Quantifiers in the than-clause

Rullmann section 2.8:

(1)   John weighs more than everybody else weighs.
        'for everybody else x, J weighs more than x'

(2)   John weighs more than most people weigh.
        'for most people x, J weighs more than x'

(3)   John weighs more than many people weigh.
        'for many people x, J weighs more than x'

(4)   John weighs more than some people weigh.
        'for some people x, J weighs more than x'

(5)   John weighs more than Bill and Sam weigh.
        'J weighs more than Bill & J weighs more than Sam'

(6)   *John weighs more than nobody else weighs.

(7)   *John weighs more than few people weigh.

(8)   John weighs more than it seems that everybody else weighs.
        "... does presuppose that everyone other than John has (at least roughly) the same
        weight"

Schwarzschild & Wilkinson:

(9)   Q is taller than everybody else is.
        'for everybody else x, Q is taller than x is'

(10)   H is taller than exactly five of the others are.
        'for exactly five x of the others, H is taller than x is'

(11)   H is taller than only one of the others is.
        'for only one x of the others, H is taller than x is'

(12)   Alice is richer than George was and most of his children will ever be.
        'A is richer than George was & for most of George's children x, A is richer than x will
        ever be'

(13)   Bill did better than John predicted most of his students would do.
         'for every w that conforms to John's predictions, for most of John's students x, Bill did
         better (in the actual world) than x did in w' [?]

(14)   Lucy paid more for her suit than they both paid in taxes last year.
         'for both x, Lucy paid more for her suit than x paid in taxes last year'

(15)   It is colder in Stony Brook today than it usually is in New Brunswick.
         'for most times t, it is colder in Stony Brook today than it is in New Brunswick at t' [?]

Apparent generalization:

(16)   All quantifiers in the than-clause – including floated quantifiers, quantificational
         adverbs, time operators, and intensional verbs (=quantifiers over worlds) – scope over
         the comparison operator.

(17)   Exception (?): Downward entailing quantifiers cannot scope out.

Apparent counterxamples explained away as Free Choice or generic:

(18)   John is taller than Mary or Susan is.
         'or' = wide scope conjunction
         Cf.: Either John or Bill is acceptable to me.

(19)   John is taller than anyone else is.
         'any' = wide scope universal
         Cf.: Anyone of them will do.

(20)   John is happier than he ever was.
         'ever' = wide scope universal over times
         Cf.: ?? (no attested other cases)

(21)   John makes more money than a professor does.
         'a professor': generic indefinite with roughly universal force
         Cf.: A professor needs a library.

(22)   I made it stronger than I ever made a cabinet door before.
         'a cabinet door': generic?
         intended meaning: 'for all t before now, all cabinet doors x: I made it stronger than I
         made x at t'

(23)   Er stieg höher, als je zuvor jemand gestiegen war.

he climbed higher than ever before someone climbed had

'he climbed higher than anyone ever had climbed before'

'jemand' does not normally have generic uses (like English 'someone')

(24)   More people ate something than drank something.

(25)   She drove faster than she was allowed to drive.

'allowed' = universal quantification over world, taking wide scope ??

(26)   He has more money than he needs.

'need' = existential with wide scope ??

Wrong predictions

With relational adjective meanings and comparative semantics so far entertained:

(27)   John is taller than everyone else is.

predicted: 'J is taller than the shortest other person'

(28)   John weighs more than some people weigh.

predicted: 'J weighs more than the heaviest person' (contradictory?)

(29)   John weighs more than some other people weigh.

predicted: 'J weighs more than the heaviest other person'

(30)   H is taller than exactly two of the others are.

predicted: 'H is taller than at least two of the others' (?)

(31)   John weighs more than most people do.

predicted: 'J weighs more than at least half of the people do' (?)

Containing the damage by means of functional adj meanings?

(32)   John is taller than everyone else is.

predicted: presupposes that everyone else is the same height and asserts that J is taller than that

(33)   H is taller than exactly two of the others are.

predicted: Presupposes that there is at least one pair of people who are the same height and different from anyone else. Asserts that H is taller than the people in the tallest such couple.

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(34)   John weighs more than some people weigh.

         predicted: 'J weighs more than the heaviest person' (same as with relational meanings)

Functional adj meanings don't seem to help much.

Larson 1988[1]

(35) $[[\textbf{-er}]] = \lambda R_{<d,et>}.\lambda P_{<et,t>}.\lambda Q_{<et,t>}.\ \mathbb{Q}(\lambda y_e.\mathbb{P}(\lambda x_e.\ max_d R(d)(y) > max_d R(d)(x)))$

(36)   or, more accurately:

         $[[\textbf{-er}]] = \lambda R_{<s,<d,et>>}.\lambda P_{<<s,et>,t>}.\lambda Q_{<<s,et>,t>}.$
                  $\mathbb{Q}(\lambda i.\lambda y_e.\mathbb{P}(\lambda i'.\lambda x_e.\ max_d R(i)(d)(y) > max_d R(i')(d)(x)))$

(37)   John is taller than every girl is.

         LF: $[$-er tall (than) $\lambda P_{<e,t>}.$ every girl is P$]$ $\lambda P_{<e,t>}.$ John is P

(38)   Boston is hotter today than it usually is.

         $[$-er hot (than) $\lambda P_{<s,et>}.$ usually[Boston is P$]$ $\lambda P_{<s,et>}.$ today[Boston is P$]$
         $[$-er hot (than) $\lambda P_{<s,et>}.$ for most t, P(t)(Boston) = 1$]$ $\lambda P_{<s,et>}.$ P(today)(Boston) = 1

Limitation (noted by Larson): does not generalize to subdeletion comparatives.

A variant of Larson's analysis

Retain the idea that the comparative expresses a relation between two 2nd-order properties, but let them be 2nd-order properties of degrees rather than of individuals.

(39)   New adjective meanings:

         $[[\textbf{tall}]] = \lambda D_{<d,t>}.\lambda x_e.$ TALL(x) $\in$ D
         (where TALL is, as before, the measure function)

(40)   Familiar LFs, except that former degree variables are now vbls over sets of degrees.
         $[$-er tall (than) $\lambda D_{<d,t>}.$ every girl is D-tall$]$ $\lambda D_{<d,t>}.$ John is D-tall

(41)   New meaning for comparison operator (analogous to Larson's):
         $[[\textbf{-er}]] = \lambda \mathbb{P}_{<dt,t>}.\lambda \mathbb{Q}_{<dt,t>}.\ \mathbb{Q}(\lambda d_d.\mathbb{P}(\lambda d'_d.\ d > d'))$

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[1] Not exactly his analysis. I take his essential idea and combine it with ingredients more like the ones we have been using.

(42)   Simple matrix clause of the form 'x_e is t adj':

$\mathbb{Q} = \lambda D.\ \text{ADJ}(x) \in D$

$[[\textbf{-er}]]\ (\mathbb{P})(\mathbb{Q}) = 1\ \ \text{iff}\ \ \mathbb{P}(\lambda d'.\ \text{ADJ}(x) > d') = 1$

Schwarzschild & Wilkinson's proposal

(43)   simplified version for comparatives without differential phrases:

$[[\textbf{-er}]] = \lambda \mathbb{P}_{<I,t>}.\lambda \mathbb{Q}_{<I,t>}.\ \mathbb{Q}(\max_I.\ \forall K \subseteq I: \mathbb{P}(\max_J.\ K > J) = 1) = 1$

cf. (86) on p. 26

(44)   I, J: variables for intervals on the degree scale.

(Intervals are sets of degrees, but not every set is an interval.)

(45) $I > J\ :\Leftrightarrow\ \forall d \in I.\ \forall d' \in J.\ d > d'$

(46)   Simple matrix clause of the form 'x_e is t adj':

$\mathbb{Q} = \lambda I.\ \text{ADJ}(x) \in I$

$[[\textbf{-er}]]\ (\mathbb{P})(\mathbb{Q}) = 1\ \ \text{iff}\ \ \text{ADJ}(x) \in\ \max_I.\ \forall K \subseteq I: \mathbb{P}(\max_J.\ K > J) = 1$

Question: Is (46) equivalent to (42)? I suspect that it is, but don't have a proof.