



English Comparative Correlatives, Conditionals, and Adverbs of Quantification

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Abstract. This paper argues that the similarities long observed between English Comparative Correlative sentences (CCs) such as *the bigger they are, the harder they fall* and English conditionals are the result of the conservativity of generalized quantification and not the identity of the quantifiers involved in conditionals and CCs. I review the similarities, noted by Thiersch (1982), Fillmore (1987) and Beck (1997), *inter alia*, before presenting new data showing differences in both the kind of quantification (universal/generic *v.* proportional) and the defeasibility of quantification on the basis of what kinds of Adverbs of Quantification are found with each and how they affect interpretation. I conclude that CCs are not merely a subclass of conditionals as previously theorized (cf. Beck 1997, Lin 2007 and Brasoveanu 2008), positing an alternative theory in which a proportional quantificational force is part of the lexical meaning of the first *the* in the CC.

1 Introduction

The following are examples of the English Comparative Correlative. Examples (1d)–(1g) are from Google, and (1a) is a common idiom.

- (1) a. The bigger they come, the harder they fall.
b. The faster we drive, the sooner we'll get there.
c. The more a dog eats, the more it drinks.
d. The longer they remain, the greater the chances of disaster.
e. The larger the barrel, the bigger the curl.
f. The further the horizon, the greater the perceived scenic beauty.
g. The steeper the diagonal line, the tighter the folds will be in the swag.

Each CC under consideration here has two primary phrases separated by a comma, each beginning with *the*. These can be clearly clausal, as in, e.g. (1a)–(1d), or appear without verbs, as in (1e). In this paper, I will concentrate on the clearly clausal examples. I'll call the *the* that begins the first clause *the*₁ and the *the* that begins the second clause *the*₂.

The interpretation of the CC in (2) is paraphrased by Beck (1997) in the following way (in (3)). Though Beck is primarily analyzing the German CC, she is clear in her intention for its analysis to apply equally to English. I use her work as the exemplar analysis throughout this paper since it is the first detailed compositional analysis of the semantics of the CC in any language.

- (2) The faster we drive, the sooner we'll get there.
- (3) $\forall w_1 \forall w_2$ [[We drive faster in (w_1) than (w_2)] \rightarrow [We get there sooner in (w_1) than (w_2)]]

In prose, (3) expresses that the meaning of the CC correlates increases of one kind with increases of another kind across situations/worlds/individuals; here, increases in speed and earlier arrival times are correlated. Though this particular example's correlation is governed by a natural law relating speed and time, in general, neither causation nor any particular kind of functional relationship are required. In other words, CCs in English can be used to express seemingly random correlations such as (4) and a variety of non-linear relations as in (5), which is exponential. In addition, a sentence like (6) is judged to be true in a model in which a one-degree temperature difference correlates with a three-goal increase, while a five-degree temperature difference correlates with a single-goal increase. Thus, linearity (among other proper-ties) should not be included as part of the semantic representation of the CC. For more on this and related issues, see Beck (1997).

- (4) The more prolific the semanticist, the taller her husband.
- (5) The greater a number, the greater its square.
- (6) The warmer it was, the more goals the team scored.

Given a suitable sentence-level interpretation for the CC, the question is naturally how to compose it. All past work on the semantics of CCs, including Beck (1997), Hsiao (2003), Lin (2007) and Brasoveanu (2008) treat the English CC as a kind of conditional.¹ This paper argues that CCs are not a subclass of conditionals but rather that both CCs and conditionals are subclasses of the group of expressions that involve a generalized quantifier. In section 2, I review the compelling similarities between conditionals and CCs. In section 3, I focus on the differences, including new differences based on

¹ Brasoveanu does argue that not all CCs are conditional, but those that he excludes are Romanian equative-type CCs that mean something like 'the difference in height between mom and dad is the same as the difference in height between me and my brother', so the kind of CCs at issue here are still considered conditionals.

proportional interpretations (in 3.1) and adverbs of quantification (in 3.2). In section 4, I discuss the repercussions of these new differences for the compositional analysis of CCs.

2 Similarities between CCs and Conditionals

Thiersch (1982) observed the first similarities between CCs and conditionals, which were then taken up and added to by Fillmore (1987) and McCawley (1988) who were the first to hypothesize that CCs were a kind of conditional. What follows are some of the similarities between CCs and conditionals. First, both license donkey anaphora.

- (7) If a farmer owns a donkey, he loves it.
- (8) The more often a farmer milks a cow, the more he appreciates it.

Second, neither allow *will* as a future tense in the first clause.

- (9) If a farmer (#will milk) milks a cow, he will make butter.
- (10) The more often a farmer (#will milk) milks a cow, the more butter he can (will be able to) make.

Third, both allow backward pronominalization when the pronoun is in the antecedent but not the consequent.

- (11) a. If he_i has to wait a long time, John_i gets angry.
b. #He_i gets angry if John_i has to wait a long time.
- (12) a. The longer he_i has to wait, the angrier John_i gets.
b. #He_i gets angrier, the longer John_i has to wait.

Fourth, in both, tag questions can be formed only on the basis of the second (matrix) clause:²

- (13) a. If Max has to wait, Lucy gets angry, doesn't she?
b. *If Max has to wait, Lucy gets angry, doesn't he?
- (14) a. The longer Max waits, the angrier Lucy gets, doesn't she?
b. *The longer Max waits, the angrier Lucy gets, doesn't he?

² Whether the CC is an instance of a subordinate-matrix structure is a contentious issue in the literature on the syntax of the CC (cf. Culicover & Jackendoff 1999, Borsley 2004 and den Dikken 2005), but here, I will assume that the first clause of the CC is indeed a subordinate clause, which is the assumption of the semantics literature.

Beck adds additional similarities to the list. In both CCs and conditionals, the meaning of the subordinate clause restricts the domain of cases under consideration and the meaning of the matrix clause asserts something about those cases. Also in both, when quantification is over worlds, worlds where something miraculous or unexpected happens are ignored (so when you say *If he went to the store, he forgot his money*, you're excluding worlds in which he gets run over by a car on his way to the market). She says that counterfactual statements are possible in both, as in (15) and (16), though (16) sounds odd to me.

(15) If he had run faster, he would be more tired now.

(16) The faster he had run, the more tired he would be now.

Finally, Beck discusses adverbs of quantification (AQs). There is a long history of work on conditionals (see von Stechow 1994 and Bhatt & Pancheva 2006 for overviews), and one of its most influential observations is the extent to which conditional antecedents serve as domain restrictors of AQs such as *always, sometimes, usually, seldom, normally*, etc. Like conditionals, AQs show a wide range of quantification, leading Lewis (1975) to hypothesize that what is being quantified over with AQs (and conditionals and therefore, potentially, CCs) is a *case*. A case is any admissible value assignment for all the variables that occur free in an open sentence modified by an AQ (according to Heim). This importantly includes all participant, time, and world variables. So basically, the AQ is a kind of operator in a tripartite structure of the form [Operator] [Restrictor] [Nuclear Scope] (Heim 1982, Kamp 1981). In the case of AQs (and also modals), the restrictor is typically given by an *if*-clause, but it can be implicit, meaning that its value is determined almost entirely by context, as in examples like *Usually, I go to the store* where we're already talking about what I do after school, etc. Similarly, it is possible to have an *if*-clause restrictor without an explicit AQ or modal, as in (17a) and all of the examples of conditionals we have seen up to this point. Beck argues that CCs once again parallel conditionals in showing the same behavior, as in (18). This observation by Beck is crucial to her analysis, as we will soon see.

- (17) a. If I buy fruit, I eat it before it goes bad.
 b. Usually, if I buy fruit, I eat it before it goes bad.
 c. If I can buy fruit, I eat it before it goes bad.

- (18) a. The more fruit I eat, the less often I get sick.
 b. Usually, the more fruit I eat, the less often I get sick.

- c. The more fruit I can eat, the less chocolate I crave.

In both cases shown here, Beck argues that the (a) variant without an explicit AQ is understood as having universal (or possibly generic) scope. Beginning with Kratzer (1986), an implicit epistemic modal or universal/generic AQ has been posited as existing in sentences with a bare conditional antecedent. Similarly, then, it could be extended to the analysis of the CC, in which case the universal quantification in the CC would not be a part of the lexical meaning of *the*. This is the approach Beck takes. Looking at the form in (3) once again, her analysis ingeniously composes the meanings of *the*, the comparative morpheme, the adverb *fast*, and *we drive* to yield 'we drive faster in (w_1) than in (w_2)'. The same process is used to compose the meaning of the second clause. Thus, the only thing remaining to derive the form in (3) is the default universal/generic AQ that unselectively binds variables across these two expressions and provides the quantificational force and material conditional. This analysis makes a strong prediction that conditionals and CCs will pattern alike with respect to quantificational force and its defeasibility, which, as we will see in sections 3.1 and 3.2, is not borne out.

3 Differences between CCs and Conditionals

Despite the similarities listed in the last section, there are a number of ways in which the conditional and CC are known to differ. Beck notes the following. First, conditionals do not necessarily contain a comparative morpheme (or involve a comparative meaning), while CCs do.

- (19) If a dog runs, it gets thirsty.
 (20) *The a dog runs, the it gets thirsty.

Second, when conditionals do contain comparatives, *than* phrases are present, unlike the CC.

- (21) If Fido runs faster than Spot, Fido will win the race.
 (22) *The faster Fido runs than Spot, the more likely he is to win the race.³

Third, CCs require quantification over at least two variables, and conditionals, only one. To see this, compare the form in (3), with quantification over two worlds, to the interpretation of a hypothetical conditional, which would quantify over a single world. This last difference might be taken as a

³ Though I have marked this as ungrammatical in keeping with Beck's judgment, see Smith (2010) for a complete discussion of the felicity of *than*-phrases in English CCs.

challenge to the sketch of Beck's analysis presented earlier, but Beck proposes that because the default quantifier for conditionals and CCs is unselective, it is additionally polyadic, binding as many variables as necessary (and thus is a single quantifier across the constructions). The other two differences are both cases of restrictions present in the CC but not the conditional, which form her basis for arguing that the CC is a restricted subclass of conditionals.

Another difference between the conditional and CC that does not weaken Beck's claim that CCs are a subclass of conditionals but is often overlooked is the following. The conditional paraphrase for the CC in (24) (which appears in (23)) is not equivalent in meaning to that CC.

(23) If you run faster, then you're more likely to win.

(24) The faster you run, the more likely you are to win.

Only (23) can be interpreted as a statement about one particular faster speed rather than as a generalization about any possible faster speed. We can easily construct situations in which (24) would be false but (23) true, showing a lack of synonymy between the two sentences. Suppose we are discussing marathons. In running a marathon, you actually don't want to run too fast or you'll run out of steam too early and not finish the race, so (24) is false because after some cutoff speed, you jeopardize finishing, let alone winning. But it could be that you are talking to a friend before the race and you know her normal marathon pace and also that she is capable of running a little faster without dropping out of the race. In this case, you can utter (23) and have it mean that if she runs one half of a mile faster per hour, she is more likely to win the marathon, without committing yourself to any statements about any other faster speeds or the truth of this statement on any other day or for any other race. In other words, if you uttered (24), you would be committing to the idea that running the fastest speed possible is the best way to win, in this race or any other, whereas uttering (23) merely commits you to the idea that there is some faster speed that would lead to better results but not that it is the fastest she is capable of running. This is likely related to the above-noted difference between single- and double-variable quantification requirements.

The next two subsections discuss differences that do get in the way of the picture presented thus far. In 3.1, I argue that quantification in the CC is proportional rather than universal/generic, and in 3.2, I show that the distribution of AQs is different with CCs v. conditionals, arguing that the proportional quantificational force should not merely be a default.

3.1 Proportional Interpretations

There is a well-known issue regarding what kinds of things to count (farmers? farmer-donkey pairs? etc.) in certain kinds of sentences, including conditionals.

(25) If a farmer owns a donkey, he is rich.

(26) If a farmer owns a donkey, he is usually rich.

In example (25), under a universal interpretation, it doesn't matter what you count because all farmers, pairs, etc. must verify the statement.⁴ In (26), on the other hand, the presence of the proportional quantifier *usually* creates a problem in models like the following, from Heim 1990.

Model for (26): There are 100 farmers, 99 of whom each own one donkey and are poor; the remaining one owns 200 donkeys and is rich.

If we count by donkey-farmer pairs, there are more rich pairs than poor pairs, which should make the sentence true. If we count by farmers alone, it would be false, which is how native speakers judge this sentence (and thus, theories of conditionals are modified to reflect this fact). In this model, then, both (25) and (26) are judged to be false. A similar kind of test can be used here for the purpose of discerning whether there is a difference in quantificational force between the default universal/generic force, as in (25) and an overt proportional force, as in (26). If they are truth-conditionally different, we would expect that in a model where most but not all of the farmers, etc., fit the paradigm, (26) would be true while (25) would be false. Toward this end, I surveyed native speakers about examples like the following:

(27) If a dog knows a command, it is intelligent.

(28) If a dog knows a command, it is usually intelligent.

Model for (27) and (28): There are 200 dogs that know commands. 167 know one command and are intelligent. 33 know two commands and are dumb.

As predicted, across a range of sentences of this type, speakers say that examples like (27) are false or 'weird' in models like these, while examples like (28) are judged to be true.

⁴ Kadmon 1990 disagrees, stating that donkey sentences without overt proportional quantifiers can still give rise to asymmetric (proportional) readings of the kind of interest here, but a survey of native speakers showed a judgment difference between examples like (25)/(27) and examples like (26)/(28) for every single participant.

Now that we have a test for the difference between universal/generic and proportional quantification, the question is which the CC patterns like. If the CC is a subclass of conditional, it should pattern with the universal/ generic conditionals in (25) and (27) in the default case where no overt proportional AQ is present with the CC. The same native speakers, however, rated CCs like (29) and (30) as they would examples like (26) or (28) where an overt proportional AQ was present. Speakers judge (29) to be false in its model and (30) to be true in its model (for the full list of examples and models tested, see Smith 2010).

(29) The more a man loves a woman, the more flowers he brings her.

Model for (29): We know five men. One has nine girlfriends, and his love for each depends upon her behavior. The nicer she is, the more he loves her, and the more flowers he brings her each week. The other four men each have one girlfriend, and even though their love for their girlfriends grows over time, they only bought them flowers during the first couple months of their relationship and now, years later, they don't buy flowers no matter what.

(30) The more a man likes a tie, the more money he paid for it.

Model for (30): There are 400 men who like at least one tie. 250 of the men have three ties each: one they like so-so and paid \$10 for, one they like better and paid \$20, and one that is their favorite and paid \$30 for. The remaining 150 men own 2 dozen ties each and got some of the nicest ones on sale for less than some of the ones they like only so-so.

From this evidence, we see that CCs without an overt proportional quantifier pattern like conditionals *with* one. Quantificational force in the CC is therefore more restricted than in the conditional and is proportional. This is unexpected if CCs are a kind of conditional, though Beck and others could argue that the subclass of conditionals that CCs are a part of have a proportional rather than generic or universal default. In the next section, I show that even that revision would be untenable.

3.2 Adverbs of Quantification

As mentioned above, an overt AQ affects the quantificational force of a conditional. This is one of the reasons that Lewis (1975) and Kratzer (1986) originally proposed that *if* not be a generalized determiner itself, because the quantificational force of a conditional can vary. From the outset, however, not all kinds of forces can occur in the interpretation of the CC. We have already seen that conditionals can be statements about a particular instance, while CCs have to be generalizations about more than two differences (or

pairs for which there is a difference) of one kind correlated with more than two differences (or pairs for which there is a difference) of another kind. In other words, a form like that in (31) with a simple existential force simply does not model native speaker intuitions that correspond to any CC regardless of modification. (31) is not a possible interpretation of (32) with or without the AQ *sometimes*, for example, because (31) would be true in a situation where, of all the trips taken, there was only one where faster driving resulted in an earlier arrival, in which case, native speakers find it infelicitous to use a CC.

(31) $\exists w_1 \exists w_2$ [[We drove faster in (w_1) than (w_2)] \rightarrow [We got there sooner in (w_1) than (w_2)]]

(32) Sometimes, the faster we drove, the sooner we got there.

Despite the fact that a true existential is not possible, the fact remains that we do find CCs modified by AQs like *sometimes*, as in (32). *Sometimes* is certainly closer to an existential than a universal, though the bare minimum it requires seems to differ between the conditional and the CC. This is puzzling; consider, for example, that when it comes to statistical significance, a correlation is either significant or it is not; it cannot be *somewhat* significant in technical terms (only *almost* significant). One might hypothesize, then, that CCs only occur with universal or proportional AQs requiring at least a majority of points to be correlated and that *sometimes* and other existential-type AQs might not be attested (the only examples Beck gives of AQ modification of CCs are with majority-force quantifiers).

To this end, I conducted a corpus search (of Google, given the large size needed to see significant counts of CCs). I searched for AQs in initial position only since they are unambiguously construed as wide-scope modifiers in that position (whereas, in situ, there is the potential for ambiguity and further work is required). For each AQ *X*, I used the search term “*X the more the*” for the CC and “*X if the*” for the conditional. I did the same search with the indefinite article and found similar results, so I am only reporting the results with the definite here. Note that this means that the results also don't cover CCs with bare plurals, prepositional phrases, etc. after *the more*, but I used the definite article because searching for “*the more*” by itself does not uniquely find CCs. Finally, I searched through dozens of pages worth of individual entries for each AQ looking for responses that were not the target, then ran the search again with a limitation that would rid the search of those unwanted responses. For example, the searches for *always the more the* and *always if the* turned up many responses with *not always*, which was

not the quantificational force of interest, so the searches were run again, excluding *not always*. The results of the March 2010 search are shown in two tables (for space purposes) below:

	Unmodified	Always	Usually	Often	Never
CC	111,000,000	38,100	5,290,000	7,070,000	5,950
Cond.	783,000,000	2,090,000	3,020,000	2,770,000	540,000

	Sometimes	Occasionally	Seldom	Rarely
CC	6,770,000	9	0	4
Cond.	5,090,000	730,000	2,230,000	6,390,000

Table 1: Results of the March 2010 search

In the first set, we see the universal-type AQs as well as *never*, which, with the CC, is like sentential negation due to the fact that in-situ negation is unambiguously narrow scope (cf. Beck 1997). Also, the first column gives the counts for the unmodified CC and conditional (i.e. *the more the* and *if the* by themselves) to give a sense of the general difference in their frequency. In the second set, we see the existential-type AQs.

There are two particularly important differences between the distributions of AQs with conditionals v. CCs. The first is that *usually*, *often*, and *sometimes* occur much more often with CCs than conditionals (especially when adjusted for their relative overall frequency). The second is that *occasionally*, *seldom*, and *rarely* occur only with conditionals and not CCs (the few results indicated with *occasionally* and *rarely* were not instances of the target; they were times when the AQ occurred at the end of one sentence and the next sentence was a CC). This is not consistent with a theory in which CCs are treated as conditionals. Because Google is notorious for fluctuating, I replicated these results at regular intervals. The following set of tables from six months after the original search show that, while there is certainly some variance, the general pattern remains intact, and both of the major differences are replicated.

	Unmodified	Always	Usually	Often	Never
CC	98,200,000	94,400	351,000	524,000	5,400
Cond.	381,000,000	1,480,000	3,130,000	2,390,000	517,000

	Sometimes	Occasionally	Seldom	Rarely
CC	1,050,000	17	5	10
Cond.	5,530,000	566,000	1,350,000	5,940,000

Table 2: Results of the September 2010 search

Again, none of the results for the CC with *occasionally*, *seldom*, and *rarely* were actually CCs modified by these AQs, but most of the results with the conditional were, as in (33)-(35).

- (33) **Rarely, if the** cyst is near the main bile ducts, it can cause obstruction and jaundice.
- (34) **Occasionally, if the** Committee is split in its opinion, they may send the vote to the floor with no recommendation.
- (35) **Seldom, if the** subsidence has not been repaired, it can be solved by re-implantation or dorsal pedicle screw fusion of that lumbar segment.

The fact that all of the AQs that can occur with the conditional and not the CC are existential-type AQs adds strength to my contention that there is a proportional quantificational force (which is inconsistent with an existential) inherent to the CC but not the conditional. Similarly, the fact that *usually* and *often* occur with the CC much more often than with the conditional could be further evidence of the proportional force, but this will be discussed more below. The puzzling case is *sometimes* and why it does not pattern with other AQs like *occasionally*. In the March 2010 search, *sometimes* appears more often with CCs than conditionals, while in the September 2010 search, it appears with CCs and conditionals in more equal measure considering their overall difference in frequency, but either way, they clearly occur with CCs. The following are examples of conditionals and CCs with the highest-frequency AQs: *usually*, *often*, and *sometimes*, which will help us shed light on this puzzle.

- (36) The stiffer the skiboard, the more weight and lean you need to put into carving. Of course, side-cut factors in here too. **Often, the more** the side cut, like in skiboards with a deep parabolic cut, the easier it is to carve turns.
- (37) **Usually, the more** the sole of the foot that makes contact (leaves a footprint), the flatter the foot. In more extreme cases, known as a kinked flatfoot, the entire inner edge of the footprint may actually bulge outward, where in a normal to high arch this part of the sole of the foot does not make contact with the ground at all.
- (38) With layering, **sometimes the more** the better. When you layer a lot of black, you're like a walking Louise Nevelson sculpture, and that's pretty attractive.
- (39) **Often, if the** cruise is canceled because of weather, the cruise line uses verbiage that allows the line to issue credits as it sees fit.
- (40) **Usually if the** product was a freebie and they didn't say anything negative about it, I don't trust the review.
- (41) **Sometimes if the** wealthy suffer a serious loss, they are probably not well-trained or socialized to cope well with that since they've been successful.

In the cases of *usually* and *often*, they seem to be used in both the conditional and CC merely to implicate that there are exceptions to the generalization they modify. This is consistent with the idea that all of these AQs form a Horn scale (Horn 1972) and that a proportional AQ would be used to implicate that no stronger statement (with a universal AQ like *always*) would be possible. Similarly, *sometimes* should implicate *only sometimes*, i.e. the majority of the time, this is not the case. However, this is where we see a difference. Though (38) is but one example, in all of the dozens of examples I looked at, *sometimes* with a CC implicates something stronger. In the case of (38), it implicates not merely that it is usually not the case that more layering is better (in which case it could be true that no particular relationship holds for the majority of data points); it implicates instead that usually the reverse is true, i.e. more layering is usually worse, but in the case of layering all black, more can be better. In fact, many of the examples on Google are cases where there are two CCs one after another. The first states the generalization, and the second states a generalization to be found among the outliers. Furthermore, within the minority of data points that do not fit the larger generalization, the majority of those must fit the counter-generalization in the

case where *sometimes* is used. In other words, when looking at the full set of situations in which there is a difference in amount of layering, it is true that only some of them are cases in which more layers are correlated with a better result, but it is also true of the majority of the outliers to the otherwise robust correlation between more layers and a worse result.

I conclude that the proportional quantificational force in the CC is not as easily overridden as that in the conditional. In the conditional, *sometimes* overrides the universal or generic force, as do a wide range of existential-type AQs. As we have seen, the CC does not occur with any existential AQs other than *sometimes*, and even then, *sometimes* is used to indicate a majority correlation among the data points that fall outside the stronger correlation in the other direction. I take this as evidence that the proportional force in the CC is part of the lexical meaning of *the₁* rather than a default, as proposed for the conditional.

Though the differences between conditionals and CCs presented in this section are not an exhaustive list (e.g. the CC can clearly at least appear to be non-clausal, while the conditional cannot), these are the major differences that seem relevant for the broad semantics of the CC that is at issue here.

4 A New Theory

Given the evidence from the previous section, I define a quantificational operator CORREL that has a meaning similar to that of MOST/USUALLY to account for the fact that it must be a proportional quantifier. As it is defined in (42), its form is identical to that given for *most*, but that is just because, as for *most*, this is a rough approximation. An individual's idea of what it takes to establish a correlation may be more strict depending upon the person. It could also differ reliably from what someone would judge to be true for *most*, which is why I gave CORREL its own title.⁵

$$(42) \text{CORREL}(A)(B) = |A \cap B| \supset |A - B|$$

If CORREL were a phonologically null default quantifier with the CC, we would expect the CC and the conditional to have the same pattern as AQs, which they do not. I assume that if the quantificational force is not a default, it must be part of a lexical item. Thus, in the revised theory, it is part of the meaning of *the₁*, which heads the subordinate clause. In all other ways, the semantics of *the₁* can be consistent with Beck's or others' analyses. If what is built as the meaning of the subordinate clause on those analyses is as in (44)

⁵ Additionally, sets *A* and *B* here are sets of pairs, which is a further difference from the unary sets typically assumed to be the arguments of operators such as *MOST*.

for the CC in (43), the revised theory would instead yield (45). Then, in both the old and new theories, the meaning of the matrix clause would be as in (46), so whereas Beck and others take the meaning of the two clauses to be the same modulo the lexical meanings of the nouns and verbs that populate them, the new analysis gives them different meanings. This is actually an advantage of the new theory because *the*₁ and *the*₂ do seem to have a different status in the CC. When the clauses are reversed and the matrix comes first, its *the* does not appear, as in (47). Because the revised theory keeps the correlational force needed to compute the sentence meaning in the subordinate *the*, we would expect the subordinate *the* and not the matrix *the* to remain necessary.

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

(44) $\llbracket \textit{The faster we drive} \rrbracket = \lambda w_1 \lambda w_2 . \textit{we drive faster in } (w_1) \textit{ than } (w_2)$

(45) $\llbracket \textit{The faster we drive} \rrbracket = \lambda P_{\langle s, st \rangle} . \text{CORREL}(\lambda w_1 \lambda w_2 . \textit{we drive faster in } (w_1) \textit{ than } (w_2))(P)$

(46) $\llbracket \textit{The sooner...} \rrbracket = \lambda w_1 \lambda w_2 . \textit{we'll get there sooner in } (w_1) \textit{ than } (w_2)$

(47) We'll get there sooner, the faster we drive.

(48) $\text{CORREL}(\lambda w_1 \lambda w_2 . \textit{we drive faster in } (w_1) \textit{ than } (w_2))(\lambda w_1 \lambda w_2 . \textit{we'll get there sooner in } (w_1) \textit{ than } (w_2))$

The revised sentence-level meaning for (43) is (48) (compare to (3)). This will be true just in case more than half of the pairs of worlds in which we go faster in the first than the second are also pairs of worlds in which we arrive sooner in the first world as compared to the other. This resolves the main problems raised by the data in sections 3.1 and 3.2 in that the quantificational force in the CC is proportional and infeasible. The two remaining issues are how the CC's meaning interacts with the meaning of various AQs and how to account for the parallels between conditionals and CCs from section 2 now that they are given different analyses.

Though a theory of AQs is beyond the scope of this paper, it seems unlikely that all AQs behave similarly when it comes to the CC. If, as I have proposed, there is a lexically-specified quantifier that is part of the CC, any instance of an overt AQ would seem to be a case of multiple quantification. Cinque (1999) and others have studied this in more detail, suggesting that when there is more than one, each quantifier quantifies over different things: intervals v. subintervals, etc. It seems that this is what is going on in the case of *sometimes* but that it is somehow the 'chosen' existential AQ in that none

of the others occur with the CC. Since *sometimes* is used to signal a pattern among outliers, the others are simply infelicitous as they are taken to quantify over the same worlds, etc., as CORREL, which, if accepted, would create an inconsistency in the common ground (the implicature that no more than a few data points fit a generalization would clash with the entailment of CORREL). The other proportional and universal AQs, on the other hand, can quantify over the same worlds, etc., as CORREL without leading to a problem in the common ground since the meaning of the modified CC would entail the meaning of the unmodified CC. This kind of varied pattern (where some combinations are licit and others illicit) is in keeping with the literature on multiple quantification, though much more work needs to be done in this area to determine the validity of an argument along these lines.

As for the similarities between the conditional and the CC, it turns out that none of these are unique to these two constructions. They are true either of other subordinate-matrix constructions or of other constructions involving a conservative operator in the sense of Barwise & Cooper (1981), or both.

(49) **Conservativity** is the property of being a predicate (OP) on two properties such that $OP(A,B)$ is equivalent to $OP(A, A\&B)$.

The conservative operator in the conditional is the default (or overt) AQ, and in the CC, it is CORREL. A generalized quantifier (GQ) analysis has already been applied to the adverbial domain by de Swart (1991), setting a precedent for this analysis. In fact, treating the first clause of CCs as a GQ *explains* the presence of donkey anaphora if Chierchia (1995) is right that conservativity is at the root of their donkey-sentence-hood. Regardless, sentences that are not conditional show the same patterns observed above, such as (50)-(51) for the lack of future *will* or *Every farmer who owns a donkey loves it* for the case of donkey anaphora.

(50) Cats that (*will) mate in the wild (will) have higher fertility rates.

(51) However often he (*will) greet(s) me, that's how often I will greet him.

Though Bhatt & Pancheva (2006) also treat relative clauses as in (51) as conditionals, their definition for what constitutes one is a structure “involving an adverbial clause interpreted as stating the conditions under which the proposition expressed by the main clause is true” (641). Since the matrix clause in the CC is not propositional (yielding a set of pairs of worlds), Bhatt & Pancheva are unwittingly excluding CCs from consideration, as I have argued one should.

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