNC)

There might be doubts about the acceptability of CCs with *then*. McCawley (1988: 186, n. 6), for one, claims that *then* is ungrammatical in CCs. It is true that CCs with *then* are very rare compared to standard *if*-conditionals.⁵ Nonetheless, their sporadic occurrence may be seen as revelatory of underlying conditionality. The question, then, is how we can propose a conditional analysis while circumventing the problem that a simple conditional sentence cannot always be offered as a paraphrase.

Such an analysis is provided by Beck (1997). While her analysis is couched in a formal-semantic notation system, I will use plain English words to spell out Beck's semantic analysis of the CC, inspired by the way Abeillé and Borsley (2006: 2) reformulate her analysis using ordinary French words. Consider again our example in (1)/(25a). A conditional paraphrase *à la* Beck (1997) is given in (25b):

(25)(a) The faster we drive, the sooner we'll get there.

⁴The occurrence of a *because*-clause in the cluster of scales in the second part of this sentence (cf. section 3 for multiple scales) is interesting, in that it allows a scale with an independent variable (here: scope for learning) to follow scales with dependent variables (here: length of period of adolescence and degree of reliance on parents), in defiance of the standard order (independent variable – dependent variable) in CCs.

⁵ For a discussion of conditions on the use of *then* in *if*-conditionals, see Iatridou (1992) and Dancygier and Sweetser (1997).

- (b) ‘For any two scenarios, s_1 and s_2 , if we drive faster in s_1 than in s_2 , then we’ll get there sooner in s_1 than in s_2 .’

In this paraphrase, there is no comparison between a value in the first clause (e.g. very fast) and a value in the second clause (e.g. very soon). Rather, there is an implication relation between two comparisons, one for each clause, which hold between the same pair of terms. In the example above, this pair is made up of two possible scenarios (i.e. possible worlds), but the comparison could also hold more directly between two objects, two individuals, etc. For example:

- (26)(a) The smaller a car is, the less fuel it has to use.
- (b) ‘For any two cars, c_1 and c_2 , if c_1 is smaller than c_2 , then c_1 has to use less fuel than c_2 .’
- (27) (a) The smarter a woman is, the less likely she is to get married.
- (b) ‘For any two women, w_1 and w_2 , if w_1 is smarter than w_2 , then w_1 is less likely to get married than w_2 .’

The comparison can also target two times lying in the past. It is in such cases that a rough-and-ready conditional paraphrase cannot be given (cf. section 6.1). Sometimes, however, to make the more sophis-

ticated conditional paraphrase work, the tense forms of the original sentence need to be slightly adapted:

(28)(a) The more fish I ate, the more I discovered that the breading was undercooked.

(b) ‘For any two past times, t_1 and t_2 , if I had eaten more fish at t_1 than at t_2 , then I (had) discovered more [i.e. to a higher degree of certainty] that the breading was undercooked at t_1 than that I did (or had) at t_2 .’⁶

(29)(a) The longer I knew him, the less I understood him.

(b) ‘For any two past times, t_1 and t_2 , if I had known him longer at t_1 than at t_2 , then I understood him less at t_1 than at t_2 .’

(30)(a) The more I listened to him yesterday, the less I could believe him.

(b) ‘For any two past times (included in the time interval during which I listened to him yesterday), t_1 and t_2 , if I had listened to him longer at t_1 than at t_2 , then I could believe him less at t_1 than at t_2 .’

⁶ The comparative *more* in the second part should probably be seen as an exophrasic element; cf. section 8. The most accurate (but not very elegant) paraphrase is therefore: ‘For any two past times, t_1 and t_2 , if I had eaten more fish at t_1 than at t_2 ,

This conditional structure can explain why counterfactual tense forms are excluded (cf. section 6.2). In a standard (i.e. simple) conditional, counterfactual tense forms serve to contrast the counterfactual situations described with the actual situations in reality: *if we drove faster (than we actually do now) then we would get there sooner (than we actually will get there)*. By contrast, the CC does not compare a possible (possibly counterfactual) situation with reality; instead it compares two randomly selected entities which both belong to the same possible world. This is evident from the following more explicit formulation of the conditional relation expressed by a CC:

- (31) ‘For any two randomly chosen cars which are to be found in some possible world, c1 and c2, if it is the case that c1 is smaller than c2 in that possible world, then it is also the case that c1 has to use less fuel than c2 in that possible world.’

The whole point of the CC is to state that if there is, within that possible world, a *factual* difference between two selected entities with regard to a relevant parameter (referred to in the first clause), then there will also be a factual difference between them with regard to another relevant parameter (referred to in the second clause).⁷ In other words,

then there was more actualization of my discovering that the breeding was undercooked at t1 than there was at t2’.

⁷ By ‘factual’ I mean ‘true’ in a possible world, but not necessarily ‘actually’ true in the real world.

the correlation that is set up by the CC only makes sense if one accepts the premise that there *is* some difference between two entities with respect to one parameter (e.g. car size), in order to then consider what this premise entails for some other parameter (e.g. fuel consumption). This entailment would become pointless if a counterfactual distance was created between the way the two entities *could* compare in that possible world and the way they actually compare in that world:

(32)!‘For any two randomly chosen cars which are to be found in some possible world, c1 and c2, if it had been the case that c1 had been smaller than c2 in that possible world (which it isn’t), then it would also have been the case that c1 would have used less fuel than c1 in that possible world (but it doesn’t).’

Usually, the possible world in which two randomly selected entities are compared coincides with reality. Thus, *the smaller a car is, ...* can be paraphrased elaborately as: ‘In a possible which is our real world, for any two cars in that world, c1 and c2, if c1 is smaller than c2, ...’. However, that possible world could also be an imaginary (hence counterfactual) world. In that case, it is still possible to state what a factual difference between two random entities in that counterfactual world entails for the difference between these entities with regard to some-

thing else. That is the reason why the following sentence is perfectly grammatical, despite the use of counterfactual tense forms:

(32) The more you know, the more you realize how much there is to know. And if I were the sort who cared about physics of force and locomotion and navigation, then I imagine the more I **learned** about how a ship works, the more I **would want** to know. The more I **would** be aware that a ship is more than something that the wind blows into the sails of and just goes.

(teardropsouffle.blogspot.com/, accessed 7 June 2008; boldface added)

In this example, the counterfactual tense forms do not create a distance between a counterfactual difference and an actual difference between two randomly selected entities in a possible world. They simply signal the counterfactuality that is set up by the preceding context (... *if I were the sort who cared...*). The CC is still concerned with a factual (though of course not actual—cf. footnote 7) difference between two entities within that counterfactual world. This is clear from the following elaborate paraphrase:

(33) 'For any two times/scenarios, t/s_1 and t/s_2 , if you know more at/in t/s_1 than at/in t/s_2 , then you realize more how much there is to know at/in t/s_1 than you do at/in t/s_2 ;

To illustrate this statement, let's picture a counterfactual world in which I am the sort of person who cares about physics of force and locomotion and navigation. Well, if I were that sort of person, I image that *within that counterfactual world* the following would then be the case:

for any two times, t_1 and t_2 , if I have learned more about how ships work at t_1 than at t_2 , then I want to know more at t_1 than at t_2 ; and then I am also more aware at t_1 than at t_2 that a ship is more than something that the wind blows into the sails of and just goes.'

So, within a counterfactual world, a correlation between differences can be described just like in the actual world. The only difference is that counterfactual tense forms have to be preserved in the CC, even though the paraphrase in (33) makes it clear that these can (and have to) be replaced by non-counterfactual tense forms (i.e. tense forms relating to factual situations). We could speak here of a factual correlation within a counterfactual world.

8. Beyond conditionality: relating differentials⁸

Beck's (1997) complex conditional analysis, discussed in the preceding section, is satisfactory for our purposes, as it enables us to explain why the CC does not ordinarily allow counterfactual verb forms (which we would expect if the CC was a run-of-the-mill conditional, *quod non*). Yet, we cannot exclude the possibility that even the more complex conditionality proposed by Beck is, in fact, not an inherent semantic aspect of the CC. Brasoveanu (2008) argues that the CC crucially expresses no more than a relation between differences—or, in more technical terms, between *differentials*.

The term 'differential' calls for a definition. A differential is an amount, more specifically the amount of difference (i.e., the degree or extent of difference) between two entities with respect to a given measure by which they are compared. For example, in the comparative sentence *Bob's essay is five pages longer than Bill's*, the measure NP *five pages* expresses a differential, i.e. an amount of difference obtained by comparing Bob's essay and Bill's essay with respect to their respective length (see also, e.g., Schwarzschild, 2008).

Brasoveanu's (2008) analysis, like Beck's (1997), attains a high degree of formalization, but I will here try to capture its essence in non-technical language. First of all, we need to grasp the nature of the

⁸ In writing this section I have greatly benefited from the helpful comments of an anonymous reviewer. Needless to say, any shortcomings remain entirely mine.

fixed word *the* preceding the comparative in both parts of the CC. In fact, this word can be analysed as expressing an indefinite differential, filling the same syntactic slot as *five pages* in *five pages longer*. As Jespersen (1924: 251) writes, neither *the* in the CC has a diachronic link to the definite article; instead the second *the* is a descendant of the Old English instrumental-case demonstrative pronoun *þy* (for details, see Jespersen, 1949: 509-512), which also survives in a handful of fixed and semi-fixed comparative expressions, such as *nevertheless*, *nonetheless*, *the worse for {wear / drink}*, *none the wiser*, *so much the better*, *all the {worse / more important / more reason to /...}* or the well-known phrase in the fairytale of Little Red Riding Hood (*all*) *the better to {hear / see / grab / eat} you with*. Jespersen (1924: 251) goes on that “in “the more, the merrier” and similar collocations of two members, the first *the* is relative, while the second *the* is demonstrative”. Hence Jespersen’s (1949: 509) later statement that the CC “means ‘by how much . . . by so much,’ i.e. [it] indicate[s] a parallel increase in two interdependent cases.”⁹ Den Dikken (2005: 515) gives credit to Jespersen’s (1949) semantic characterization and claims that “a sentence like (...) *The more you eat, the fatter you get*, can be para-

⁹ These observations had already been formulated by Fowler and Fowler (1906: 70) in *The King’s English*, where they wrote about *the more*: “In this phrase, *the* is not the article, but an adverb, either relative or demonstrative. In *the more the merrier* it is first relative and then demonstrative: by-how-much we are more, by-so-much we shall be merrier.” While one could object to calling *the* an adverb, this description of the CC is surprisingly lucid in an otherwise predominantly prescriptive work.

phrased as ‘the measure by/degree to which you eat more parallels the measure by/degree to which you get fatter’.”

As we noted above, Brasoveanu claims that the meaning of CCs should be described as a relation between differentials. It can now easily be seen that this is indeed the case. The construction’s semantics is reflected in its syntax, with the (cross-linguistically characteristic) double use of a differential-marker. In Brasoveanu’s analysis, the first of these markers (*the* in English) expresses a non-empty, but unspecified, differential interval, while the second marker (again *the* in English) is a proform for a differential interval which anaphorically picks up the first one—exactly as in the paraphrase *by how much... by so much*.

Brasoveanu’s (2008) analysis essentially differs from Beck’s (1997) in that it does not directly involve conditionality but instead attaches central importance to correlated differentials. In support of this, Brasoveanu points out that in a language like Romanian, the same markers which are used in the counterparts of the English CC (namely, *cu cât... cu atât...*) can also be used to set up correlations which cannot be given a conditional paraphrase—not even a complex one as proposed by Beck (1997)). A literal English translation of such a sentence is given in (34); I make use of a correlative pattern which was available in an earlier stage of English (cf. (9a) above) and which we have just seen is close in meaning to the *the... the...* construction:

(34) By how much the brother is taller than the sister, by so much the father is taller than the mother.

This sentence simply states that the amount by which the brother is taller than the sister corresponds with—i.e., is similar or perhaps equal to—the amount by which the father is taller than the mother (Figure 6).

XX (Figure 6 (a, b) about here) XX

Sentence (34) cannot be paraphrased as ‘If the brother is taller than the sister by a certain amount, then the father is taller than the mother by that amount’, since the situation expressed in the protasis is fulfilled: the brother *is* taller than the sister by a certain amount.¹⁰ Nor can we propose a Beck-(1997)-style conditional paraphrase like ‘For any two siblings, one being a brother and the other a sister, and for their parents (a father and a mother), if the brother is taller than the sister by a certain amount, then the father is also taller than the mother by that amount’. This paraphrase is not possible since (34) involves no more than one brother and one sister, along with their father and mother. In

¹⁰ What’s more, the situation expressed by the apodosis does not depend for its fulfilment on the truth of the situation expressed by the protasis, which is why this paraphrase cannot even be accepted on a closed-condition reading of it (‘if the brother is taller than the sister by a certain amount, which indeed he is, then...’).

other words, (34) does not invite one to mentally ‘move’ along a length scale for siblings containing ever so many pairs of brothers and sisters (with the former in each pair being taller than the latter) and then to establish that the difference in height per pair is matched with a corresponding difference in height on a length scale for the respective parents. Instead, there is only a single pair of items on each scale, and even though their values, especially those of the brother and the sister, may change over time, their position is represented as fixed. In this respect, sentence (34) is reminiscent of what we called ‘static’ (i.e. referential) comparisons in section 2 (cf. Figures 1 and 2).

Now, Brasoveanu (2008) argues that this semantic characterization of non-conditional CCs (a relation between differentials) carries over to ‘conditional’ CCs. The difference between these two types of CCs is that ‘non-conditional’ CCs such as (34) express a relation holding between a *single* pair of differentials, while ‘conditional’ CCs, which in English can be expressed with the *the... the...* pattern, involve a relation between *multiple* such pairs. In Brasoveanu’s (2008) analysis, the conditionality interpretation is a mere side-effect: it is a natural result of the fact that *sets* of pairs (of differentials between values of items) are correlated.¹¹ Figure 3, for instance, could easily be thought

¹¹ Den Dikken (2005), too, who considers that “conditionality is at least compatible with the syntax assigned to the comparative correlative” (Den Dikken, 2005: 496, note 1), doubts that it is an intrinsic semantic aspect of the CC and wonders how it can be built up from the CC’s semantic-syntactic subcomponents: “it remains unclear how the construction’s conditional nature is compositionally derivable” (Den Dikken, 2005: 515, note 22).

of as the result of multiple superimposed instances of representations similar to Figure 6, b, with each time a slightly different choice of two amounts of work (with their differential) and their corresponding earnings (with *their* differential). This multiplicity is exactly what we referred to as the dynamic (i.e. quantificational) aspect of English CCs in section 2. It allows us to move, as it were, along the X-scale and pick any two x-values at random, such that ‘for *any* two randomly chosen items x_1 and x_2 , if they differ by some amount, then their respectively related items y_1 and y_2 differ by a corresponding amount’. A conditionality reading comes for free as a by-product of this multiple correlating of differentials.

This analysis has some advantages over Beck’s (1997), where conditionality is an in-built semantic feature. First of all, it captures a generalization over ‘non-conditional’ and ‘conditional’ CCs. As Brasoveanu (2008) shows, in Romanian, the markers *cu cât* and *cu atât* can be used in both types of constructions—that is, in counterparts of (34) and in counterparts of the English *the... the...* construction. Therefore, an analysis which brings out the semantic commonality between these two comparative constructions (namely, they both involve a relation between differentials) is to be preferred over one which does not. Secondly, if all CCs can be uniformly described as relating differentials, then this explains why we can use the same construction to compare objects, individuals, scenarios or times, as we

have seen is the case. Consider the CC in (35), whose counterpart in German is discussed in Beck (1997):

(35) The slimier an attorney is, the more successful he is.

Following Beck (1997), Brasoveanu (2008) points out that such a CC can be given two different readings:

- (36) a. If an attorney x is slimier than an attorney y by a certain amount, then x is more successful than y by a corresponding amount.
- b. If an attorney x is slimier at time t than at time t' by a certain amount, then x is more successful at t than at t' by a corresponding amount.

These readings are not radically distinct, as they both crucially involve the matching up of a certain difference in sliminess between attorneys with a difference in success between them. This relation between differentials might be sufficient as far as spelling out the *meaning* of (35) is concerned; it is then apparently left to the interpreter to decide whether the sliminess is best compared between different attorneys at a single time or between identical attorneys at various times.¹² A third

¹² Different contexts may favour either the first or the second reading. Compare:

advantage of Brasoveanu's (2008) analysis is that it is more faithful to the surface morpho-syntax of CCs in Indo-European languages, where the correlative markers often explicitly encode differentials, typically by means of a preposition introducing a measure phrase (Den Dikken, 2005), as is indeed also the case in the Romanian counterpart of the English CC discussed by Brasoveanu (2008): *cu cât* literally means 'with how-much' and *cu atât* literally means 'with that-much'. In English, the marker *the* is (synchronically at least) much less explicit in that respect, but it identifies an indefinite differential none the less. Finally, Brasoveanu's (2008) analysis perhaps more naturally explains why counterfactual tense forms do not occur in the CC (cf. section 6.2 above): the *the... the...* pattern is not a kind of conditional construction to begin with, so it is only to be expected that tense forms of so-called type 2 and type 3 conditionals are not used in it.¹³

In spite of these advantages of Brasoveanu's (2008) analysis, in the remainder of this paper I will continue to adopt Beck's (1997) condi-

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- (i) It is sad to say, but when I see how widely different the verdicts of these similar cases are and when I look at the personalities of the attorneys involved, I can only conclude that the slimier an attorney is, the more successful he is.
 - (ii) Listen, my esteemed *confrere*, I much admire your honesty and youthful idealism, but in this profession, you'll soon learn by your own experience—I hope for you—that the slimier an attorney is, the more successful he is. That's how you survive in this snake pit.

Arguably, (36a) is the most suitable reading for the CC in (i), while (36b) works best for the same CC in (ii).

¹³ Exceptions such as (32) can again be accounted for by referring to the counterfactuality of the larger context. Brasoveanu (2008) does point out a commonality between conditionals and CCs. He considers them both as instances of the more general topic-comment construction. This might go some way towards explaining why a tense form used in the protasis of a type 2 conditional (the preterite) is used in the first part of the CC in (32) and why the tense form used in the apodosis of such a conditional (the 'conditional tense') is used in its second part.

tional analysis. This is motivated by the following considerations. First, English cannot express ‘non-conditional’ CCs of the type shown in (34) by means of the *the... the...* construction. Put differently, the English CC, unlike the Romanian CC discussed by Brasoveanu (2008), is always of the ‘conditional’ type. Because of this, there may be little harm in treating this conditionality as part of its meaning, even though it might in actual fact be a pragmatic rather than purely semantic aspect. Put differently, in the absence of a non-conditional subtype of the *the... the...* pattern in English, the conditional side-effect can be observed in all instances of this pattern and so might just as well be considered an integral part of its meaning. Secondly, Beck’s (1997) analysis, or at least Abeillé and Borsley’s (2006) and my own informal rendition of it, in fact *implies* differentials (at least unspecified ones). Consider again (25a), here repeated as (37a), and its conditional paraphrase in (25b), here repeated as (37b) with added explicitation of differentials (in italics):

(37)(a) The faster we drive, the sooner we’ll get there.

(b) ‘For any two scenarios, *s1* and *s2*, if we drive faster in *s1* than in *s2* *by a certain amount*, then we’ll get there sooner in *s1* than in *s2* *by a corresponding amount*.’

Thirdly, our discussion of this very sentence has made it clear that the differentials do not at all correspond in any straightforward way (cf. again Figure 5), so that these differentials and their correspondences had better be left implicit indeed.

9. Endophrastic and exophrastic functions of the comparative phrase

In most CCs, the initial comparative phrase (minus *the*) fulfils a grammatical role in the clause it introduces. For instance, in (1), *faster* and *sooner* are adverbs within a VP. Similarly, in *The more fish you eat, the healthier you'll get*, the phrase *more fish* fulfils the role of a direct object and *healthier* the role of a subject complement. These comparative phrases have clause-internal functions and are accordingly interpreted as playing a role on the level of the situation expressed by the clause.

In some cases, however, the initial comparative phrase cannot readily be 'reconstructed' as a clausal constituent.¹⁴

¹⁴ As an anonymous reviewer pointed out, there are examples which prove that such comparatives do have within-clausal counterparts, provided they are themselves combined with a clausal standard of comparison as complement:

- (i) As a former almost two-pack a day smoker who hasn't smoked longer than she did smoke, I agree it is a choice . . .
(<http://intrepidmedia.com/column.asp?id=1695>)
- (ii) I now don't want it more than I did not want it before.
(<http://www.sodahead.com/united-states/did-obamas-speech-on-healthcare-tonight-change-your-mind-about-the-plan/question-615273/?page=3>)

- (38)(a) The *longer* you don't smoke, the longer you'll keep your good looks. (cp. **You don't smoke longer*)
(www.communitygames.ie/download/The%20Beauty%20of%20Quitting%20Leaflet.pdf?id=MTI0, accessed 25 June 2008)
- (b) The more I think about it the *more* I don't want to give up on our dream yet! (cp. **I more don't want to give up on...*)
(www.fertilityfriends.co.uk/forum/index.php?topic=19276.0;wap2, accessed 24 June 2008)

Here, arguably, the italicized comparatives are a 'pre-installed' part of the CC as a constructional template and play an external semantic role with respect to the situation expressed by the clause they introduce. This is clear from the conditional paraphrases:

- (39)(a) 'For any two scenarios, s1 and s2, if there is a longer actualization of [your not smoking] in s1 than in s2, then you'll keep your good looks longer in s1 than in s2.'
- (b) 'For any two scenarios, s1 and s2, if I think about it more in s1 than in s2, then there is more actualization of [my not wanting to give up on our dream yet] in s1 than in s2.'

Adopting a distinction used by Inkova (2008), one might call the preposed comparatives which play a clause-internal syntactic and semantic role *endophrastic* and those which do not *exophrastic*. Inkova draws such a distinction with respect to the Russian scalar markers *nastol'ko/naskol'ko* ('to which extent' / 'to the same extent'). She argues that these markers function endophrastically when they are clause-internal intensifiers and function exophrastically when they give rise to an epistemic reading in terms of descriptive adequacy. In the latter case their correlated occurrence can be paraphrased as follows: 'to the extent that it is exact to say p , to the same extent is it exact to say q '.

The difference between endophrastic and exophrastic comparatives in the CC is quite evident in the following pair of minimally different sentences:

(40)(a) The more I learn, the more I don't know!

(www.wpdfd.com/forums/wpdfd/browsers/ie_vs_netscape/,

accessed 3 May 2009)

(b) The more I learn, the more I don't know anything...

(forums.afterdawn.com/thread_view.cfm/680511, accessed 3

May 2009)

In (40a), the second occurrence of *more* simply fulfils the direct object role of the transitive verb *know*. In (40b), *know* is already accompanied by an object (*anything*), which means that *more* preceding that second clause cannot also be analyzed as an object.¹⁵ Its function here is exophrastic and it has scope over the contents of the clause: ‘... there’s more of *my not knowing anything*’ or ‘*my not knowing anything* becomes more obvious’ or even ‘there is more truth to the fact that *I don’t know anything*’. As can be seen, a clause with an exophrastic comparative can be given an epistemic-like reading.

Exophrastic comparatives certainly are not incompatible with the meaning of the CC, given that they can be accommodated by the conditional paraphrase. On the other hand, as far as I can see, the occurrence of exophrastic comparatives is not *predicted* by the conditional meaning of the CC. Their occurrence must therefore be stated explicitly in a grammatical description of the CC.

¹⁵ Cf. the theta criterion, which states that each semantic role associated with a predicate should be realized by one and only argument.

10. Wide scope and small scope readings of a negative comparative phrase (*less (...)* / *fewer (...)*) with respect to deontic modality

If the comparative clause is introduced by *the less (...)* or *the fewer (...)*, the scope of the comparative with respect to a deontic modal (if any) further in the clause may be different from the scope which *less (...)* or *fewer (...)* has with respect to the same modal verb in a more canonical sentence structure.

Consider first the following canonical sentence:

(41) If you want to lose weight, you have to eat less.

(www.encyclopedia.com/doc/1G1-107897383.html, accessed 4 May 2009)

This sentence can be paraphrased as follows:

(42) 'If you want to lose weight, it is necessary that you eat less.'

The paraphrase brings out the fact that modality expressed by *have to* has scope over the negative comparative. Curiously, (41) does not have a direct CC counterpart:

(43) !The more weight you want to lose, the less you have to eat.

This CC cannot be given the paraphrase given in (44), which would preserve the scope relation of the conditional in (41):

(44) ‘For any two scenarios, s1 and s2, if you want to lose more weight in s1 than in s2, then it is necessary for you to eat less in s1 than in s2.’

Rather, the CC in (43) can only be understood (nonsensically) as there being less of a necessity to eat as you want to lose weight (hence the tagging with an exclamation mark). Indeed, if a CC contains a negative comparative and (in the same clause) an instance of *have to* expressing deontic modality, the former always has scope over the latter. This is shown by the authentic examples in (45a-b). Some context is provided within square brackets. The paraphrases are given in (46a-b):

(45)a. [“I heard that, I heard that if you smoke right, you don’t get as hungry”]

“So the more you smoke, the **less** you **have to** eat”

(McCool, Judith P. et al. 2003. Interpretations of smoking in film by older teenagers. *Social Science & Medicine* 56 (5), 1023-1032, p. 1028)

b. [People with a high ratio of muscle to fat on their bodies have a higher metabolism and a higher calorific need. When you have more muscle on your body, even when you’re sitting down doing, you’ll be burning calories. (...)] Therefore the more muscle

on your body, the **less** you **have to** worry about gaining weight.

(<https://www.nonipsnotucks.com/downloads/50to51.pdf>, accessed 18 June 2009)

- (46)a. ‘For any two scenarios, s1 and s2, if you smoke more in s1 than in s2, then it is less necessary for you to eat (or there is a smaller amount of what you have to eat; or you feel less of an urge to eat) in s1 than in s2.’ (not: ‘... then it necessary for you to eat less in s1 than in s2’)
- b. ‘For any two scenarios, s1 and s2, if you have more muscle on your body in s1 than in s2, then it is less necessary for you to worry about gaining weight in s1 than in s2’ (not: ‘... then it necessary for you to worry less about gaining weight in s1 than in s2’)

It is clear from the paraphrases in (46a-b) that the negative comparative has scope over the deontic modal *have to*. One might initially be led to assume that this is a corollary of the exophrastic function which the comparative might have *vis-à-vis* the clausal content (cf. section 9). However, while it cannot be excluded that *less* in (45a-b) is exophrastic (‘... then it is less the case that you have to {eat / worry about gaining weight} in s1 than in s2...’), there are sentences in which the

less (...) / *fewer (...)* are endophrastic and still have scope over the deontic modal further in the clause. For instance, in (47a–b) below, the relevant comparative phrases indubitably have a clause-internal function—*less dirt* and *fewer calories* are direct objects—but this does not alter the scope relation, as can be ascertained by the paraphrases given in (48a–b).

(47)(a) The more math you learn as a kid, the less dirt you have to eat as a grown-up.

(www.gather.com/viewPostsByMember.action?memberId=20930, accessed 18 June 2009)

(b) The less food you eat the fewer calories you have to burn.

(www.hoodia-diet.net, accessed 18 June 2009)

(48)(a) ‘For any two individuals, i_1 and i_2 , if i_1 learns more math than i_2 when i_1 and i_2 are kids, then it is less necessary for i_1 to eat dirt as a grown-up than for i_2 (or the amount of dirt that i_1 has to eat as a grown-up will be smaller than the amount of dirt that i_2 has to eat as a grown-up).’ (not: ‘... then it is necessary for i_1 to eat less dirt as a grown-up than i_2 does as a grown-up’)

(b) ‘For any two scenarios, s_1 and s_2 , if in s_1 you eat less food than in s_2 , then there are fewer calories that you have to burn

in s1 than in s2.’ (not: ‘... then it is necessary for you to burn fewer calories in s1 than in s2’)

Again, the negative comparative clearly includes the deontic modality in its scope: there is less of a necessity to do something, or there is a lesser amount of what has to be done.

So, the inevitability of a wide scope reading of the negative comparative with respect to *have to* is not a consequence of its exophrastic function, since an endophrastic comparative has the same scope relation. It is not a consequence of its preposed position in the CC either. Indeed, in *wh*-questions like (49a–b), in which a negative constituent is preposed just as in the CC, the scope relation of the conditional in (41) is preserved (i.e. the modality includes the comparative in its scope):

(49)(a) How much less do you have to eat to lose weight? (*roughly:*

‘I know it is necessary to eat less to lose weight, but I wonder how much less’)

(ezinearticles.com/?expert=Laurie_Beebe, accessed 4 May 2009)

(b) How little do you have to eat to look this good? (*roughly: ‘I*

know it is necessary to eat little to look this good, but I wonder how little’)

(thesuperficial.com/2008/08/ali_larter_in_a_bikini.php, accessed 7 May 2009)

To sum up so far, in a CC *the {less (...) / fewer (...)}* can only be given a wide scope reading over deontic *have to*, should this modal appear further in the clause. This differs remarkably from the scope which *less, fewer* or similar negative quantifiers receive with respect to deontic *have to* in other sentence patterns. It is not clear whether this fact has to be stated explicitly in the usage restrictions of the CC or whether it follows from the semantics of the CC and its interaction with other known facts of the grammar of English.

Whatever the answer is to this as yet unresolved question, part of the explanation has to incorporate the specific usage restrictions of English deontic modals. Although *have to, need to, must, should, ought to* and *be supposed to* are all roughly synonymous and can be used interchangeably to convey much the same meaning in the standard conditional in (50), the latter four but not the first two modals are allowed in the formally related CC in (51):

(50) If you want to lose weight, you {have to / need to / must / should / ought to / are supposed to} eat less.

(51) The more weight you want to lose, the less you { !have to / !need to / must / should / ought to / are supposed to } eat. (*on the intended reading given in paraphrase (44) above, i.e. roughly ‘as/if you want to lose more weight, it is necessary for you to eat less’*)

This different distribution of deontic modals in standard conditionals and in the CC might seem a rather puzzling fact; after all, although we have seen that the CC has a more complex conditional meaning than related *if*-conditionals, it cannot be denied that (50) and (51) share much of their semantics. Yet, the (in)acceptability of the modals is not completely random. Note that the distribution of *have to* and *need to* versus *must*, *should*, *ought to* and *be supposed to* in (51) mirrors the distribution of these six deontic modals in negative sentences with small-scope negation (i.e. negation affecting only the proposition of the modality: ‘it is necessary not to...’), as in (52):

(52) You { !don’t have to / !needn’t / mustn’t / shouldn’t / oughtn’t to / aren’t supposed to } eat fattening food if you are to stay with our health plan.

If we turn to a CC in which the deontic modality is meant to be included in the negative comparative, as in (45a-b) above, we find again

that *have to* and *need to* pattern alike and behave differently from *must*, *should*, *ought to* and *be supposed to*:

(53) So the more you smoke, the less you {have to / need to / !must / !should / !ought to / !are supposed to} eat. (*intended reading roughly paraphrasable as ‘as/if you smoke more, there is less of a necessity to eat’; not: ‘as/if you smoke more, it is necessary to eat less’*)

This distribution of the deontic modals is the same as can be found in sentences with a wide-scope negator (i.e. one which has scope over the modality: ‘it is not necessary to...’) (see (54a)), in clausal complements of ordinary conditionals reporting an above-the-minimum threshold situation (see (54b)) and in certain sentences with *less* (or *fewer*) following the modal, where the context (here: the *if*-clause) allows for the same intended scope reading (see (54c)):

(54)(a) You {don’t have to / needn’t / !mustn’t / !shouldn’t / !oughtn’t to / !aren’t supposed to} eat what we serve. (*intended reading: ‘there’s no obligation for you to eat what we serve’; not: ‘there’s an obligation for you not to eat what we serve’*)

- (b) Parent to young son: Well done! Good boy! You've eaten more than you {have to / need to / !must / !should / !ought to / !are supposed to} eat. (*intended reading: 'congratulations, you've eaten more than what's required, i.e. above the minimum threshold'; not: 'congratulations, you've eaten more than what's desirable, i.e. above the maximum threshold'*)
- (c) If you smoke, you {have to / need to / !must / !should / !ought to / !are supposed to} eat less. (*intended reading: 'if you smoke, there is less of a necessity to eat'*)

In fact, the (un)acceptability of the deontic modals in (54b) is a direct corollary of their (un)acceptability in (54a): it has been assumed in the literature on comparatives that the complement (expressing the standard of comparison) contains a covert sentential negation and that deontic modals in a clause-type standard of comparison take scope with respect to this sentential negation the same way that they do with respect to overt negation (e.g., Schwarzschild, 2008, and references therein). That is, *you've eaten more than you have to eat* means something like 'the amount you've eaten meets or exceeds a threshold that it doesn't have to (= that it is not necessary to) meet or exceed—i.e., you've eaten above a minimum threshold'. By contrast, *you've eaten more than you should eat* is tantamount to saying that 'the amount you've eaten meets or exceeds a threshold that it shouldn't (= that it is

necessary not to) meet or exceed—i.e., you’ve eaten above a maximum threshold’. A sentence such as (54c) involves some kind of reordering, since the negative semantic portion of *less (than otherwise)*, which equals ‘NOT as much (as otherwise)’, somehow includes the modal: ‘If you smoke, you do NOT have to eat as much (as otherwise)’.

Apparently, the scope of deontic modals with respect to ordinary sentence negation (*not*) exactly mirrors the scope they take with respect to *less* or *fewer* in the CC (cf. Table 1). Just as with *not*, deontic modality can scope either outside or inside *less* or *fewer*, so it could be hypothesized that scope in the CC is regulated as follows:

- (i) if *less* or *fewer* is to be interpreted as having scope over the deontic modality, the modal auxiliary used in the clause should be one that accepts this scope relation in sentences with negation; *have to* and *need to* are such modals;
- (ii) if *less* or *fewer* is to be interpreted as being included within the deontic modality, the modal auxiliary used in the clause should be one that accepts this scope relation in sentences with negation; *must*, *should*, *ought to* and *be supposed to* are such modals.

XX (Table 1 about here) XX

Future studies should address the question why the scope of negative comparative phrases with *less/fewer* is similar to that of the negator *not* and different from that of both preposed (cf. (49a-b)) and *in situ* (cf. (50)) negative quantifying phrases in sentences without a negator.

11. Conclusion

In this study, we have focussed on the meaning and some interpretational properties of the comparative correlative construction (CC) in English.

As regards the meaning of the CC, we have proposed that this construction specifies that if two entities (whether objects, individuals, scenarios, times or situations) differ in some direction with respect to one or more parameters, then these two entities also differs in the same or the opposite direction with respect to one or more other parameters. We have shown how this analysis of the meaning of the CC, which is essentially similar to Beck's (1997), can explain why counterfactual tense forms are generally not allowed in the CC. We have also provided explanations for those special cases in which counterfactual tense forms do occur. We have also provided an informal presentation of Brasoveanu's (2008) alternative analysis, according to

which the CC essentially correlates differential intervals, in the English construction identified by *the*.

As regards the interpretational properties of the CC, we have seen that this construction supports a variety of different readings with respect to the nature of the positive or inverse correlation. None of these readings, however, is actually coded by the CC, and some language users therefore appear to feel the need to add adverbs which explicitly bring out the specific nature intended (e.g. ... *the disproportionately more ...* ; ... *the more exponentially ...*).

Finally, we discussed possible readings regarding the relation of the comparative phrase with respect to the clause it introduces, and suggested that these readings cannot be fully predicted. First, the comparative phrase cannot always be analysed as a syntactically extracted element and hence, as an element which plays a semantic role (as an argument or adjunct) in the clause it introduces: in some cases, it seems to be a ‘pre-installed’ part of the CC and functions exophrasically with respect to the clause it introduces. Second, a negative comparative phrase (i.e. one with *less* or *fewer*) always has wide scope over deontic modality expressed by *have to* or *need to* in the ensuing clause and is always included in the scope of deontic modality expressed by *must*, *should*, *ought to* or *be supposed to*, thereby following the scope properties of the negator *not* in negative clauses.

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Figure captions

Figure 1. *The knife is longer than the drawer is wide.*

The circle and the diamond represent two different items (a knife and a drawer) whose values on two commensurate scales (one for length, the other for width) are compared, as indicated by the dashed line. The knife is higher on the length scale than the drawer is on the width scale.

Figure 2. *He's almost as wide as he is tall.*

A single item, represented by a circle, is positioned on two commensurate scales (one for length, the other for width). Its values on each scale are compared, as indicated by the dashed line. The item is higher on the length scale than on the width scale, but not by much.

Figure 3. *The more you work, the more you earn.*

Values on the X axis, a scale indicating numbers of hours spent working, are continuously plotted against values on the Y axis, a scale indicating one's corresponding earnings expressed in pounds. The dotted lines indicate three random instances of this plotting. The correspondence relation is represented as a linearly proportional one, which is an idealized rendering from the correspondence between hours of work and financial earnings in reality.

Figure 4. *The more one eats, the more health risks one runs.*

Values on the X axis, a scale indicating the amount of food that is regularly consumed, are continuously plotted against values on the Y axis, a scale indicating the number of corresponding health risks. The calibrations of these scales are not specified. The dashed vertical line indicates someone's ideal food intake.

The relation between increasing X-values to the right of this dashed line and their corresponding Y-values (indicated by full line A) is the correlation which is linguistically coded by the correlative comparative sentence.

The relation between decreasing X-values to the left of the dashed line and their corresponding *decreasing* Y-values (indicated by dotted line B) represents an implicature of the correlative comparative sentence ('The less one eats, the fewer health risks one runs').

The relation between decreasing X-values to the left of the dashed line and their corresponding *increasing* Y-values (indicated by dotted line C) represents a correspondence which forms the cancellation of

this implicature. It is not linguistically coded but based on general knowledge of the world.

Figure 5. *The faster we drive, the sooner we'll get there.*

Values on the X axis, a scale indicating speed expressed in miles per hour, are continuously plotted against values on the Y axis, a scale indicating how soon the subject referents arrive at their destination, expressed in minutes. The correspondence is represented as a flattened curve. The dotted correspondence lines show that equal-sized increments along the X axis correspond to ever smaller increments along the Y axis.

Figure 6. *By how much the brother is taller than the sister, by so much the father is taller than the mother.*

(a) The circles and the diamonds represent two pairs of items (respectively, a brother and a sister, and their father and mother) whose differentials on two commensurate length scales are compared, as indicated by the sloping dashed lines. The differentials, indicated by vertical dashed lines, are the amounts by which the two items in each pair differ in length.

In this case, these amounts do not just correspond *somehow* but they are *identical*, as is clear from the fact that the sloping dashed lines do not slightly converge or diverge but are perfectly parallel to each other. In the Romanian source sentence of the English sentence above, this would warrant the use of the optional equative marker *tot* ('also') preceding the correlative marker *cu atît* in the second segment (Brasoveanu, 2008).

(b) Shown are the same differentials being compared as in (a). The only difference is one of spatial representation: the length scale on which the brother and sister are located is a horizontal X-axis here, yielding a plane of orthogonal ('Cartesian') axes, as in Figures 3-5.

Unlike in (a), equation of differentials cannot be represented with parallel lines. If the axes have the same calibration, as in this case, differentials are identical if the intersection points of the (dashed) perpendicular lines starting from the measured items can be joined with a line (dotted here) which forms an angle of 45° with any of the perpendicular lines.