

SUPERLATIVE AMBIGUITIES: A COMPARATIVE PERSPECTIVE

by

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A Dissertation Presented to the
FACULTY OF THE GRADUATE SCHOOL
UNIVERSITY OF SOUTHERN CALIFORNIA

In Partial Fulfillment of the
Requirements for the Degree
DOCTOR OF PHILOSOPHY
(LINGUISTICS)

May 2015

In memory of Eugeniusz Tomaszewicz.

ACKNOWLEDGEMENTS

I would like to express my deepest gratitude to my supervisor, Roumi Pancheva, for her intellectual guidance and constant support. Roumi is a great source of inspiration who has helped me turn my random observations and ideas into research projects. I thank her for encouraging me to work on superlatives and for her extensive feedback. Her careful reading, critical comments, and attention to detail have made this dissertation possible.

I have been also very fortunate to have Yael Sharvit on my committee. I am very grateful for our remarkably insightful conversations and for her invaluable counsel. Yael's feedback and perceptiveness helped me significantly improve several sections.

I have also benefited greatly from discussions with Maria Luisa Zubizarreta, Barry Schein, Elsi Kaiser and Tom Seifrid. I am really grateful for their interest in my work on superlatives as well as other topics. Each of them provided me with a new perspective with which to examine the issues in this dissertation. Maria Luisa, with her outstanding expertise in the syntax and prosody of focus, always helped me constructively narrow down my questions. Barry would always point to the details that suggested an alternative explanation. Elsi's insightful comments taught me how to think about the testable aspects of the theory. Tom's passion for the Polish language made me double-check all my intuitions and helped me refine my examples. Unfortunately, Elsi was not part of the official committee because of a limitation in the USC's electronic thesis submission system; however, she participated in the defense, and I owe her just as much as the other committee members. I wish to thank each committee member not only for their guidance, but also for their immense kindness and support.

I would also like to thank the other members of the USC Linguistics faculty, especially Hagit Borer, Audrey Li, Jean-Roger Vergnaud, Jim Higginbotham, Khalil Iskarous, Elena Guerzoni, Andrew Simpson, Hajime Hoji, Louis Goldstein, Rachel Walker, Toby Mintz, Ania Łubowicz, as well as my fellow grad students, among them Janet Anderson, Priyanka Biswas, Thomas Borer, Mary Byram Washburn, Arunima Choudhury, Christina Hagedorn, Xiao He, Ed Holsinger, Fang-Ying Hsieh, Canan Ipek, Heui-Joo Jeoung, Lucy Kim, Agnieszka Łazorczyk, David Li, Katy McKinney-Bock, Mythili Menon, Ellen O'Connor, Sarah Ouwayda, Chuo-Ying Ou-Yang, Magda Pire Schmidt, Sergio Robles-Puente, Ann Sawyer, Caitlin Smith, Ulli Steindl and Hector Velasquez. Thank you all for the courses, seminars, reading groups, lab meetings, workshops,

department potlucks, bake offs, and hikes. Thanks are also due to the UCLA linguistics faculty and students for their seminars, colloquia and interactions with USC linguists.

I would also like to thank the following people, with whom I discussed my work on superlatives and comparatives, for their time, valuable feedback, and native speaker intuitions: John Bailyn, András Bárány, Sigrid Beck, Polina Berezovskaya, Rajesh Bhatt, Joanna Błaszczak, Željko Bošković, Bert Le Bruyn, Lisa Bylinina, Lucas Champollion, Barbara Citko, Mojmír Dočekal, John Gajewski, Anastasia Giannakidou, Martin Hackl, Valentine Hacquard, Liliane Haegeman, Irene Heim, Vera Hohaus, Anna Howell, Łukasz Jędrzejowski, Chris Kennedy, Dorota Klimek-Jankowska, Hilda Koopman, Natasha Korotkova, Ivana LaTerza, Chris LaTerza, Ellen Lau, Agnieszka Łazarczyk, Noor van Leusen, Jeff Lidz, Filippa Lindahl, Ora Matushansky, Jason Merchant, Krzysztof Migdalski, Reinhard Muskens, Rick Nouwen, Márta Peredy, Collin Philips, Asia Pietraszko, Paul Pietroski, Pilar Prieto, Johanna Prytz, Jessica Rett, Mats Rooth, Bożena Rozwadowska, Anastasia Smirnova, Benjamin Spector, Hana Strachoňová, Henriette de Swart, Anna Szabolcsi, Michael Wagner, Alexis Wellwood, Alexander Williams, Wojciech Witkowski, and Hedde Zeijlstra.

Thanks to my graduate studies at University of Wrocław, Frankfurt University and University of Southern California, my visit at the Department of Linguistics at the University of Maryland, the EGG, ESSLLI, LSA summer schools, conference travels and field work, I have had the opportunity to meet so many interesting and wonderful people, linguists and non-linguists; it makes me think that one of the best reasons to go to graduate school is to make friends all over the world. With the help of Facebook and Gmail I am listing some of them here: Lobke Aelbrecht, Helena Aparicio, Petya Bambova, Lena Benz, Mel Bervoets, Patrick Brandt, Anne Breitbarth, Heather Burnett, Elena Castroviejo, Sofiana Chiriacescu, Karen De Clercq, Alexandra Cobus, Eleanor Coghill, Margot Colinet, Luka Crnič, Anna Czapionka, Karma Dolma, Věra Dvořák, Mitcho Erlewine, Natasha Fitzgibbons, Michael Gagnon, Berit Gehrke, Mac Geuskens, Vera Gribanova, Justin Halberda, Jana Hanulova Basnakova, Will Harwood, Silvia Ivani, Natalia Ivlieva, Patrycja Jabłońska, Agnes Jaeger, Maribel Martin Julian, Laura Kalin, Vanya Kapitonov, Magda Kaufmann, Shin-Sook Kim, Dominik Klein, Iris Nikola Knierim, Todor Koev, Hadas Kotek, Yakov Kronrod, Antje Lahne, Lanko Marušič, Rosmin Mathew, Laia Mayol, Nataša Miličević, Rachel Nye, Darko Odić, Elina Pallasvirta, Pritty Patel-Grosz, Joyce Perez, Karolina Pietras, Sasha Podobryaev, Claudia Poschmann, Janine Reinert, Agata Renans, Rasmus Rendsvig,

Amélie Rocquet, Ellen Rupprecht, Luciana Sanchez Mendes, Eric Schoorlemer, Felix Schumann, Michelle Sheehan, Radek Šimík, Alexandra Simonenko, Alexandra Spalek, Anke Stakemann, Jakub Szymanik, Katya Vostrikova, Kirsten Weber, and Rok Žaucer.

I am also grateful to the following people who made living in LA fun and pleasurable: Jennifer Charnofsky, Leslie Evans, Tessa Charnofsky (a huge thank you for Cookie!), Priyanka Biswas, Suman Kalyan Pradhan, Ann Sawyer, Hector Velasquez, Marguerite de Bourgoing, Ioana Uricaru, Brad Foley, Eliseo Melero, Ulli Steindl, Thomas Borer, Joyce Kao, Mehmet Aykol, Tugba Koker, Amanda Wagenbach, Wendy Vu, Laurel Schmuck, Justin Trifiro, and Mac Watson.

I would like to give special thanks to my climbing friends: Alison Annunziata, Jayme Lim, Lesley Onstott, Canan Ipek, Mélanie G rault, Arkadas  zakın, M semma Sabanciođlu, Tom Seifrid, Miklos Peterfy, Krisztina Peterfy, Slava Petuhov, Đoan Trang Tr n, Jillian Cyr, Angelica Pozon.

Finally, I would like to express my gratitude to my mother, Ewa Tomaszewicz, and to the rest of my family for all the love and enormous support.

My biggest “thank you” goes to Yaman  zakın – for everything, for your amazingness that can make any day beautiful!

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Chapter 1: Introduction – Interpreting superlative sentences

The sentence in (1) illustrates the meaning contribution of the superlative morpheme *-est*. The superlative indicates that the cake that John bought is compared to all other relevant cakes and it exceeds them in terms of price.

(1) John bought the **most expensive** cake for Mary.

Which cakes, however, count as relevant for the purposes of the comparison? To interpret a sentence containing the superlative we need to know the contents of the COMPARISON SET (also called the COMPARISON CLASS). Without any additional information, we infer that in (1) the comparison is between the cakes in the store or bakery where John was purchasing the cake for Mary.

The interpretation of a sentence containing a superlative expression requires that the contents of the comparison set are somehow identified by the hearer. Crucially, the different settings of that set result in different interpretations for the same sentence (this observation goes back to Ross (1964)). Within different comparison sets a different item may count as exceeding all the others in terms of the relevant property. Consider the meaning of (1), repeated below in (2b), with respect to a context where all the relevant cakes are the ones listed in (2a). As indicated by the paraphrase, the sentence is true if John buys cake D, the most expensive cake of the available cakes.

(2) a. Cake A: \$20, Cake B: \$25, Cake C: \$30, Cake D: \$35.

b. John bought the most expensive cake for Mary.

Reading wrt. (2a): ‘John bought Mary the cake that was more expensive than any other available cake.’

Now consider the same sentence embedded in the context in (3a).

(3) a. Bill, Paul and John went to the bakery to buy cakes for Mary. Bill got her a cake for \$20, Paul for \$25, and John for \$30. Nobody bought the cake that cost \$35.

b. John bought the most expensive cake for Mary.

Reading wrt. (3a): ‘John bought Mary a more expensive cake than any of the other men did.’

The context in (3a) narrows down the set of relevant cakes to those that Bill, John and Paul bought for Mary, and now the \$30 cake is the most expensive in the comparison set. The comparison now necessarily involves cake buyers, so that although the \$35 cake is still salient in the context, it does not enter the comparison set. This shows how the contents of the comparison set depend on the context.

Another way of narrowing down the set of relevant cakes is through focus (Ross 1964, Jackendoff 1972, Szabolcsi 1986, Heim 1999, Farkas and É. Kiss 2000, Sharvit and Stateva 2002, a.o.). The placement of focus on *John*, (4), expressed as intonational prominence, facilitates the reading in (3b), where the comparison necessarily involves the relevant people who bought cakes. With prosodic prominence on *Mary*, as in (5), the comparison set involves people alternative to *Mary* for whom John bought cakes as well. Note that the presence of focus does not exclude the availability of the reading in (2), on which the relevant cakes are compared without regard as to who bought them for whom.

(4) JOHN_F bought the largest cake for Mary.

→ Available readings:

- a. ‘John bought Mary a larger cake than any other (relevant) person did.’ (=3b)
- b. ‘John bought Mary the cake that was larger than any other (relevant) cake.’ (=2)

(5) John bought the largest cake for MARY_F.

→ Available readings:

- a. ‘John bought Mary a larger cake than he bought for any other (relevant) person.’
- b. ‘John bought Mary the cake that was larger than any other (relevant) cake.’ (=2)

Since the placement of focus as in (4)-(5) is contingent upon a linguistic antecedent (explicit or implicit) that is salient in the discourse context, the effect of the context and of focus on the interpretation of a superlative sentence appears to be an instance of the same phenomenon, context-dependency.

The comparison set can be specified in three different ways for the sentence (1b), repeated in (6) below, resulting in the three different interpretations we have seen above in (2), (4a) and (5a), and now shown again in (6a-c). On the first reading (6a), the comparison set is determined just on the basis of the DP *the most expensive cake* – this reading is called ABSOLUTE because the comparison set contains cakes compared in absolute terms, that is, without regard as to who bought them for whom. The next two readings, (6b-c), are called RELATIVE because other constituents in the sentence, for example, *John* or *Mary*, play a role in the determination of the comparison class.

(6) John bought the most expensive cake for Mary.

Readings:

- a. ‘John bought Mary the cake that was more expensive than any other (relevant) cake.’ *Absolute*
- b. ‘John bought Mary a more expensive cake than any other (relevant) person did.’ *Relative*
- c. ‘John bought Mary a more expensive cake than he bought for any other (relevant) person.’ *Relative*

The number of different interpretations for a sentence containing a superlative expression depends on how the comparison set can be specified with respect to different constituents of the sentence (Heim 1985, Szabolcsi 1986, Gawron 1995, a.o.). The research question concerns how the comparison class is set for the three readings of (6). Does it simply depend on pragmatics, that is, which items are inferred to be relevant in the discourse context for the purposes of comparison? Or, does the grammatical structure of the superlative sentence encode the contents of the comparison set?

Szabolcsi (1986) and Heim (1985, 1999) first proposed that the absolute and relative readings of superlatives are a matter of a structural ambiguity: the logical SYNTAX OF THE SUPERLATIVE MORPHEME *-EST* (treated as a quantificational operator) determines the setting of the comparison class. However, Farkas and É. Kiss (2000) and Sharvit and Stateva (2002) argued that there is no evidence that different syntax of *-est* is necessary for the derivation of the absolute and relative readings: *-est* is interpreted in the same position for both kinds of readings, and relative readings arise when the context provides a set of alternatives, indicated, for instance, by the presence of

FOCUS. The focus structure of a sentence grammatically encodes discourse coherence, it is dependent on the linguistic material (implicit or explicit) preceding the sentence in the current discourse context, and thus focus provides a grammatical mechanism for the fixing of the comparison class, as opposed to pure pragmatic relevance (involving the size of the relevant universe of discourse).

In this dissertation I examine the different superlative interpretations in Polish and Bulgarian in contrast to English, and I show that cross-linguistically neither pragmatics, nor focus, nor scope of *-est* can **alone** be responsible for the contents of the comparison set. I argue that focus interacts with scope so that in some languages, and in some constructions, a full range of readings for a superlative sentence is available because the scope of *-est* is unconstrained, while in other languages and constructions the scope of *-est* is constrained by the presence of the definite determiner *the*, and a full range of superlative readings is not available. The gist of my proposal is the following: the different readings of superlatives are a result of a structural ambiguity involving (i) the scope of *-est*, constrained by the presence of the definite determiner in the superlative DP, and (ii) the interaction between the presupposition of *-est* about the membership of the comparison class and the focus structure of the sentence licensed by the context.

In the next section I will briefly show that just pragmatics and focus, without considering the scope of *-est* at all, are not enough to account for the range of superlative interpretations in English (section 1.1). Then, I discuss how the scope of *-est* needs to be constrained to make the right predictions for English (section 1.2).

1.1 Pragmatics and focus alone fail to explain the absence of a relative reading in English

In Pancheva and Tomaszewicz (2012) and Tomaszewicz (2013), we observe that a particular relative reading is not available in English. The sentence in (7) admits two readings, but not three, though each of the three readings can be made salient by the context. The comparison set can be selected with respect to *students from London* for the absolute reading, (7a), or with respect *John*

for the relative reading, (7b), but not with respect to *London* for the relative reading that is paraphrased in (7c).

(7) John met the youngest students from London. (Pancheva and Tomaszewicz 2012)

Readings:

- a. ‘John met those students from London that were the youngest among the *Absolute* (relevant) students from London.’
- b. ‘John met younger students from London than any other (relevant) *Relative* person did.’
- c. *‘John met younger students from London than from any other *Relative* (relevant) city.’

The unavailability of the reading (7c) indicates that the absolute and relative readings are not a purely pragmatic effect, that is, the comparison class cannot be established simply with respect to contextually relevant information. Consider the scenario in (8a): the context clearly requires comparison between students of different ages (assuming that age roughly coincides with academic progress) from different cities, that is, this is precisely the comparison required for the reading in (7c). Importantly, this context should, yet does not, make the superlative sentence in (7) felicitous. This is because, in this context, sentence (7) is false both on its absolute reading (7a) (John did not meet first-year students from London,) and on the relative reading (7b) (no people other than John have been meeting students,) and yet the only sensible reading (7c) is not available

- (8) a. *John has been recruiting students for internships at his company. He first met with students from Paris who were in the final year of their computer science undergraduate program. Then he met Ph.D. students from Berlin. Finally, he met with second-year undergraduate computer science students from London but he didn't manage to meet any first-year students from London.*
- b. #(7).

As observed above in the discussion of the examples in (4)-(5), the absolute reading is unaffected by the presence of focus, while the relative readings are disambiguated by focus. However, if in

(7) *London* receives prosodic focus, as indicated in (9), the relative reading in (7c) is still not available – the immediately available reading is the absolute, (7a), and in the presence of a supporting context, the relative reading in (7b).

(9) John met the youngest students from LONDON_F.

→ Available readings: (7a), (7b)

In (9) focus evokes contrast to some other alternative city, but even though the context in (8a) provides a suitable alternative set, the comparison class cannot be established with respect to that set for the relative reading in (7c). The only available reading for (9) is the absolute reading. Accordingly, the focusing of *London* on the absolute reading would be appropriate if, unlike in the situation in (8a), John did meet the first year students from London (that is, the youngest students from London that there are, assuming that only university/college students are relevant, and not, say, high-school students). The contribution of focus is to evoke the contrast between London and other cities, so that the sentence indicates that the students from other cities that John met were not the youngest students from those cities. On the missing relative reading in (7c), on the other hand, John is meeting students from Paris, Berlin and London, and the ones from London that he meets are younger than the ones from Paris and Berlin, but they may not be the youngest of all the London students.

The unavailability of the relative reading in (7c), even when this reading is made salient by the context, and facilitated by focus, suggests that there is something about the grammar of the sentence in (7) that prevents the specification of the comparison class in such a way that students from different cities are compared.

1.2 The role of definiteness-marking and scope, in conjunction with focus

1.2.1 The definite determiner blocks DP-internal relative readings

The syntactic aspect relevant for the availability of different relative readings in English is revealed by the contrast between the sentences in (10) and (11) (examples (10) and (12) in Pancheva and Tomaszewicz 2012). Examples (10)-(11) form minimal pairs. In (10) the PP *in London* modifies the VP; in (11) the PP *from London* modifies the NP. The sentence in (10) has two relative readings. The two constituents that serve as the source of the comparison, *John* and *London*, are situated externally to the superlative DP. The sentence in (11) has only one relative reading – set with respect to the DP-EXTERNAL constituent *John*.

(10) John [_{VP} met [_{DP} the youngest [_{NP} students]]] in London.

Readings:

- a. ‘John met those students in London that were the youngest among the *Absolute* (relevant) students.’
- b. ‘John met younger students in London than any other (relevant) person *DP-External* did.’ *Relative*
- c. ‘John met younger students in London than in any other (relevant) city.’ *DP-External* *Relative*

(11) John [_{VP} met [_{DP} the youngest [_{NP} [_{NP} students] from London]]].

Readings:

Absolute (7a), *DP-External* *Relative* (7b), **DP-Internal* *Relative* (7c)

For the missing relative reading of (11) the comparison class would have to be set with respect to the DP-INTERNAL constituent *London*. In English, relative readings can never be established with respect to DP-internal constituents: an adjunct/modifier of the head noun, (11), an argument of the head noun, (12), the head noun itself, (13). This important observation is listed in (14) as Fact 1. In this dissertation, I account for Fact 1 as well as four other facts about the availability of relative and absolute readings introduced below.

- (12) John has the best albums of/by U2. ((8) in Pancheva and Tomaszewicz 2012: 294)
- a. ‘John has better albums by U2 than anyone else does.’ *DP-External Relative*
- b. *‘John has better albums by U2 than by any other band.’ *DP-Internal Relative*

- (13) John bought the most expensive cake for Mary.
- a. ‘John bought Mary a more expensive cake than any other (relevant) person did.’ *DP-External Relative*
- b. ‘John bought Mary a more expensive cake than he bought for any other (relevant) person.’ *DP-External Relative*
- c. *‘John bought Mary a more expensive cake than any other (relevant) thing he bought her.’ *DP-Internal Relative*

- (14) FACT 1: In English, relative readings can be established with respect to constituents that are **external** to the **superlative DP**, but not with respect to **DP-internal** constituents.

We further observe that the restriction on DP-internal relative readings is not universal across languages (Pancheva and Tomaszewicz 2012). The Bulgarian sentence in (15a) is felicitous in the scenario in (8a) above, which shows that it has the DP-internal relative reading that is missing in English. Crucially, the contrast between the two Bulgarian sentences, (15a) and (15b), indicates that the impossibility of the DP-internal relative reading for the English (11) has a grammatical source. In the presence of the DEFINITE DETERMINER in the superlative DP, the sentence in (15b) cannot have the DP-internal relative reading just like its English counterpart in (11).

- (15) a. Ivan se zapozna s naj-mladi studenti ot London. (Bulgarian¹)
 Ivan refl met with youngest students from London
 Readings: *DP-External Relative* (10b), *DP-Internal Relative* (10c), **Absolute* (10a).

¹ I would like to thank Roumi Pancheva for the help with the Bulgarian examples.

b. Ivan se zapozna s naj-mladi-*te* studenti ot London. (Bulgarian)

Ivan refl met with youngest-*the* students from London

Readings: *DP-External Relative* (10b), *Absolute* (10a), **DP-Internal Relative* (10c).

A generalization holding for Bulgarian and English emerges: Fact 2 in (16).

- (16) FACT 2: In Bulgarian and English, relative readings cannot be established with respect to DP-internal constituents in the presence of the **definite determiner** in the superlative DP.

The role of definiteness in the availability of the Relative-2 reading further provides evidence that relative readings cannot be established merely by pragmatics, as I concluded in Section 1.1 above.

In the absence of the definite determiner, Bulgarian reveals how the head noun of the superlative DP can be used for establishing the comparison set for a relative reading. On the absolute reading (where the definite determiner is required) the head noun specifies the comparison set as containing alternative entities of the same kind, for example, other relevant cakes of some price in (17a). When the definite determiner is absent in Bulgarian, (18), the head noun *cake* can specify the comparison set as containing predicates alternative to the predicate *cake*. This reading is paraphrased in (17d).

(17) Ivan kupi [_{DP} naj-skupa-*ta* torta] za Meri. (Bulgarian)

Ivan bought *est-expensive-the* cake for Mary

Readings:

- a. ‘John bought Mary the cake that was more expensive than any other *Absolute* (relevant) cake.’
- b. ‘John bought Mary a more expensive cake than any other (relevant) person *DP-External Relative* did.’

- c. ‘John bought Mary a more expensive cake than he bought for any other (relevant) person.’ *DP-External*
Relative
- d. *‘John bought Mary a more expensive cake than any other (relevant) thing he bought her.’ *DP-Internal*
Relative

- (18) Ivan kupi [DP naj-skupa torta] za Meri.
Ivan bought *est*-expensive cake forMary
Readings: (17b), (17c), (17d), *(17a)

The examples in (17) and (18) show that once the definite determiner is absent, the comparison class can be set with respect to any DP-internal constituent, for example, the modifier (or the complement) of the head noun, (as in (15)), and the head noun itself (as in (18)). Both can obtain in the absence of a definite article in Bulgarian.

At this point, I introduce a convention to distinguish between the two types of relative readings, the DP-external and DP-internal relative readings. I will refer to the relative readings established with respect to a DP-external constituent as RELATIVE-1, and I will call the DP-internal relative readings RELATIVE-2, (19).

- | | |
|------|---|
| (19) | RELATIVE-1: A relative reading of a superlative sentence established with respect to a constituent external to the superlative DP. |
| | RELATIVE-2: A relative reading of superlative sentence established with respect to a constituent internal to the superlative DP. |

1.2.2 Absolute and relative readings with indefinite superlatives

Further important facts coming from Bulgarian concern the effect of definiteness on the availability of the absolute reading (Fact 3), and the effect of focus on the relative readings with indefinite superlatives (Fact 4). The two sentences in (15) also contrast with respect to the

*‘Ivan gave her a more expensive cake than anyone else did.’ *Relative-1*

*‘Ivan gave her a more expensive cake than anything else he gave her. *Relative-2*

Why is the relative reading with respect to *Ivan* not available in (21b) unlike in (21a)? Sentence final constituents in Slavic are typically interpreted as focused, and since additionally a morphologically marked pronominal form is used instead of the clitic form, the PP in (21b) is naturally interpreted as the focus of the sentence. Just like in the English examples in (4)-(5), once focus is unambiguously marked, the relative readings cannot be established with respect to any other constituent. What is different than in English is that the focus on the PP in (21b) is marked by the morphosyntax, and thus precludes the prosodic marking of focus on other constituents. The generalization is then that when the focus status of a constituent is indicated not only by the discourse context (and thus potentially realized through prosody) but also by a special syntactic construction, only one relative reading obtains, the one set with respect to the syntactic focus.

The data in (21a) is yet more important. It shows that it is not only that the presence of focus correlates with which of the relative readings are available (as in (4)-(5) and in (21b)), but that when focus is impossible, the corresponding relative reading is impossible. The data in (4)-(5) and in (21b) are compatible with a theory on which focus is not necessary for relative readings, but once it is there it affects the choice between them. The data in (21a-b), however, indicates that focus needs to be there for the relative reading to obtain with indefinite superlatives: there has to be focus on the indirect object pronoun or else the relative reading established with respect to that constituent does not obtain.

Furthermore, the requirement for focus holds only for indefinite superlatives in Bulgarian, but not the definite ones. The relative reading on which cake recipients are compared is available for the sentence with a definite superlative in (22), which contains the clitic pronoun, but where the immediately preceding context specifies that the comparison involves Maria and other girls. Crucially, the definite determiner in the superlative DP is obligatory in (22). Thus, the relevant generalization is that indefinite superlatives require focus for relative readings, Fact 4 in (23), but definite superlatives allow relative readings in the absence of focus, when the context explicitly specifies what is involved in the comparison.

- (22) Maria e naj-šastliva(ta) ot vsički momičeta, zaštoto ...
 ‘Maria is the happiest of all the girls, because...’
 ... Ivan **ji** dade [DP naj-skupa-*(**ta**) torta]. (Bulgarian)
 Ivan her_{CLITIC} gave *est-expensive* cake
 ‘... Ivan gave her a more expensive cake than he gave to anyone else.’ *Relative-1*

- (23) FACT 4: In Bulgarian indefinite superlatives, relative readings with respect to a given constituent are impossible when focus on that constituent is impossible.

Another Slavic language, Polish shows that the syntax has not only effect on focus and thus relative readings, but also on the availability of the absolute reading. Unlike Bulgarian, but like most other Slavic languages, Polish does not have definite determiners. Accordingly, the absolute reading is available for superlative DPs without the definite determiner, unlike in Bulgarian (Fact 3 in (20)). With this in mind, consider the contrast between the sentences in (24) and (25). In both cases, the superlative adjective is sub-extracted from the DP and fronted, but in (24) the adjective is focused, while in (25) it is topicalized. In (24) the syntactic focus on the adjective precludes focus on any other constituent and the relative readings are not available, which is expected given the examples I discussed above (English (4)-(5), Bulgarian (21b)) – when there is focus in the sentence, it has to be on the constituent with respect to which the relative reading is set. In (25) focus is also unambiguously marked by the construction, it is on the noun *cake*. In this case, however, not only does one relative reading exclude all the others, but also the absolute reading is unavailable.

- (24) [[NajDROŹsze]_{1-Focus} Jan kupił [DP t₁ ciastko] (Polish)
 most-expensive_{Acc} Jan bought cake_{Acc}
 a. ‘Jan bought that cake that was the most expensive among the (relevant) *Absolute* cakes.’

- b. *‘Jan bought a more expensive cake than any other (relevant) person *Relative-1*
did.’
- c. *‘Jan bought a more expensive cake than any other (relevant) thing he *Relative-2*
bought.’

(25) [Najdroższe]_{I-Topic} Jan kupił [DP t₁ [CIAstko]-Focus]
most-expensive_{Acc} Jan bought cake_{Acc}
Readings: *Relative-2* (24c), **Relative-1* (24b), **Absolute* (24a).

Crucially, the absolute reading remains available if, in the same topicalization construction, the focus is on a DP-external constituent such as Maria in (26).

(26) [Najdroższe]_{I-Topic} Jan kupił [DP t₁ ciastko] [MArii]-Focus
most-expensive_{Acc} Jan bought cake_{Acc} Maria_{Dat}

Available readings:

- ‘As for the most expensive cake, Jan bought it for Maria (and not someone else).’ *Absolute*
‘Jan gave bought a more expensive cake for Maria than for anyone else.’ *Relative-1*

The Polish data shows that focus on a DP-internal constituent is somehow special. Since the absolute reading is available in both (24) (focus on the moved superlative adjective) and (26) (focus on a DP external to the superlative phrase), in these examples the superlative adjective, though overtly displaced, can be interpreted together with the head noun, that is, it can scope within the superlative DP (so that the comparison class contains just cakes of some price). But in (25) the comparison class cannot contain only cakes, it must contain other things that Jan bought. Similarly, in (27) the comparison class cannot contain only students from London, but has to contain students from other cities that Jan met.

(27) [Najmłodszych]_{I-Topic} Jan spotkał t₁ studentów z [LonDYnu]-Focus
youngest_{Acc} Jan met students_{Acc} from London

a. *‘Jan met those students from London who were the youngest.’ *Absolute*
b. *‘Jan met younger students from London than anyone else did.’ *Relative-1*

c. ‘Jan met younger students from London than from any other city.’ *Relative-2*

The unavailability of the absolute reading in (25) and (28) means that the movement of the superlative adjective cannot be undone: *-est* cannot take scope inside the superlative DP. This empirical observation is listed as Fact 5 in (28). After I introduce the semantic analysis in terms of the scope of the superlative morpheme *-est* in the next two sections, I present the sketch of my proposal such that the construction in (25)/(28) that results in the loss of the absolute reading can be accounted for in terms of scope and obligatory focus.

(28) FACT 5: In Polish, the topicalization of the superlative adjective and obligatory focus on a DP-internal constituent mandate the Relative-2 reading with respect to that DP-internal constituent (precluding all other readings).

The empirical data is summarized in the table below, (29), where the shaded cells correspond to the observations in Facts 1-5. Facts 1-3 indicate that the definite determiner interacts with the meaning of the superlative *-est* so that in its presence the range of relative readings is constrained (i.e. Relative-2 readings are unavailable), and in its absence the absolute reading is unavailable. Facts 4 and 5 necessitate the reference to focus in the theory of relative readings. In the absence of focus with indefinite superlatives in Bulgarian, relative readings are not available (Fact 4). In the presence of DP-external focus (but not DP-internal focus) the Relative-2 reading is the only reading available (Fact 5).

(29)

READINGS	SUPERLATIVE DP					
	BULGARIAN				POLISH	
	DEFINITE		INDEFINITE		ADJ-FRONTING	
	FOCUS	NO FOCUS	FOCUS	NO FOCUS	DP-EXTER. FOCUS	DP-INTER. FOCUS
<i>Absolute</i>	√	√	*	*	√	*
<i>Relative-1</i>	√	√	√	*	√	*
<i>Relative-2</i>	*	*	√	*	*	√

I will now outline the basic idea of treating the superlative morpheme *-est* as a quantificational operator and allowing it to take different scope within the sentence. We will see that just as a purely pragmatic account and focus were not enough to account for the restrictions on relative readings (Section 1.1), a theory of superlative interpretations based on scope alone also cannot accommodate the empirical facts introduced above (the shaded cells in the table in (29)). The data in the table in (29) has not been discussed prior to Pancheva and Tomaszewicz (2012) (Facts 1-3) and Tomaszewicz (2013) (Fact 5), and based on what we know from the prior literature on English the unshaded cells are not unexpected, but the shaded cells present a puzzle for previous theories.

1.2.3 Scoping *-est* DP-externally over-generates

As mentioned above, Szabolcsi (1986) and Heim (1985, 1999) proposed that the absolute and relative readings of superlative sentences reflect different scope of the superlative morpheme *-est* in Logical Form, (30).

- (30) a. John bought Mary [DP the *-est* *d*-expensive cake]
Absolute (17a) → The comparison set *C* contains cakes of some price *d*.
- b. John₁ *-est* *t*₁ bought Mary [DP *d*-expensive cake]
Relative-1 (17b) → The comparison set *C* contains people who bought cakes of some price *d* for Mary.
- c. Mary₁ *-est* John bought *t*₁ [DP *d*-expensive cake]
Relative-1 (17c) → The comparison set *C* contains people for whom John bought cakes of some price *d*.
- d. cake₁ *-est* John bought Mary [DP *d*-expensive *t*₁]
Relative-2 (17d) → The comparison set *C* contains things of some price *d* that John bought for Mary.²

² Formally, *C* contains predicates: the predicate *cake* and the relevant alternatives to *cake* which are predicates true of things of some price that John bought for Mary.

The superlative morpheme introduces a presupposition that the constituent denoting entity x that merges as its argument is a member of the comparison set C , and that x and all other members of C have the same gradable property to some degree d (if we assume the semantics of *-est* due to Heim (1999) which will be introduced formally in Chapter 2, Section 2.1). Due to this presupposition, when *-est* stays inside the superlative DP, as in (30a), the NP *d-expensive cake* is its argument and so C contains the cake x and all other (relevant) cakes of some price d . DP-internal scope for *-est* thus yields the absolute reading. When *-est* is interpreted at the sentential level, one of the sentence constituents determines the comparison class by becoming *-est*'s argument. For instance, in (30b), *John* merges as *-est*'s argument and the presupposition determines that C contains John and other people who bought cakes of some price d for Mary, yielding the Relative-1 reading (17b). In (30c) *Mary* is an argument of *-est* and in (30d) the predicate *cake* is its argument, and by presupposition of *-est* those constituents determine the contents of C .

This simplified illustration of the scope theory, (30), shows that due to different scope of *-est* the contents of the comparison set C vary on the different readings: the comparison is between cakes on the absolute reading, between people on the Relative-1 readings, and between things other than the cake on the Relative-2 reading. In (31c), as in (30d), a DP-internal constituent, the DP *London* in the PP modifier of the head noun, moves to become *-est*'s argument, and accordingly, C contains cities.

- (31) a. John met [_{DP} the *-est* d -young students from London]
Absolute (7a) → The comparison set C contains students from London of some age d .
- b. John₁ *-est* t_1 met [_{DP} d -young students from London]
Relative-1 (7b) → The comparison set C contains people who met students from London of some age d .
- c. London₁ *-est* John met [_{DP} d -young students from t_1]
Relative-2 (7c) → The comparison set C contains cities from which John met students of some age d .

We see in (30) and (31) that once *-est* is allowed to scope outside the superlative DP, any sentence constituent, DP-external or DP-internal, is able to determine the comparison class. The simple scoping mechanism cannot be operative in English, where DP-internal relative readings

(Relative-2) are never available (Fact 1, (14)), and for Bulgarian in the presence of the definite determiner (Fact 2, (16)).

Notice now that in the structures in (30b-d) and (31b-c) the definite article *the* is missing. This is a necessary stipulation on the scoping account (Szabolcsi 1986, Heim 1999), as I will discuss in detail in Section 2.3. For our present purposes, two observations are important. First, the availability of the Relative-2 reading in Bulgarian in the absence of the definite determiner can be taken to mean that the Relative-2 readings are derived when *-est* scopes DP-externally as in (30d) and (31c). Second, the obligatoriness of the definite article on the absolute reading in Bulgarian (Fact 3 in (20)) suggests that the absolute reading results from the structures in (30a) and (31a), where *-est* scopes DP-internally and the definite determiner receives its usual interpretation. But what about the structures for Relative-1 readings, where *-est* scopes DP-externally and the definite determiner deletes, (30b-c), (31b)? In both Bulgarian and English Relative-1 is available in the presence of the definite determiner. Can we simply assume that the definite determiner sometimes deletes at LF (or is semantically vacuous) on relative readings (Szabolcsi 1986, Heim 1999)? We would then need an explanation why in Bulgarian and English *the* can delete for the derivation of the Relative-1 reading, but not for the derivation of the Relative-2 reading.

The account of the absolute-relative ambiguity based on scope does not require positing any special role for focus in the derivation of the relative readings. Still, both Szabolcsi (1986) and Heim (1999) contend that the focus facts should be reflected in the theory. Simplifying somewhat, for Szabolcsi (1986) the movement of *-est*'s argument in (30b-d) and (31b-c) corresponds to the movement of the focus, while for Heim (1999) the presupposition introduced by focus has to match the presupposition of *-est* about the comparison class (this approach is based on Rooth (1992, 1996) and von Stechow (1994), which I briefly introduce in section 1.4 and later develop in Chapter 4). If we amend the scope theory with a reference to the role of focus for the relative readings, we can account for the data where syntactic focus allows for only one relative reading in Bulgarian and Polish, (21b), (24)-(26). We add a requirement that the focused constituent needs to be the one that moves to merge as *-est*'s external argument in (30b-d) and (31b-c). However, even with this additional assumption we cannot explain the Bulgarian data that we saw in (21a) vs. (22), where the role of focus depended on definiteness. With indefinite superlatives, (21a), the absence of focus prevented a relative reading, (Fact 4 in (23)). With definite superlatives, (22), focus was not necessary for the relative reading to arise. The table in (32) shows that the Bulgarian data involving

the effect of definiteness on Relative-2, and the effect of focus on relative readings with indefinite superlatives are unaccounted for on the Movement Theory.

(32) *Compatibility of the Movement Theory with the data in (29)*

READINGS	SUPERLATIVE DP					
	BULGARIAN				POLISH	
	DEFINITE		INDEFINITE		ADJ-FRONTING	
	FOCUS	NO FOCUS	FOCUS	NO FOCUS	DP-EXTER. FOCUS	DP-INTER. FOCUS
<i>Absolute</i> DP-Internal <i>-est</i>	√ predicted	√ predicted	* predicted	* predicted	√ <u>not</u> predicted	* predicted
<i>Relative-1</i> DP-external <i>-est</i>	√ predicted	√ predicted	√ predicted	* <u>not</u> predicted	√ predicted	* predicted
<i>Relative-2</i> DP-external <i>-est</i>	* <u>not</u> predicted	* predicted if focus moves	√ <u>not</u> predicted	* predicted if focus moves	* predicted	√ predicted

The table also shows that the scope theory can account for Fact 5 from Polish, that is, when the superlative adjective is topicalized and focus is on a DP-internal constituent, as in (25), only the Relative-2 reading is available. The explanation is that this case involves the derivations as in (30d), (31c), where *-est* takes DP-external scope and the DP-external constituent that merges as its external argument determines the Relative-2 reading. What is not predicted, however, is that the absolute reading is available for (24) and (26). If we say that in those cases the fronted superlative adjective does not need to coincide with DP-external scope for *-est* at LF, we have no explanation for why depending on the focus structure, an overtly raised *-est* either can or cannot be interpreted DP-internally.

Summarizing, what is problematic for the theory based on just scope are: the interaction between definiteness and the availability of DP-internal relative readings (Facts 1-2), and the role of focus on relative readings (Facts 4-5).

1.2.4 Scoping *-est* DP-internally under-generates

Let us now briefly consider the alternative view, according to which, as I mentioned in the opening section, the absolute and relative readings do not involve different scope for *-est*. For Farkas and É. Kiss (2000) and Sharvit and Stateva (2002) *-est* never scopes outside the superlative DP. Both the absolute and relative readings are derived from the structure in (30a) ((33) below), while additional constraints on the comparison set follow from contextual coherence (manifested in the focus structure of the sentence, when focus is present) (33b-c). (These authors do not discuss Relative-2 readings.) This way we are comparing contextually relevant cakes on both the absolute, (33a), and relative readings, (33b-c), but the set is narrowed down to those cakes that someone bought for Mary, (33b), or to those that John bought for someone, (33c) depending on the context. On the different readings of (34), the comparison set contains students from London, further specified as those students from London that someone met in (34b).

(33) John bought Mary [_{DP} the *-est* *d*-expensive cake]

- a. *Absolute* (17a) → The comparison set *C* contains cakes of some price *d*.
- b. *Relative-1* (17b) → The comparison set *C* contains cakes of some price *d* which were bought by someone for Mary.
- c. *Relative-1* (17c) → The comparison set *C* contains cakes of some price *d* which were bought by John for someone.

(34) John met [_{DP} the [[*-est* *C*] *d*-young students from London]]

- a. *Absolute* (7a) → The comparison set *C* contains students from London of some age *d*.
- b. *Relative-1* (7b) → The comparison set *C* contains students from London of some age *d* who were met by someone.

This view does not even predict the existence of the Relative-2 reading, because if we are always comparing cakes in (33), we cannot add another conjunct in the specification of *C* that would result in the comparison between cakes and other things bought by John for Mary. In (34) we are always

comparing students from London, so there is no way to switch to students from different cities. The account on which *-est* stays DP-internally thus appears to be correct for English, but it cannot account for Bulgarian, where the Relative-2 reading is available for indefinite superlatives, and hence this account makes no predictions for cross-linguistic variation. We have no explanation as to why in Bulgarian when we want to say that the cake Ivan bought was more expensive than anything else he bought, we cannot use the sentence in (17) where the definite determiner is present. Adopting (33) for superlatives cross-linguistically, we cannot make any predictions as to why the definite determiner in the Bulgarian sentence in (17) and in the English sentence in (6) coincides with the unavailability of the Relative-2 readings (Facts 1-2, (14), (16)).

The table in (35) shows how the DP-Internal theory fares with respect to all of the Facts 1-5 in Sections 1.2.1, 1.2.2. The last row shows that Facts 1-2 are unaccounted for. Fact 3 is compatible with the theory depending on the assumptions about the contribution of the definite determiner (the same holds for the Movement Theory). Fact 4 is not predicted, as there should be no difference in the effects of focus on the availability of relative readings between definite and indefinite superlatives. Fact 5 is probably predicted if it can be shown that with DP-internal *-est*, topicalization and focus structure impose specific requirements on *C*.

(35) *Compatibility of the DP-Internal Theory with the data in (29)*

READINGS when <i>-est</i> is DP-Internal	SUPERLATIVE DP					
	BULGARIAN				POLISH	
	DEFINITE		INDEFINITE		ADJ-FRONTING	
	FOCUS	NO FOCUS	FOCUS	NO FOCUS	DP-EXTER. FOCUS	DP-INTER. FOCUS
<i>Absolute</i>	√ predicted	√ predicted	* predicted	* predicted	√ predicted	* predicted?
<i>Relative-1</i>	√ predicted	√ predicted	√ predicted	* <u>not</u> <u>predicted</u>	√ predicted	* predicted
<i>Relative-2</i>	* predicted	* predicted	√ <u>not</u> <u>predicted</u>	* <u>not</u> <u>predicted</u>	* predicted	√ <u>not</u> <u>predicted</u>

It is necessary to point out that we cannot judge by introspection whether on the Relative-1 reading *-est* is DP-internal, and thus we are comparing cakes that someone bought for Mary as in

(33b), or whether *-est* is DP-external and we are comparing people who bought cakes for Mary as in (30b). The existence of the Relative-2, unnoticed in the literature until Pancheva and Tomaszewicz (2012), provides us with a clear diagnostic for DP-external scope of *-est*: as pointed out above, when *-est* stays DP-internally, we are necessarily comparing cakes and not things that John bought for Mary. Only with DP-external *-est* are we able to derive the comparison between things other than the cake that John bought for Mary.

1.3 Summary of the theoretical and empirical issues

At this point let us summarize the empirical observations from English, Bulgarian and Polish, that lead us to the rejection of a purely pragmatic view, and for which the theory of the syntax and semantics of superlative *-est* should account for:

- (i) A sentence containing the superlative needs to be interpreted with respect to a COMPARISON CLASS. Different interpretations arise when the comparison class is set with respect to different constituents in the sentence.
- (ii) On the ABSOLUTE READING the comparison class is established with respect to the content from the superlative DP alone (further restricted by the pragmatics of the situation). The comparison class includes the individual x denoted by the superlative DP (e.g. a unique cake) and all other relevant individuals of the same kind as x that possess the same gradable property to some degree (e.g. cakes of some price).
- (iii) On the RELATIVE READINGS the comparison class is specified with respect to one of the other constituents of the sentence or with respect to the NP of the superlative DP. The comparison needs to involve the individual x denoted by that constituent (e.g. John, Mary) and the alternatives to x (e.g. people who bought cakes of some price for Mary, people for whom John bought cakes of some price). It can involve not only individuals but also predicates: the predicate P denoted by the NP in the superlative DP and the relevant alternatives to P (predicates true of things of some price that John bought for Mary).

- (iv) Syntactic structure constrains the choices of which constituent the comparison class is set with respect to, with focus further playing a restricting role:
- Facts 1-2, ((14), (16)): In English and Bulgarian relative readings cannot be established with respect to DP-internal constituents in the presence of the definite determiner in the superlative DP. This indicates that the definite determiner interferes with the derivation of Relative-2 (i.e. DP-internal relative) readings.
 - Fact 3, (20): The absolute reading requires the presence of the definite determiner in Bulgarian, which indicates that the absolute-relative ambiguity is grammatically based and not purely contextually determined.
 - Facts 4-5, ((23), (28)): In Bulgarian indefinite superlatives, relative readings cannot be established when focus is unavailable. In Polish, the Relative-2 reading is forced when the DP-internal constituent is obligatorily interpreted as focused and the superlative adjective is topicalized (subextracted from the superlative DP).
- (v) If we allow *-est* to scope freely out of the superlative DP, we over-generate. We cannot account for the absence of Relative-2 readings in English and in Bulgarian in the presence of the definite determiner. We cannot account for the effect of the syntactic focus in Polish and Bulgarian.
- If we block *-est* from ever scoping outside the DP, we undergenerate, because we don't predict the availability of Relative-2 readings cross-linguistically.

1.4 Overview of the proposal – interaction between definiteness, scope and focus

As in Pancheva and Tomaszewicz (2012), in this dissertation I propose that the unavailability of the Relative-2 reading in the presence of the definite determiner, means that *-est* is blocked from taking DP-external scope (Fact 2, (16)). The derivations (30b-d) and (31b-c) are blocked when the superlative DP contains the definite determiner, and thus Relative-1 readings in these cases need to be derived with *-est* staying DP-internally as in (33)-(34) (in those cases where the definite determiner is absent, Relative-1 readings can be derived with DP-external *-est*).

The comparison class on Relative-1 readings derived by DP-internal scope of *-est* is determined by the syntax and further specified by the context. With explicit context (e.g. *out of all the players* in (36)), it is clearly stated what counts as relevant for the membership in *C*. In (36) a set of players is explicitly mentioned, so the superlative sentence would be incoherent together with the *if*-clause if *C* was established without any relation to this set. Because *C* necessarily involves the weights lifted by all the relevant players, we cannot establish the referent of the superlative DP until the competition is over. Therefore, the relative clause, where the pronoun *it* should pick up the reference of the superlative clause, is infelicitous.³ In (37a), on the other hand, the comparison set *C* can be restricted by purely pragmatic relevance to the set of weights accessible to discourse participants, which derives the absolute reading. The members of *C* including the referent of the DP can be established in the immediate discourse context (it is the heaviest weight ‘that there is’), and, hence the relative clause is felicitous. In (37b), however, the focus on *you* requires a matching a context where other people who lifted weights are under discussion, just like in (36). The dependency of the relative readings on the linguistic context (explicit or implicit) for what counts

³ Coppock and Beaver (2014) explain the infelicity of the relative clause without considering the membership of the comparison set *C*. For them (36a) (their (14)) is evidence that the definite determiner in the superlative DP does not introduce an iota operator and hence does not presuppose existence, unlike on the absolute readings, (36b). “The unacceptability of non-restrictive modification with relative superlatives can be explained on the grounds that they do not establish a discourse referent” (p. 181). For me (36a) shows that on relative readings there is a condition on the establishing of the discourse referent (the consideration of the contents of *C* is required), so that the existence presupposition is constrained by *C*.

for the purposes of comparison, is thus different from purely pragmatic relevance as on the absolute reading.

(36) You win if out of all the players, you lift the heaviest weight, #which is this one.

((14) in Coppock & Beaver 2014: 181)

(37) a. You win if you lift the heaviest weight, which is this one.

b. You win if [you]_F lift the heaviest weight, #which is this one.

In the absence of explicit context, it is the focus structure of the sentence that indicates the implicit linguistic antecedent in the discourse context ((36c) and the Bulgarian and Polish data in (21b), (24)-(26)). The discourse context can be seen as a set containing salient linguistic material. The linguistic antecedent is either explicit, or constructed from the material salient in the current discourse (e.g. Wagner 2009). To account for the role of implicit context in the specification of *C*, I assume a grammatical process called FOCUS ASSOCIATION by which *C* is anaphorically dependent on some linguistic antecedent (Rooth 1992, 1996, von Stechow 1994, Heim 1999). I propose (in line with Pancheva and Tomaszewicz 2012) that relative readings require a LICENSING ANTECEDENT that imposes a restriction on the domain argument of *-est*, *C*, and that this restriction has to comply with *-est*'s presupposition about the content of *C*. The focus structure of the sentence is dependent on the same antecedent (von Stechow 1994) due to the presence of a dedicated focus interpretation operator at LF whose restrictor *C'* is anaphorically resolved (Rooth 1985, 1992). The focus operator can take different scope with respect to *-est*, so the effect of focus on relative readings is a result of a structural ambiguity and not a purely pragmatic effect (as on the absolute reading). My account is summarized in (38).

(38)	Two ways to relative readings
	The presupposition of <i>-est</i> and its scope determine the comparison class <i>C</i> , which is further subject to contextual specification:
	<p>(i) In the presence of the definite determiner, <i>-est</i> scopes DP-internally, and <i>C</i> is further restricted either by the focus or by explicit context (i.e. focus is not necessary).</p> <p>(ii) In the absence of the definite determiner, <i>-est</i> can scope DP-externally, and if it does, focus is necessary and the focal presupposition and the presupposition of <i>-est</i> about the content of <i>C</i> must match.</p>

In table (38) I show that my account correctly accounts for Facts (1-5). Since in the presence of the definite the determiner *-est* is trapped inside the DP, the predictions are correct for the first two columns. In the absence of *the*, *-est* can scope out, but it does not have to, which correctly accounts for the third column showing that with indefinite superlatives in Bulgarian the relative readings require focus. The fourth column shows that without focus, indefinite superlatives cannot yield relative readings, which is only partially accounted for. Since nothing forces DP-external scope, in those cases where *-est* is DP-internal, focus should not be required for the Relative-1 reading.⁴ However, we saw in (21a) that when there is no focus, the relative reading is unavailable, which suggests that *-est* takes DP-external scope for both Relative-1 and Relative-2 readings in indefinite superlatives. The fifth column shows that in Polish the topicalization of the superlative adjective together with DP-external focus allows for the absolute and the Relative-1 readings. This is correctly accounted for because Polish lacks the definite determiner so, unlike in Bulgarian, in morphologically indefinite DPs *-est* can stay DP-internal. The data in the sixth column is also

⁴ The DP-external scope of *-est* in indefinite superlatives in Bulgarian might be forced by the fact that in case there is an indefinite determiner at LF and *-est* is DP-internal, the existence of a unique satisfier of the NP *most expensive cake* is not presupposed which is compatible with multiple sets of cakes of some price that Ivan gave to Maria (Herdan & Sharvit 2006, see also footnote 19).

predicted because the Relative-2 reading requires DP-external scope of *-est*, and DP-external *-est*, in turn, requires focus ((ii) in (38)).

(39) *Compatibility of the present theory with the data in (29)*

READINGS when <i>-est</i> is DP-Internal	SUPERLATIVE DP					
	BULGARIAN				POLISH	
	DEFINITE		INDEFINITE		ADJ-FRONTING	
	FOCUS	NO FOCUS	FOCUS	NO FOCUS	DP-EXTER. FOCUS	DP-INTER. FOCUS
<i>Absolute</i> DP-internal <i>-est</i>	√ predicted	√ predicted	* predicted	* predicted	√ predicted	* predicted
<i>Relative-1</i> DP-internal <i>-est</i>	√ predicted	√ predicted	√ predicted	* not predicted	√ predicted	- impossible
<i>Relative-1</i> DP-external <i>-est</i>	- impossible	- impossible	√ predicted	* predicted	√ predicted	* predicted
<i>Relative-2</i> DP-external <i>-est</i>	* predicted	* predicted	√ predicted	* predicted	* predicted	√ predicted

The grammatical process of FOCUS ASSOCIATION is based on the fact that the focus structure of a sentence is a result of discourse congruence. Focus is licensed if a linguistic antecedent is either explicit, or constructed from the material salient in the current discourse. A constituent in focus is marked with a focus feature F at the syntactic level, but F-marking is also visible to both the semantic and phonological components (Jackendoff 1972, Rooth 1992, Selkirk 1996). So F-marking on a syntactic constituent is licensed by the preceding (implicit or explicit) linguistic context, and semantically this F-marked constituent contributes alternatives that enter into the computation of sentence meaning. The sentence carries the presupposition that a set of relevant alternatives is retrievable from the context (the FOCAL PRESUPPOSITION).

As a brief illustration consider how the alternatives contributed by focus contribute to the restriction of the domain of quantification of the adverb *always* (in section 4.3, ‘The focus association mechanism’, I present the technical details of the account), (40). The focused

constituent, in addition to its regular interpretation, invokes a set of alternatives of the same type, and the adverb's restriction is the set of times whose value varies with the focus alternatives. In (40a) the focal presupposition is that there is a set of individuals who are escorted by officers (underlined), and *always* quantifies over the set of times at which those individuals are escorted by officers. In (40b) focus contributes a set of individuals who escort ballerinas.

(40) a. In St. Petersburg, officers always escorted [ballerinas]_F. Rooth (1985)

‘Whenever officers escorted somebody, they escorted ballerinas.’

b. In St. Petersburg, [officers]_F always escorted ballerinas.

‘Whenever ballerinas were escorted by somebody, they were escorted by officers.’

As the above shows, the restriction of the domain of an adverb like *always* is determined by discourse congruence (and by the syntax, but given the standard assumption that the adverb takes sentential scope, the ambiguity in (40) is not a scope ambiguity). In the case of *-est*, in contrast, the syntax plays a crucial role. As proposed by Heim (1999), *-est* introduces the presupposition that its domain argument *C* is determined by the syntactic environment of *-est* (I present the details at the beginning of Chapter 2). Heim also introduced the idea that it is the interaction between the focal presupposition and the presupposition of *-est* dependent on the syntax that effectively determines the contents of the comparison class *C*.

Focus association is responsible for the specification of the information that is underlined in (41), where *-est* is DP-internal. Like in (40) above, focus contributes a set of alternatives that enters into the specification of *-est*'s restrictor *C*. It follows that with DP-internal *-est*, Relative-2 readings are never derived, even when there is focus on *cake* as in (41d). In (41d) the effect of focus on the meaning is vacuous: the members of the comparison set are cakes, and this set cannot be replaced by the set of alternatives contributed by focus (the set of predicates true of things of some price that John bought for Mary). In other words, in (41d) the focal presupposition has no effect on *C* in combination with the presupposition of *-est*. Crucially, on my analysis, focus association is not the only way to obtain the underlined information in (41) and derive Relative-1 readings with DP-internal *-est*. The comparison may be explicitly specified by the context, as in (41b', c') which

makes focus unnecessary (in line with the initial observations in Szabolcsi 1986, and with the DP-internal theory of Sharvit and Stateva 2002).

(41) *Interpreting superlatives when the definite determiner is present:*

a. John bought Mary [DP **the -est** *d*-expensive cake]

Absolute (17a) → The comparison set *C* contains cakes of some price *d*.

b. [**John**]_F bought Mary [DP **the -est** *d*-expensive cake]

b'. Of all the boys, John bought Mary [DP **the -est** *d*-expensive cake]

Relative-1 (17b) → The comparison set *C* contains cakes of some price *d*
which were bought by someone for Mary.

c. John bought [**Mary**]_F [DP **the -est** *d*-expensive cake]

c'. Mary is happy because John bought her [DP **the -est** *d*-expensive cake]

Relative-1 (17c) → The comparison set *C* contains cakes of some price *d*
which were bought by John for someone.

d. John bought Mary [DP **the -est** *d*-expensive [**cake**]_F]

Relative-2 (17d) *impossible* → #The comparison set *C* contains cakes of some price *d*
which are things that John bought for Mary.

On my proposal, in the absence of the definite determiner, ((38) (ii)), the superlative operator may scope outside the DP for the derivation of relative readings, but only an F-marked constituent can raise to saturate *-est*'s third argument, (42b, c, d). If a non-F-marked constituent saturates its argument, but focus is elsewhere in the sentence, there is a clash between the presupposition of *-est* and the focal presupposition. If there is no focus, and thus no F-marked constituents at LF, it should technically be possible to derive relative readings, as I pointed out in Section 1.2.3 about the Movement Theory. The empirical data, however, shows that focus is necessary for relative

readings when *-est* takes DP-external scope – we saw in (21a) that when there is no focus with indefinite superlatives in Bulgarian, the relative reading is unavailable. So I integrate this fact into my theory, and include a requirement that the sentence constituent that saturates *-est*'s external argument needs to be F-marked (in the next section, 2.1, we will see that happens only when *-est* is DP-external). The interpretation of focus (the underlined information in (42b-d)) does not add anything to the specification of the comparison set, but it encodes the felicity requirements on the placement of focus with relative readings. If focus is placed on some other constituent, (e.g. *cake* in (43)), a clashing requirement on the comparison set is imposed. The specification in (43) requires the members of the set to be at the same time people (who bought cakes for Mary) and things bought by John for Mary. The same presupposition clash with the Relative-2 reading is illustrated for the case where DP-internal focus contributes a set of individuals, cities alternative to London, (44).

(42) *Interpreting superlatives when the definite determiner is absent on relative readings:*

a. John bought Mary [_{DP} the *-est* *d*-expensive cake]

Absolute (17a) → The comparison set *C* contains cakes of some price *d*.

b. [**John**₁]_F *-est* *t*₁ bought Mary [_{DP} *d*-expensive cake]

Relative-1 (17b) → The comparison set *C* contains people who bought cakes of some price *d* for Mary and the members of *C* are people who are relevant alternatives to John.

b'. [**John**]_F bought Mary [_{DP} *-est* *d*-expensive cake]

Relative-1 (17b) → The comparison set *C* contains cakes of some price *d* which were bought by someone for Mary.

c. [**Mary**₁]_F *-est* John bought *t*₁ [_{DP} *d*-expensive cake]

Relative-1 (17c) → The comparison set *C* contains people for whom John bought cakes of some price *d* and the members of *C* are people who are relevant alternatives to Mary.

c'. John bought [**Mary**]_F [_{DP} *-est* *d*-expensive cake]

Relative-1 (17c) → The comparison set *C* contains cakes of some price *d* which were bought by John for someone.

d. [**cake**₁]_F *-est* John bought Mary [_{DP} *d*-expensive *t*₁]

Relative-2 (17d) → The comparison set *C* contains predicates true of things of some price *d* that John bought for Mary and the members of *C* are predicates which are relevant alternatives to the predicate *cake*.

(43) John₁ *-est* *t*₁ bought Mary [_{DP} *d*-expensive [**cake**]_F]

The comparison set *C* contains people who bought a cake for Mary of some price *d* and the members of *C* are predicates which are relevant alternatives to the predicate *cake*.
→ *derivation excluded by presupposition clash*

(44) John₁ *-est* *t*₁ met [_{DP} *d*-young students from [**London**]_F]

The comparison set *C* contains people who met students from London of some age *d* and the members of *C* are cities which are relevant alternatives to London.
→ *derivation excluded by presupposition clash*

The role of focus as the realization of discourse congruence is on my analysis crucial for the derivation of relative readings both with DP-internal and DP-external scope. Focus indicates the presence of a licensing antecedent (whose semantics supply a set of alternatives), which is necessary for the relative readings. With DP-external *-est*, on my analysis, focus is obligatory due to a lexical requirement of *-est* that the constituent that moves and merges as its third argument is F-marked (when *-est* takes DP-internal scope this requirement is void). With DP-internal *-est*, focus is optional and in this I follow Szabolcsi (1986, 2012), Heim (1999), Farkas and É. Kiss (2000), Sharvit and Stateva (2002), who observe that in the absence of focus, when the context involves operators such as *wh*, relative readings can also be obtained (I discuss this in Chapter 3). As opposed to those approaches, though, on my account the syntax constrains the way *C* is determined both by the context and by the scope of *-est*. For Szabolcsi (1986, 2012) and Heim (1999) the contextual effects on *C* are independent of the derivation of relative readings, which

can be done by scope alone (this approach faces the over-generation problem as we saw in section 1.2.3). For Farkas and É. Kiss (2000) and Sharvit and Stateva (2002) DP-external scope is never allowed so focus/context are necessary (this results in the under-generation problem, section 1.2.4).

As shown above in (42)-(44), in the absence of the definite determiner relative readings can be derived by scoping *-est* DP-externally as long as the presupposition of *-est* and the focal presupposition do not clash. However, the Relative-1 readings derived by DP-external scope in (42), in those cases where the superlative DP is morphologically indefinite, are equivalent to the Relative-1 readings derived with DP-internal *-est* in (41). Thus, a question arises: does the grammar prefer one way or the other for the derivation of the Relative-1 readings? I observe that the movement of *-est* for Relative-1 readings needs to be preceded by the QR of its argument, which violates scope economy (Fox 2000, Reinhart 2006). I present my arguments for this conclusion in section 2.6.2. Thus, scope economy might exclude the DP-external scope of *-est* for Relative-1 readings. This may also be, however, a point where the two languages, Bulgarian and Polish, diverge. If in Bulgarian the Relative-1 reading with indefinite superlatives can be derived by DP-internal *-est*, in accordance with the scope economy considerations, it should not be dependent on the availability of focus the way it, in fact, is (the example with the clitic pronoun in (21a) showed that when there is no focus with indefinite superlatives, the Relative-1 reading is unavailable). Perhaps, it would be entirely redundant if definite and indefinite superlatives in Bulgarian had exactly the same LFs where *-est* is DP-internal, so instead *-est* is always DP-external in indefinite superlatives. Or perhaps, the semantics of the (null) indefinite determiner are incompatible with DP-internal *-est* (one reason is suggested in footnote 4). I have no answer to this, I merely observe that scope economy considerations are not enough to exclude a DP-external analysis for Relative-1 readings in Bulgarian. For Polish, on the other hand, there is no way to obtain evidence that focus is necessary for Relative-1 readings – as will be shown in section 3.1.2 ‘Optionality of focus in Polish’, when focus is unavailable with weak pronouns, it is possible to add explicit context specifying the comparison, but in this case the superlative DP might as well be interpreted as definite (with *-est* staying DP-internally). Thus, in Polish it could very well be that all Relative-1 readings are derived by DP-internal *-est* (and optional focus), as required by scope economy.

1.5 Organization of the dissertation

In Chapter 2, I discuss the issue of the scope of the superlative morpheme *-est*. I introduce the semantics for *-est* that mandates the movement of a constituent DP-externally to become an argument to the DP-external *-est*. I present the existing accounts that allow movement of *-est* outside of the DP (Szabolcsi 1986, Heim 1985, 1999), as well as those that do not (Farkas and Kiss 2000, Sharvit and Stateva 2002), and confront them with our data and new generalizations (Facts 1-5). I discuss different types of evidence that *-est* is able to take sentential scope in a language, as well as the evidence that a relevant sentence constituent is able to raise once *-est* scopes within the clause. Following the proposal in Pancheva and Tomaszewicz (2012), that the Relative-2 reading is blocked by the presence of the definite determiner at LF (Facts 1-2, (14), (16)), I propose a semantic account of the definite island effect: the interpretation of the definite determiner together with DP-external scope for *-est* at LF is semantically anomalous.

Chapter 3 adds to the findings of Chapter 2 the conclusion that relative readings require a licensing context both in cases where *-est* is DP-internal and in cases where *-est* scopes DP-externally. This requirement for a licensing context indicates that *-est* is focus sensitive. However, DP-internal *-est* can associate with focus but does not have to (sections 3.1.1, 3.1.2, 3.1.5), while DP-external *-est* requires focus (sections 3.1.4, 3.2) as indicated by Facts 4-5, (23), (28).

In Chapter 4, I introduce a technical implementation of the focus dependency of relative readings – the focus association mechanism (Rooth 1992, 1996, von Stechow 1994, Heim 1999). On my account focus is not necessary for relative readings when *-est* is DP-internal if the context explicitly specifies what the comparison involves. But in the absence of the explicit specification of *C* the focus structure of the sentence is used to recover the implicit linguistic antecedent, and this is done via the focus association mechanism. Relative readings with DP-external *-est*, on the other hand, require focus as evidenced by the data. Accordingly, on my analysis, *-est* cross-linguistically obligatorily associates with focus unless its scope is constrained. In Chapter 4 I show that we can account for the cross-linguistic restrictions on relative readings in terms of different scope configurations between *-est* and the focus interpretation operator available in a language. Focus interpretation is the effect of the presence of a focus operator in the logical form of the sentence (Rooth 1985, 1992), thus, the different readings that obtain from the scope of the focus operator relative to the scope of *-est* are a result of a structural ambiguity and not a purely pragmatic

effect. Focus association correctly predicts the range of relative readings in both languages that allow DP-external scope in the absence of the definite determiner, and in those where the definite article is always present in the superlative DP preventing *-est* from scoping out.

In Chapter 5, I discuss an approach on which *-est* just like *always* and *only* scopes over the whole proposition, and this way the focal presupposition and the presupposition of *-est* are not predicted to clash. This analysis is based on an alternative semantics for *-est*, on which only degrees are compared (Heim's 1999 2-place *-est*). I show that this analysis does not make the right predictions for the availability of relative readings in the presence of focus. The blocking effect of the definite determiner on the Relative-2 reading in the presence of DP-internal focus cannot be modeled using the 2-place *-est*. I conclude that 3-place *-est*, on which individuals are compared, and which I used in my analysis in Chapters 2–4, is used cross-linguistically to derive relative readings via focus association.

Chapter 6 concludes.

Chapter 2: The scope of the superlative *-est*

In the introductory chapter, I outlined two approaches to the scope of *-est* that have been debated in the literature. The first one allows *-est* to scope DP-externally for the derivation of relative readings (Szabolcsi 1986, Heim 1985, 1999), the second one does not (Farkas and Kiss 2000, Sharvit and Stateva 2002). I observed that the movement approach over-generates (section 1.2.3), and the DP-internal approach under-generates (section 1.2.4). I now present the details of the derivations of the relative readings on each theory (sections 2.1 and 2.2), and then confront them with the data and the new generalizations introduced as Facts 1-5.

2.1 Superlative readings as a structural ambiguity – the Movement Theory

Szabolcsi (1986) and Heim (1985, 1999) propose that the absolute and relative readings of superlative sentences are an instance of a structural ambiguity. The two readings of the sentence they discuss, given in (45), can be straightforwardly derived assuming that the superlative morpheme *-est* is a quantifier over degrees and can take scope at different levels within the clause. This approach to the different readings of superlatives can be dubbed the MOVEMENT THEORY. The absolute reading, (45a), obtains when *-est* remains inside the superlative DP, as in (46a). The comparison set *C* in (46a) is determined just on the basis of the DP – it is a contextually relevant subset of mountains of some height. In (46b), where *-est* has sentential scope, the comparison class is a subset of contextually relevant people who climbed mountains, yielding the relative reading (45b).

(45) John climbed the highest mountain.

- a. ‘John climbed the mountain that is higher than all (relevant) mountains.’ *Absolute*
(e.g. Mt. Blanc in the Alps)
- b. ‘John climbed a higher mountain than any other (relevant) person did.’ *Relative-1*
(e.g. John climbed the Matterhorn, 4478 m; Mary climbed Zinalrothorn, 4221 m; Bill climbed Strahlhorn, 4190 m; and nobody climbed Mt. Blanc, 4810 m.)

- (46) a. John climbed $[_{DP} \text{the } [-est] C] \lambda d [d\text{-high mountain}]$
 $C \subseteq \{x: \exists d [x \text{ is a } d\text{-high mountain}]\}$ *Absolute*
- b. $[_{TP} \text{John } [-est] C] \lambda d \lambda x [x \text{ climbed } [_{DP} \text{a } d\text{-high mountain}]]$
 $C \subseteq \{x: \exists d [x \text{ climbed a } d\text{-high mountain}]\}$ *Relative-1*

The semantics of *-est* due to Heim (1999) is given in (47); this semantics has been widely adopted in the literature (Sharvit and Stateva 2002, Bhatt 2002, Herdan and Sharvit 2006, Hackl 2009, Aihara 2009, Romero 2010, 2012, Krasikova 2011, Kotek et al. 2011, Szabolcsi 2012, a.o.). The superlative is defined as a 3-place relation between a set of individuals C^5 , a predicate of degrees and individuals D , and an individual x .

$$(47) \llbracket [-est] \rrbracket = \lambda C_{\langle e,t \rangle} \lambda D_{\langle d,et \rangle} \lambda x_e \exists d [D(d)(x) \wedge \forall y \in C [y \neq x \rightarrow \neg(D(d)(y))]]$$

Presuppositions:

- a. $x \in C$
b. $\forall y [y \in C \rightarrow \exists d [D(d)(y)]]$

The lexical entry in (47) requires the assumption that gradable predicates are *downward monotonic*, (48):

(48) A relation R between objects x and degrees d, d' is downward monotonic iff:

$$\forall x \forall d \forall d' [R(x, d) = 1 \wedge d' < d \rightarrow R(x, d')]$$

The variable C , the restrictor of *-est*, represents the comparison class, which is presupposed to be the set of individuals whose members are compared along the dimension specified by the gradable

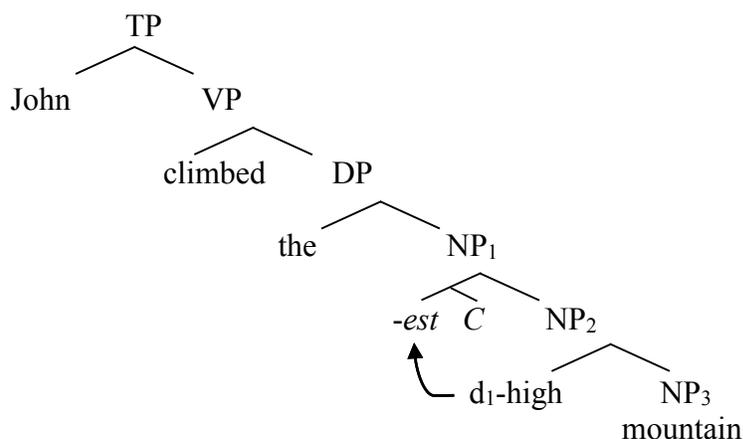
⁵ I refer to C in (47) as a set of individuals, but this is just a shorthand, in fact, C is the characteristic function of the set of individuals.

predicate D , the second argument of $-est$, (47a-b).⁶ The comparison class is determined partly by the LF syntax, as shown in (46), in conjunction with the context.

2.1.1 The absolute reading

In (46a), where $-est$ is DP-internal, its individual argument is bound by the iota operator that is part of the meaning of the definite determiner *the*, (49a). The meaning of the superlative DP is specified as in (49d).

(49) a. LF for the absolute reading (45a)/(46a):



b. $\llbracket \text{NP}_2 \rrbracket = \lambda d \lambda x [x \text{ is a mountain} \wedge x \text{ is } d\text{-high}]$

c. $C \subseteq \{x: \exists d [x \text{ is a } d\text{-high mountain}]\}$ (=46a)

⁶ It has been argued that one more presupposition should be added to lexical entry in (39) in order to prevent C from being a singleton (Hackl 2009, Gajewski 2010), (i-c) below. Such a presupposition accounts for the oddity of *#You are the best mother I have* (Fox 2005, Hackl 2009)

(i) Presuppositions of $-est$:

- a. $x \in C$
- b. $\forall y [y \in C \rightarrow \exists d [D(d)(y)]]$
- c. $\exists y [y \neq x \ \& \ y \in C]$

d. $[[DP]] = \lambda x \exists d [x \text{ is a } d\text{-high mountain} \wedge \forall y [y \in C \wedge y \neq x \rightarrow \neg [y \text{ is a } d\text{-high mountain}]]]$

Due to the presuppositions of *-est* in (47a-b), the landing site of $[-est C]$ delimits the contents of the comparison set C . Morphologically a superlative form is built out of the superlative morpheme and a gradable adjective, for example, *high-est* (periphrastic constructions are also found cross-linguistically, e.g. *most expensive* in English). In the syntax, however, $[-est C]$ does not combine with the adjective directly. Type-wise there is nothing that prevents the in-situ combination of $[-est C]$ (type $\langle\langle d, \langle e, t \rangle \rangle, \langle e, t \rangle\rangle$) and the adjective (type $\langle d, \langle e, t \rangle \rangle$) (as noted in e.g. Bošković and Gajewski 2009). The presuppositions (47a-b) could technically be met, for example, C would consist of objects that have height, but for the intended readings we need to include the noun as well, that is, to be able to say that C consists specifically of mountains of some height and not of any objects that have height.⁷ If $[-est C]$ composed with the adjective in-situ, C would be a set of objects that are d -high, but on neither of the readings of (45) is the adjective *highest* interpreted intersectively (the highest mountain in (45) is not the highest object and a mountain; Heim 1999, Cinque 2010).⁸

Presupposition (47b) requires that all members of the comparison class C have the property specified by the sister node of $[-est C]$. The movement of $[-est C]$ out of its base position creates

⁷ Bošković and Gajewski (2009) allow *-est* to compose directly with the adjective but they note that by the presuppositions of *-est* anything that has height is allowed to enter the comparison class, therefore in order to ensure that the comparison set contains mountains of some height “such an account must be supplemented with rules for deriving membership of C from context and focus” (p. 6). It seems to me, however, that this move predicts that in any language DP-internal focus can have an effect on C . E.g. for ‘John met the youngest student from [London]_F’, the presupposition of *-est* allows C to contain anything that is young to a degree d , so C could be the set $\{x: \exists d \exists y [x \text{ is a } d\text{-young student from city } y]\}$, due to the focus on London.

⁸ In the work of Stateva (2003) and Bobaljik (2013) the claim is that cross-linguistically the superlative comes on top of a comparative form, not on top of a bare adjective. Polish overtly adds the superlative prefix *naj-* to the comparative form of adjectives, but in Bulgarian *naj-* overtly combines with the absolute form. This difference in morphology, however, has no implications for the availability of the different readings of superlatives, therefore, I assume the same semantics for *naj-* in Polish and Bulgarian as for *-est* in (47).

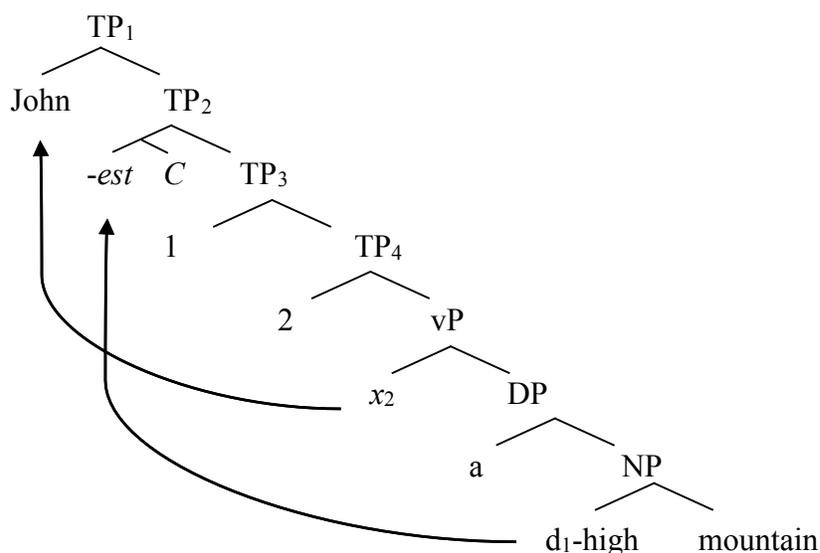
an abstract over degrees. In (49) after the movement within the DP, [-*est* *C*] is sister to NP₂, which denotes a relation between degrees *d* and individuals that are *d*-high mountains, (49b). Thus, by presupposition (47b), the set *C* contains mountains that have some degree of height, (49c).

2.1.2 Relative readings

When *-est* takes sentential scope, as in (46b) above, its individual argument has to be saturated by raising an individual denoting element (e.g. in (46b) *John* is of type *e*). In (50), the subject *John* QRs to the edge of the clause, *-est* QRs out of the NP and tucks in right below *John*.⁹

⁹ When *-est* takes sentential scope, it is required to tuck in because of its semantics. *-Est*'s sister node needs to be of type $\langle d, et \rangle$ to saturate its second argument, while the raised individual argument needs to saturate its third argument. The movement of the comparative morpheme *-er* on its 3-place semantics also requires tucking in (Bhatt and Takahashi 2007). On the syntax side, "tucking in" derivations occur when a head already has a filled specifier, but a new specifier needs to be created as the landing site for movement and this new specifier is created below the filled-in one. Richards (1997, 1999) proposes that tucking in reflects general locality considerations, in that landing in the lower specifier results in a 'shorter move' than movement to a position outside the existing specifier.

(50) a. LF for the relative reading (45b)/(46b):



b. $\llbracket \text{TP}_3 \rrbracket = \lambda d \lambda x [x \text{ climbed a } d\text{-high mountain}]$

c. $C \subseteq \{x: \exists d [x \text{ climbed a } d\text{-high mountain}]\}$ (=46b))

d. $\llbracket \text{TP}_1 \rrbracket = \exists d [\text{John climbed a } d\text{-high mountain} \wedge \forall y [y \in C \wedge y \neq \text{John} \rightarrow \neg [y \text{ climbed a } d\text{-high mountain}]]]$

Given that the second argument of *-est*, TP_3 is a relation between degrees d and individuals x who climbed a d -high mountain, (50c), C ends up as the set of mountain climbers relevant in the context, (50c).

2.2 Superlative readings as context dependency – the DP-internal Theory

Heim (1999) points out that the movement of *-est* out of the superlative DP is not necessary to derive Relative-1 readings. As noted in section 1.2.4, Farkas and Kiss (2000)¹⁰ and Sharvit and

¹⁰ Furthermore, Farkas and É. Kiss (2000) assume a non-quantificational, and hence non-movement analysis for *-est* (as do Stateva 2002, 2003, Matushansky 2008).

Stateva (2002) argue that this movement is, in fact, not allowed (at least in the grammar of English and Hungarian, as they do not consider data from other languages). Both the absolute and the Relative-1 reading of the sentence in (45) above can be derived from a single LF, (51), where *-est* remains DP-internal. On both readings, the comparison set *C* contains mountains and pragmatic considerations specify which set of mountains counts as relevant in (51a) and (51b).

(51) John climbed [_{DP} the [[*-est* *C*] *d*-high mountain]]

a. *Absolute*

‘John climbed the mountain that is higher than all (relevant) mountains.’

$C \subseteq \{x: \text{there is a degree } d \text{ such that } x \text{ is a (relevant) } d\text{-high mountain}\}$

b. *Relative-1*

‘John climbed a higher mountain than any other (relevant) person did.’

$C \subseteq \{x: \text{there is a degree } d \text{ and an individual } y \text{ such that } x \text{ is a (relevant) } d\text{-high mountain \& } y \text{ climbed } x\}$

Recall that on the derivation of the Relative-1 reading of the sentence (45) by scoping *-est* DP-externally, (46b), *C* is a subset of contextually relevant people who climbed mountains. The results of comparing relevant climbers in terms of their climbing achievements, (46b), and the results of comparing mountains climbed by relevant climbers, (51b), are truth-conditionally equivalent. Hence, the debate in the literature concerned the question whether it is necessary to even allow *-est* to take DP-external scope. Heim (1985, 1999), Szabolcsi (1986), Farkas and É. Kiss (2000) and Sharvit and Stateva (2002) do not discuss the Relative-2 readings. Thus, while they note that adding a contextual restriction on *C* while keeping *-est* DP-internally is sufficient to derive the absolute and relative readings in a language like English, these authors do not consider the overgeneration problem caused by allowing DP-external scope for *-est* discussed in section 1.2.3 (and in more detail in section, 2.4). It is observed by these authors that a theory allowing DP-external scope for *-est* may not be needed, but they do not notice that such a theory may be too permissive. Neither is it noted that a DP-internal theory may be too restrictive for the range of relative readings found cross-linguistically, in that it does not even predict the existence of the Relative-2 readings (as discussed in section 1.2.4).

In the next section, I present another issue raised in the debate concerning the availability of DP-external scope for *-est*, that of the interpretation of the definite determiner on relative readings.

2.3 DP-external scope of *-est* and uninterpretability of ‘*the*’

Notice that in order for the truth-conditions to come out right in (50d), the definite determiner on the relative reading has to be interpreted as indefinite. This is a stipulation on the Heim/Szabolcsi account.

Szabolcsi (1986) proposes that on relative readings the superlative DP is necessarily indefinite for syntactic reasons – the movement of *-est* is allowed only if the DP is indefinite. She argues that the grammaticality of (52c), contrasting with the ungrammaticality of (52b), is explained if the DP in (52c) is indefinite just like in (52a). Accordingly, for Szabolcsi (1986) on the absolute reading the DP is always definite, while on relative readings the DP is always indefinite.¹¹

- (52) a. Who did you take a picture of?
 b. *Who did you take the/every picture of?
 c. Who did you take the best picture of? ((1) in Szabolcsi 1986: 245)

Heim (1999) additionally observes that “definite DPs are generally islands for extraction” (p. 12), thus, on the Movement Theory, the reason for having the indefinite determiner in the superlative DP when *-est* takes DP-external scope is syntactic. However, extraction from definite DPs is not universally precluded, and I will discuss this issue in detail in section 2.6.1, ‘Morphological definiteness and extraction’.

Sharvit and Stateva (2002) note that also for semantic reasons the determiner cannot be interpreted as definite with *-est* scoping DP-externally – we get the wrong specification of the comparison set, for example, all the individuals in *C* climb the same mountain as shown below in (53). In the derivation where *-est* moves out and the DP is headed by *the*, a semantic anomaly

¹¹ For Szabolcsi (1986) in relative readings *the* is not a D head, but a part of the degree quantifier itself, and the whole DP is indefinite.

arises making the LF uninterpretable. In (46b)/(50), the superlative DP is indefinite. If we chose *the* instead (just like on the absolute reading, cf. (46a)/(49)), the result is a semantic clash between the presupposition and the assertion of *-est*. This is shown in (53). *-Est*'s presuppositions, (47a-b), according to which the comparison set is determined (taking into consideration the syntactic scope, i.e. the sister of [-*est* C]), require that every member of the comparison class climbs the same unique mountain of some height, (53b). If that mountain is, for instance, 3000 meters high, the presupposition in (53b) is not satisfied if John instead of this mountain climbs a mountain that is 4000 m high, but such a situation is precisely what the assertion requires. The requirements of the presupposition and of the assertion clash. But perhaps the presupposition is satisfied if John climbs the 4000m high mountain in addition to the 3000m one? Given the monotonicity assumption, mountain A that is 3000m high is not unique in a context where there is also mountain B that is 4000m high. This is because for every degree d' such that $d' < 4000\text{m}$, mountain B is d' -high, hence it also counts as a 3000m meter mountain. Accordingly, if everyone in C climbs mountain B, but in addition someone in C climbs mountain A, the presupposition is not satisfied.¹²

- (53) a. [_{TP} John [-*est* C] $\lambda d \lambda x$ [x climbed [_{DP} **the** d -high mountain]]]
 b. $C \subseteq \{x: \exists d [x \text{ climbed the unique } d\text{-high mountain}]\}$

¹² If we drop the monotonicity assumption, a clash between the presupposition and the assertion is avoided, however, we get the incorrect specification of the presupposition. Taking adjective meanings to be non-monotonic, for *high* we use the entry in (i-b) instead of (i-a). We also reformulate the semantics for *-est*, (ii).

(i) a. $[\text{high}](d)(x) = 1$ iff x 's maximal height includes d .

b. $[\text{high}](d)(x) = 1$ iff x 's maximal height is d .

(ii) $[-\text{est}_{\text{non-m}}] = \lambda C_{\langle e, t \rangle} \lambda D_{\langle d, et \rangle} [\forall z [z \in C \rightarrow \exists d' [D(d')(z)]]] \lambda x_e [x \in C] . \exists d [D(d)(x) \wedge \forall y \forall d' [y \in C \wedge y \neq x \wedge D(d')(y) \rightarrow d' < d]]$ (cf. Sharvit and Stateva 2002, p. 468, (33))

Now the members of C are required to climb the same unique mountain for a given degree of height – John is allowed to climb mountain B (4000m high) in addition to mountain A (3000m high) that everyone else climbs, he is not allowed to climb another 3000m mountain. However, the English sentence *John climbed the highest mountain* on the Relative-1 reading does not carry the presupposition that all the relevant climbers climbed no more than one mountain for a given height.

- c. $\llbracket (53a) \rrbracket = \exists d [\text{John climbed the unique } d\text{-high mountain} \wedge \forall y [y \in C \wedge y \neq \text{John} \rightarrow \neg [y \text{ climbed the unique } d\text{-high mountain}]]]$

Crucially, on Szabolcsi’s (1986) and Heim’s (1985, 1999) Movement Theory it is the LF structure that dictates that on the absolute reading (45a)/(46a) mountains are compared, and on the relative reading (45b)/(46b) climbers are compared. Comparison between climbers, achieved by DP-external scope of *-est*, requires that the determiner is interpreted as indefinite, otherwise we get a semantic anomaly paraphrasable as “John climbed the unique mountain that is higher than the same unique mountain that all other climbers climbed”.^{13,14} No such anomaly is detected with the sentence “John climbed the highest mountain” on the Relative-1 reading, hence if that reading is derived by *-est* scoping DP-externally, the determiner must be interpreted as *a* at LF. DP-external scope of *-est* effectively necessitates that the superlative DP be indefinite. As a consequence, the Movement Theory is unable to make any cross-linguistic predictions about the interaction between morphological definiteness and the availability of relative readings, which were illustrated in sections 1.1-1.2. If *-est* stays internally for the derivation of the Relative-1 reading of (45), and thus mountains, not climbers, are compared, there is no semantic need for the indefiniteness. In other words, it is not only that the movement theory cannot predict the correlation with the

¹³ Sharvit and Stateva (2002) and Sharvit (p.c.) point out that the definite determiner is also incompatible with DP-external *-est* in intensional contexts. I summarize the issue in footnote 28 in section 2.7.3 ‘Relative readings in intensional contexts’.

¹⁴ It should be noted that DP-external movement of *-est* yields, in principle, both (i) and (ii) as possible LFs of *John didn’t climb the highest mountain*

- (i) $\neg [_{\text{TP}} \text{John} [-est C] \lambda d \lambda x [x \text{ climbed } [_{\text{DP}} \text{the } d\text{-high mountain}]]]$
(ii) $\neg [_{\text{TP}} \text{John} [-est C] \lambda d \lambda x [x \text{ climbed } [_{\text{DP}} A d\text{-high mountain}]]]$

(ii) accounts for the Relative-1 reading of the sentence. To be able to claim that (i) is semantically anomalous (like its “positive” counterpart), we might have to add to the meaning of *-est* the presupposition that $D(d)(y)$ is defined for every *d* and every *y* in *C* (Yael Sharvit p.c.). This, however, would conflict with the analysis of plural superlatives in Fitzgibbons, Sharvit and Gajewski (2009). I leave this as an open problem.

distribution of the definite determiner, but also, if we abandon the assumption that movement of *-est* is necessary for relative readings, there is no longer any need to stipulate indefiniteness.

In the next section, I discuss how the Movement Theory fails to account for Facts 1-2 from English and Bulgarian identified in Section 1.2.

2.4 The Movement Theory over-generates

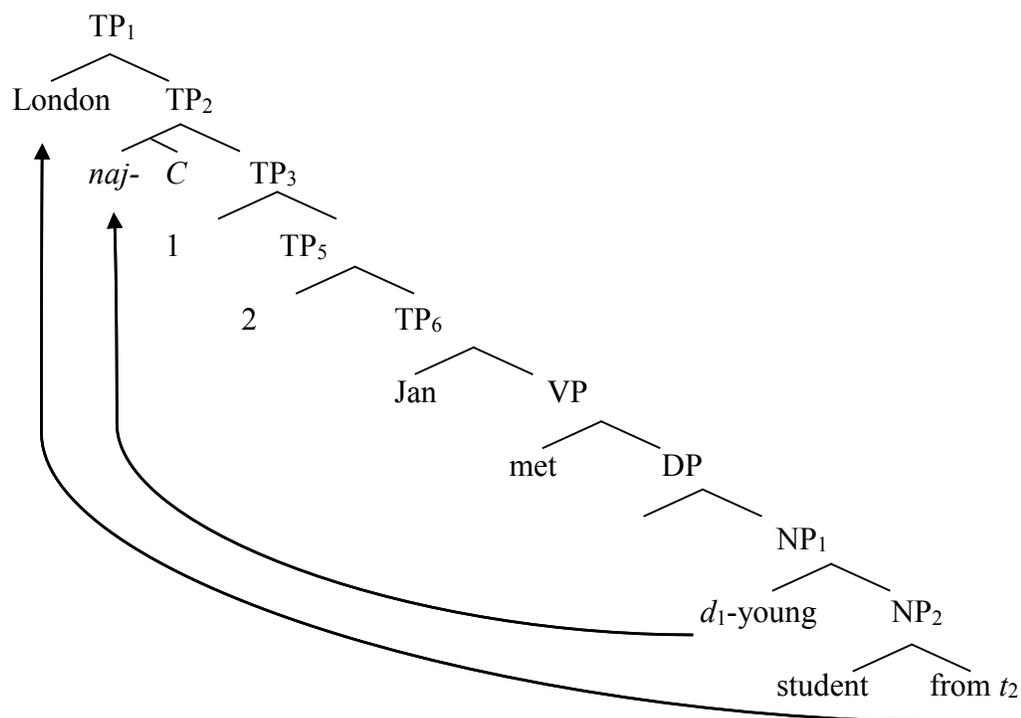
When *-est* is allowed to freely take scope outside the superlative DP, any constituent of the right type may raise and merge as its third argument, whether it is from a DP-external or DP-internal position. In the sentence in (54) (different from (7) in that a singular superlative is used¹⁵) *London*, situated DP-internally, is of type *e*, the right type for *-est*'s third argument in the lexical entry in (47). Therefore, on the Movement Theory nothing prevents the derivation in (55). However, the Relative-2 reading derived in (55) is unavailable for the English sentence in (54).

(54) John met the youngest student from London.

- a. 'John met that student from London that was younger than all the other *Absolute*
(relevant) students from London.'
- b. 'John met a younger student from London than any other (relevant) *Relative-1*
person did.'
- c. *'John met a younger student from London than from any other city.' *Relative-2*

¹⁵ Example (7) in Chapter 1 is taken from Pancheva and Tomaszewicz (2012) who use the plural quality superlative *youngest students* to show that it behaves entirely parallel to the quantity superlative *most students* with respect to Relative-2 readings. However, several issues relating to plural superlatives have been debated in the literature: distributivity (the fact that a superlative expression doesn't distribute over the atomic parts of the plural individual it is predicated of) and maximality (what is the cut off point at which *d*-young students stop counting as the youngest ones?) (Stateva 2005, Matushansky and Ruys 2006, Scontras 2008, Fitzgibbons et al. 2009). Therefore, in the coming sections, whenever I compute the truth conditions and the presuppositions, I use singular examples.

(55) a. LF for (54c):



b. $\llbracket \text{TP}_3 \rrbracket = \lambda d \lambda x [\text{John met a } d\text{-young student from } x]$

c. $C \subseteq \{x: \exists d [\text{John met a } d\text{-young student from } x]\}$

d. $\llbracket \text{TP}_1 \rrbracket = \exists d [\text{John met a } d\text{-young student from London} \wedge \wedge \forall y [y \in C \wedge y \neq \text{London} \rightarrow \neg [\text{John met a } d\text{-young student from } y]]]$

Does the Movement Theory also necessarily over-generate the unattested Relative-2 reading for the English sentence in (56)? The Relative-2 reading (56d) involves comparison established with respect to the noun *cake* that is, the comparison set contains all the relevant predicates that hold of entities that John bought for Mary (including the cake). (In section 1.2.1, we saw (17), the Bulgarian counterpart of (56), which also did not allow Relative-2 as opposed to (18), in which the definite determiner was absent and Relative-2 was available).

(56) John bought the most expensive cake for Mary.

Readings:

- a. 'John bought Mary the cake that was more expensive than any other *Absolute* (relevant) cake.'

- b. ‘John bought Mary a more expensive cake than any other (relevant) person did.’ *Relative-1*
- c. ‘John bought Mary a more expensive cake than he bought for any other (relevant) person.’ *Relative-1*
- d. *‘John bought Mary a more expensive cake than any other (relevant) thing he bought her.’ *Relative-2*

Two aspects of the Movement Theory, a semantic and a syntactic one, could potentially be used to exclude Relative-2 for (56) in contrast to (54). Relative-2 readings with the comparison class established with respect to the head noun as in (56) could be excluded by arguing that (i) the lexical entry for *-est* in (47) requires the third argument to be of type *e* while the NP *cake* is of type $\langle e, t \rangle$, and (ii) the syntax prohibits the movement of the NP in the English (56) and in Bulgarian (17)). The syntactic constraint in (ii) seems empirically correct when we consider the contrast between (57), where the *wh*-movement of *London* is grammatical, and (58), where the movement of *cake* is not allowed.

- (57) a. From which city did John meet [_{DP} the youngest [_{NP} student ___]]?
 b. Which city did John meet [_{DP} the youngest [_{NP} student from ___]]?

- (58) *What did John buy [_{DP} the most expensive [_{NP} ___]]?

Furthermore, in Bulgarian overt extraction of the noun phrase is allowed out of indefinite superlative DPs, (59a), but not out of definite superlative DPs, (59b).

- (59) a. Torta₁, Ivan kupi [_{DP} naj-skupa *t*₁].
 cake Ivan bought *est*-expensive
Relative-2 Reading ‘John bought a more expensive cake than anything else he bought.’
- b. *Torta₁, Ivan kupi [_{DP} naj-skupa-**ta** *t*₁].
 cake Ivan bought *est*-expensive-**the**

However, we find cases where an overtly illicit movement is necessary for interpretation and thus may be assumed to be available covertly. Admittedly, we should not be seeing such a distinction

between overt and covert movements in our theory of grammar – syntactically illicit movement should not be available at LF, however, for a number of cases discussed in the coming chapters this assumption is necessary (e.g. in section 3.2.3, I show that when overt subextraction from the superlative DP is impossible in Polish, parallel covert movement is available because the corresponding Relative-2 interpretation is available).

I will now discuss the point in (i) above, that the movement of a predicate denoting constituent is incompatible with the semantics of *-est*, and return to the point in (ii) in section 2.6.1, ‘Morphological definiteness and extraction’ and 2.6.1, ‘Morphological definiteness and QR’. It will turn out that neither (i) nor (ii) are good explanations for the unavailability of the Relative-2 reading.

The semantics for *-est* in (47) requires the third argument to be of type e , but if there is no individual denoting constituent that could move, the entry in (47) can be modified to be cross-categorial, as in (60) (a cross-categorial *-est* is proposed for English in Kotek et al. (2011)).

$$(60) \llbracket -est_{3\text{-place}} \rrbracket = \lambda C_{\langle \delta, t \rangle}. \lambda D_{\langle d, \delta t \rangle}. \lambda x_{\delta}. \exists d [D(d)(x) \wedge \forall y \in C [y \neq x \rightarrow \neg (D(d)(y))]]$$

Presuppositions:

- a. $x_{\delta} \in C_{\langle \delta, t \rangle}$
- b. $\forall y_{\delta} [y_{\delta} \in C_{\langle \delta, t \rangle} \rightarrow \exists d [D(d)(y)]]$

The cross-categorial entry in (60) and the Movement Theory allow for the derivation of the Relative-1 and Relative-2 readings in exactly parallel ways. If we allow the semantics in (60) for the derivation of the Relative-1 reading with DP-external *-est* for the English sentence in (61) (where the constituent that moves, AP *British*, originates externally to the superlative DP, (62)); then we could also use the entry in (60) for the derivation in (63), where the NP *cake* originates inside the superlative DP. The derivation in (63) is thus incorrectly predicted to be available for the English sentence in (56) (and the Bulgarian in (17)).

(61) The youngest students are British.

- a. ‘The students that are younger than other (relevant) students are *Absolute* British.’¹⁶
- b. ‘The students that are British are younger than the (relevant) students *Relative-1* of any other nationality.’

- (62) a. [TP₁ British [TP₂ [-*est* C_{<et,t>}] [TP₃ *d*-young students are *t*_{<e,t>}]]]
- b. [[TP₃] = $\lambda d \lambda f \exists x [x \text{ are } d\text{-young students} \wedge f(x)]$]
- c. $C \subseteq \{f: \exists d \exists x [x \text{ are } d\text{-young students} \wedge f(x)]\}$
- d. [[TP₁] = $\exists d \exists x [x \text{ are } d\text{-young students} \wedge \text{British}(x) \wedge \forall f \in C [f \neq \text{British} \rightarrow \neg [x \text{ are } d\text{-young students} \wedge f(x)]]]$]
- (63) a. [TP₁ cake [TP₂ [-*est* C_{<et,t>}] [TP₃ a student bought [DP a *d*-expensive *t*_{<e,t>}]]]]]
- b. [[TP₃] = $\lambda d \lambda f \exists x [\text{a student bought } x \wedge x \text{ is } d\text{-expensive} \wedge f(x)]$]
- c. $C \subseteq \{f: \exists d \exists x [\text{a student bought } x \wedge x \text{ is } d\text{-expensive} \wedge f(x)]\}$
- d. [[TP₁] = $\exists d \exists x [\text{a student bought } x \wedge x \text{ is } d\text{-expensive} \wedge \text{cake}(x) \wedge \forall f \in C [f \neq \text{cake} \rightarrow \neg [\text{a student bought } x \wedge x \text{ is } d\text{-expensive} \wedge f(x)]]]$]

The Movement Theory, however, also allows the derivation of relative readings with *-est* remaining DP-internally as nothing forces DP-external scope for relative readings, so it could be argued that in such cases as in (63), where the required movement is syntactically illicit the availability of the cross-categorial entry in (60) does not make the Relative-2 readings always available. However, this way we only exclude the Relative-2 readings generated with respect to the NP (as in (56)), but not those with respect to individual denoting complements and adjuncts (as in (54)).

¹⁶ Note how the following sentence is acceptable, because the absolute reading is true, while the relative reading is not: *The youngest students are British because all of the students that we recruited are British.*

2.5 Morphological definiteness and Relative-2

We have seen in section 1.1 that in English and Bulgarian relative readings cannot be established with respect to DP-internal constituents in the presence of the definite determiner in the superlative DP (Facts 1-2 (14), (16)). The Movement Theory does not predict any interaction between the morphological definiteness of the superlative DP and the availability of the Relative-2 readings, because it allows the definite determiner to be interpreted as either definite or indefinite (as needed for the compositional derivation of the Relative-1 reading with *-est* taking scope DP-externally, Section 2.3). If Bulgarian is like English, and the definite determiner in (64a) can be interpreted as indefinite when *-est* is DP-external, nothing on the Movement Theory explains what prevents the derivation in (55) for (64a) or for the English sentence in (54), neither of which can receive the Relative-2 reading.

- (64) a. Ivan se zapozna s naj-mladi-*te* studenti ot London. (Bulgarian)
 Ivan refl met with youngest-*the* students from London
 Readings: *Relative-1* (54b), **Relative-2* (54c), *Absolute* (54a).
- b. Ivan se zapozna s naj-mladi studenti ot London.
 Ivan refl met with youngest students from London
 Readings: *Relative-1* (54b), *Relative-2* (54c), **Absolute* (54a).

The same effect of morphological definiteness can be illustrated for Bulgarian with the QUANTITY SUPERLATIVE, *most*. The quantity superlative, *most*, does not allow the absolute reading (Szabolcsi 1986, Hackl 2000), so in examples with *most* we are considering different relative readings only. For example, the English sentence ‘John bought the most cakes for Mary’ cannot mean that the number of cakes that John bought for Mary is larger than any other relevant number of cakes, and this sentence can only have the Relative-1 reading. (In English *most* can receive the so-called proportional reading when used in the *most of* construction. ‘John bought most of the cakes for Mary’ means that the proportion of the cakes that John bought for Mary is larger than the half of all relevant cakes). In Bulgarian, the quantity superlative *naj-mnogo* like *most* in English gives rise

to relative readings only, and a sentence such as (65) has only one reading, Relative-1. When the definite determiner is absent, both Relative-1 and Relative-2 obtain, (66b-d).¹⁷

- (65) Ivan kupi [DP naj-mnogo-to torti] za Meri. (Bulgarian)
 Ivan bought *est*-many-the cakes forMary
- a. ‘John bought Mary more cakes than any other (relevant) person did.’ *Relative-1*
- b. ‘John bought Mary more cakes than he bought for any other (relevant) person.’ *Relative-1*
- c. *‘John bought Mary more cakes than any other (relevant) thing he bought her.’ *Relative-2*

- (66) Ivan kupi [DP naj-mnogo torti] za Meri.
 Ivan bought *est*-many cakes forMary
 Readings: *Relative-1* (65a), *Relative-1* (65b), *Relative-2* (65c)

That morphological definiteness of the superlative DP interacts with the derivation of relative readings is further shown by the Polish example in (67), Czech (68), Serbian (69), and Swedish in (70)-(74).¹⁸ Polish, Czech and Serbian do not have a definite determiner and DP-internal readings are always available for superlative sentences (as long as the focus on the DP-internal constituent is not precluded, e.g. as in (24) in section 1.2.2). The Polish sentence in (67), and the Serbian sentence in (69) can have all the readings generated on the Movement Theory.

¹⁷Some English speakers allow ‘John saw the most students of linguistics’ to be interpreted as ‘John saw more linguistics students than other students’. Is this genuinely the Relative-2 reading or the quantification is over the events of seeing, as in ‘John mostly saw students of linguistics’? I haven’t found a native speaker who finds the sentence ‘Everyone has the most potatoes (on their plate)’ grammatical, unless *mostly* is used instead of *most*, which suggests that *most* can quantify over events in which case it is equivalent to *mostly*.

¹⁸ For judgments and discussion I would like to thank Hana Strachoňová (Czech), Ivana LaTerza (née Mitrović) (Serbian), Filippa Lindahl and Johanna Prytz (Swedish).

(67) Jan spotkał najmłodszych studentów z Londynu. (Polish)

Jan met youngest students from London.

Readings: *Relative-1* (54b), *Relative-2* (54c), *Absolute* (54a).

(68) Jan potkal nejmladší studenty z Londýna. (Czech)

Jan met youngest students from London.

Readings: *Relative-1* (54b), *Relative-2* (54c), *Absolute* (54a).

(69) Jan je upoznao najmlađe studente iz Londona. (Serbian)

Jan aux met youngest students from London.

Readings: *Relative-1* (54b), *Relative-2* (54c), *Absolute* (54a).

Swedish, like Bulgarian, marks definiteness morphologically, and the markers can be present or absent with superlatives. In the sentence in (70a) the definite determiner is absent and the superlative adjective lacks agreement morphology. The sentence can have the *Relative-2* reading, and though speakers report the need for stress/focus on ‘rum’ to accept it, (70a) contrasts with (70b), which no amount of stress can make felicitous in the given context. (70b) becomes felicitous in the context that requires the absolute reading, (71b) or *Relative-1* (72b). When the definite markers are absent, the superlative can receive the *Relative-2*, (70a), and *Relative-1* (72a) interpretations.

(70) *Efter middagen unnade sig Jan några dyra alkoholdrycker: gin, whiskey och rom.*

After dinner Jan treated himself to expensive alcoholic beverages: gin, whiskey and rum.

a. Han drack dyrast rum. (Swedish)

he drank most-expensive rum

‘He drank the rum that was more expensive than any other relevant drink.’ *Relative-2*

b. Han drack **den** dyraste romen.

he drank the most-expensive.AGR rum.DEF

‘He drank the rum that was more expensive than any other relevant rum.’ *Absolute*

b. #Gloria åt **de** flesta vindruvorna.

Gloria ate the most.AGR grapes.DEF

‘She ate most of the grapes.’

Proportional

(74) *Efter middagen åt Gloria bananer, vindruvor och äpplen.*

After dinner, Gloria ate bananas, grapes and apples.

a. Hon åt flest vindruvor.

She ate most grapes

‘She ate more grapes than any other relevant fruit.’

Relative-2

b. #Hon åt **de** flesta vindruvorna.

She ate the most.AGR grapes.DEF

‘She ate most of the grapes.’

Proportional

The availability of the Relative-2 readings in Bulgarian, Polish and Swedish in the absence of the definite determiner in the superlative DP, and its unavailability when the definite determiner is present in Bulgarian and Swedish is a challenge for the Movement Theory. The theory necessarily treats the determiner as semantically vacuous when relative readings are derived by *-est* scoping DP-externally. If morphological definiteness plays no role, then whether or not in Bulgarian and Swedish the superlative DP is definite should not play any role on the range of available interpretations. But maybe the definiteness marking in Bulgarian and Swedish is different from *the* in English superlatives and does not allow an indefinite interpretation?

Let us consider if, on the basis of the Bulgarian and Swedish data, we could add a refinement to the Movement theory, so that we allow better cross-linguistic predictions: the definite determiner in a superlative DP can be semantically vacuous, unless the grammar of the language allows superlative DPs to be overtly headed by the indefinite determiner. Bulgarian and Swedish are such languages, while English is not.¹⁹ As a consequence, in such languages like Bulgarian

¹⁹ Superlatives with indefinite and quantificational determiners are discussed in Herdan and Sharvit (2006). On their proposal the compatibility with all types of determiners depends on the specification of *C*. The indefinite superlative in (i-b) below has different truth conditions than the definite superlative in (i-a).

and Swedish, DP-external scope would only be possible when the DP is morphologically indefinite. This correctly accounts for the fact that with indefinite DPs both Relative-1 and Relative-2 are possible, but it poses the question about the derivation of the Relative-1 reading when the DP is morphologically definite (Bulgarian (64a), (65), Swedish (72b)).

Heim (1999) points out that relative readings can be derived either by (i) scoping *-est* DP-externally in which case *-est*'s third argument specifies the contents of the comparison class, or (ii) keeping *-est* staying DP-internally and having the context specify the comparison class (this derivation was introduced in section 1.2.4). This means that in the presence of the definite article in Bulgarian and Swedish Relative-1 is necessarily derived by option (ii). The Movement Theory now appears to cover a wider range of empirical facts – Heim (1999) notes that a theory allowing *-est* to take DP-external scope cannot force it to do so (this move had no semantic motivation on Szabolcsi's (1986) account), thus, essentially, there are two ways to obtain relative readings, (i) and (ii). This seems superfluous if only languages like English are considered, those where the definite article is obligatory with superlatives, but considering the effects of morphological definiteness in Bulgarian and Swedish we see that, cross-linguistically, the choice between (i) and (ii) is not arbitrary. This, however, brings us back to Relative-1 in English: we actually do not need to assume anymore that *the* is semantically vacuous and *-est* takes DP-external scope! Relative-1 can be derived by option (ii) just like in Bulgarian and Swedish in the presence of the definite determiner. Assuming that Relative-1 in English is exclusively derived by (ii) gets us for free the unavailability of the Relative-2 reading (recall from section 1.2.4 that when *-est* stays DP-internally Relative-2 readings are never generated). How can we decide between the two analyses of the Relative-1 reading in English?

Indefinite superlatives occur in contexts that imply a division of the individuals *C* into salient groups. Crucially, indefinite superlatives in English also do not allow Relative-2 readings.

- (i) a. This class has the best student. (Herdan and Sharvit 2006)
 ‘This class has a student who is better than all relevant students (in the class or school).’
 b. This class has a best student.
 ‘This class has a student who is better than anyone else in that class.’

If in English *the* in superlatives is semantically vacuous and can be interpreted as indefinite with *-est* taking DP-external scope (option (i)), then we need to establish what prevents the derivation of the Relative-2 reading. Is prohibiting *-est* from taking DP-external scope the only way to block the derivation of the Relative-2 reading or perhaps some other syntactic factors are at play?

If *the* in English is just like in Bulgarian and Swedish, and Relative-1 is derived by option (ii), we must show why the presence of the definite determiner blocks *-est* from taking DP-external scope – just as it was shown for the Relative-1 reading in Section 2.3, we should obtain an uninterpretable LF when *-est* scopes DP-externally, a DP-internal constituent saturates its third argument for the Relative-2 reading, and the determiner is interpreted as definite. I show this in section 2.6.3.

In the coming sections I discuss how we can prevent the over-generation of the DP-internal relative readings in the presence of the definite article. I show that structural considerations other than the movement of *-est* fail to account for the unavailability of the Relative-2 reading in English (sections 2.6.1, 2.6.2), which suggests a special interaction between *the* and *-est*.

2.6 What blocks Relative-2?

The Movement Theory is based on the assumption that *-est* can freely take scope both inside and outside the DP and that any constituent of the right semantic type can raise to saturate the third argument of *-est*. The unavailability of the Relative-2 reading means that the possible LFs for the English sentence in (75) (repeated from (54) in Section 2.4) do not include (76c) (tree (55a), page 46), where *C* necessarily contains cities.

(75) John met the youngest student from London.

- a. ‘John met that student from London that was younger than all the *Absolute* (relevant) students from London.’
- b. ‘John met a young students from London than any other (relevant) *Relative-1* person did.’

- c. *‘John met a younger student from London than from any other *Relative-2* (relevant) city.’

(76)

- a. John met [_{DP} the [-*est* C] λd [*d*-young student from London]] *Absolute* (75a)
 $C \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from London}]\}$
- b. John [-*est* C] $\lambda d \lambda x$ [*x* met [_{DP} a *d*-young student from London]] *Relative-1* (75b)
 $C \subseteq \{x: \exists d [x \text{ met a } d\text{-young student from London}]\}$
- c. London [-*est* C] $\lambda d \lambda x$ [John met [_{DP} a *d*-young student from *x*]] *Relative-2* (75c)
 $C \subseteq \{x: \exists d [\text{John met a } d\text{-young student from } x]\}$

The derivation of the Relative-2 reading in (76c) involves two operations: QR of the DP-internal constituent *London* followed by QR of *-est* (see section 2.1.2 for details). If either one of the two operations is blocked, Relative-2 will fail to be derived. Thus, the unavailability of the derivation in (76c) in English (and also in Bulgarian in the presence of the definite determiner, cf. (15b) in Section 1.2.1) could be the result of either (i) restrictions on the movement of the individual argument of *-est*, (i.e. *London* in (76c)), or (ii) restrictions on the movement of *-est* to take DP-external scope. These two options are summarized in (77).

(77) What makes the derivation of the Relative-2 reading impossible in a language?²⁰

Hypothesis (i): Restrictions on the movement of *-est*'s third argument out of the DP.

Hypothesis (ii): Restrictions on the movement of *-est* out of the superlative DP.

How is each of the hypotheses in (77) compatible with the key data we have seen so far, Fact 2 in (16), repeated below (78), and what are their corollaries?

²⁰ Additionally, in some languages both *-est* may be blocked and movement out of definite DPs could be impossible.

(78)(=
(16)))

FACT 2: Cross-linguistically, relative readings cannot be established with respect to DP-internal constituents (that is, Relative-2 is not available) in the presence of the **definite determiner** in the superlative DP.

I present the arguments against hypothesis (i) in sections 2.6.1 and 2.6.2, showing that morphological definiteness cannot be blocking the movement of *-est*'s third argument. Overt A'-movement is possible, and the possibility of covert movement cannot be excluded either by arguments based on other cases where QR out of DPs is blocked (obligatory QR in inverse linking) or by the economy constraints on optional QR. These results are inconsistent with hypothesis (ii) according to which some general syntactic constraints should regulate the availability of the movement of *-est*'s third argument.

Then in section 2.6.3 I show an argument in favor of hypothesis (ii): semantic definiteness prevents the derivation of the Relative-2 reading with DP-external scope of *-est*, just like in the case of the Relative-1 reading discussed in section 2.3. On hypothesis (i) the determiner is semantically vacuous whenever *-est* takes DP-external scope, but on hypothesis (ii) *the* can be treated as semantically definite and imposing restrictions on the movement of *-est*. Furthermore, in section 2.6.4 I point out that keeping *-est* DP-internally in the presence of *the*, Relative-2 cannot be derived via short QR of *-est*'s third argument, which further supports the view that the blocking effect of *the* on Relative-2 should be attributed to the blocking of *-est* (hypothesis (ii)). My account is consistent with hypothesis (ii): what blocks the Relative-2 reading on my account is the impossibility of scoping *-est* outside a semantically definite DP.

that definite superlative DPs are not islands for the movement of constituents that can saturate *-est*'s third argument.

2.6.1 Morphological definiteness and extraction of the third argument of *-est*

When *-est* takes DP-external scope for the derivation of relative readings, as in (76), a constituent of the right semantic type must raise to saturate its third argument. For the Relative-1 reading this constituent originates in a position external to the superlative DP, (76b); for the Relative-2 reading

this constituent is DP-internal, (76c). According to the hypothesis (i), (77), the derivation of the Relative-2 reading is blocked in a language if the movement of a constituent from within the superlative DP is not allowed (though *-est* itself is able to take DP-external scope). Why wouldn't this movement be allowed?

Definite DPs, in comparison to indefinite DPs, tend to resist extraction, (79a) vs. (79b-c). It is, however, not the case that movement out of all definite DPs is disallowed – DPs with possessors and quantifiers categorically prohibit extraction, but DPs headed by *the* do not, (79b) vs. (79c). The contrast in (80) shows that while DPs in the subject positions are islands for extraction, (80b), the movement out of an object DP headed by *the* in (80a) is judged grammatical (Chomsky 2008).

(79) a. Which man did you discover **a** poem about _?

b. ^{??}Which man did you discover **the** poem about _?

c. *Which man did you discover **Mary's** poem about _?

((6) in Szabolcsi and den Dikken 1999/2002: 215)

(80) a. Of which car did they find **the** (driver, picture) _? ((5) in Chomsky 2008: 147)

b. *Of which car did **the** (driver, picture) _ cause a scandal? ((6) in Chomsky 2008: 147)

The acceptability of sub-extraction in the presence of *the* has been shown to be dependent on factors such as argument structure (Davies and Dubinsky 2003), and specificity/referentiality (Fiengo and Higginbotham 1981, Manzini 1992, 1998). For example, complex event process nominals and result nominals that are complements of verbs of creation freely allow sub-extraction, (81)-(82).

(81) What did they observe/hear about/remember/decry **the** production of _?

(15a) in Davies and Dubinsky 2003: 15)

(82) Who did you paint/^{??}see **that** portrait of _? ((54a) in Davies and Dubinsky 2003: 23)

The data from Szabolcsi (1986) that I presented in Section 2.3 in (52), repeated in (83) below, already indicated that superlative DPs are not islands for *wh*-movement.

- (83)(=(52)) a. Who did you take **a** picture of _?
 b. *Who did you take **the/every** picture of _?
 c. Who did you take **the best** picture of _? ((1) in Szabolcsi 1986: 245)

Furthermore, as we pointed out in Pancheva and Tomaszewicz (2012), definite superlative DPs also allow A'-movement in *it*-clefts (I discuss covert movement out of definites in the next section). In (84) and (86) *wh*-movement of 'which city' is possible in both English and Bulgarian. A'-movement for the English cleft construction is possible, (85), and for focus fronting in Bulgarian, (87).

- (84) a. From which city did John meet [DP the youngest [NP students __]]?
 b. Which city did John meet [DP the youngest [NP students from __]]?

- (85) a. It was London that John met [DP the youngest [NP students from __]].
 b. It was from London that John met [DP the youngest [NP students __]].

- (86) Ot koj grad se zapozna Ivan s [DP naj-mladi-**te** [NP studenti __]]? (Bulgarian)
 from whichcity refl met Ivan with youngest-the students
 'From which city did Ivan meet the youngest students?'

- (87) Ot London se zapozna Ivan s [DP naj-mladi-**te** [NP studenti __]].
 from London refl met Ivan with youngest-the students
 'It is London that John met the youngest students from.'

Comparison between (84) and the ungrammatical *'From which city did John meet the young students?' suggests that it is the presence of the superlative that allows extraction. Coppock and Beaver (2014: 183) observe that "extraction out of inherently unique definites is typically felicitous" considering examples such as those in (88). (88b) indicates that in (83c) above it is the semantics of the superlative DP that allows for extraction, rather than the putative absence of the definite determiner at LF.

- (88) a. Who did you take the first/second/next picture of?
 b. Which country is she the Queen of?

Coppock and Beaver conclude that “since superlative descriptions can reasonably be analyzed as inherently unique, the fact that there is no general ban on extraction from inherently unique definites implies that the extraction data does not bear on the question of whether superlatives are semantically definite” (2014: 183). (As noted in in section 2.3, Szabolcsi (1986) considered the extraction facts in (83)/(52) to be evidence for the semantic indefiniteness of the superlative DP on relative readings.)

What is interesting is that, as I observe in Tomaszewicz (to appear), the overt movement of a focused DP-internal constituent in *it*-clefts in English facilitates the Relative-2 reading for some native speakers. The cleft construction in (89i–ii) involves A’-movement of the focused constituent (pied-piping as in (89ii) is preferred by some speakers). *London* in (89i) is exactly the constituent that needs to be moved in (76c) for the derivation of the Relative-2 reading followed by the QR of *-est*. Native speakers who accept (89i–ii) as (borderline) grammatical all allow the absolute reading (89a). Some of them allow both the absolute reading and the relative reading established with respect to the focus, that is, Relative-2, (89b).

- (89) (i) It was London that John met [_{DP} the youngest [_{NP} students from ___]].
 (ii) It was from London that John met [_{DP} the youngest [_{NP} students ___]].
 a. ‘John met those students from London that were the youngest among the *Absolute* students from London.’
 b. ‘John met younger students from London than from any other city.’ *Relative-2*

Consider again how the two readings available for (89) differ. On the absolute reading, (89a), the comparison is between all the students from London relevant in the context. If, as in Scenario I in (90), this set includes four students from London, for (89) to be true on the absolute reading John has to meet Liam and Alfie.

- (90) *Scenario I*

John met:

Alfie, 18, student from London;
 Liam, 19, student from London;
 Archie, 20, student from London;
 Percy, 21, student from London.

On the Relative-2 reading, (89b), the comparison involves not just students but also cities other than London. In Scenario II in (91), the set of relevant students includes the same students from London as before, as well as students from Berlin and Paris. In this context the cleft sentence in (89i–ii) is true on the Relative-2 reading because John met Percy and Archie, even though he did not meet Alfie nor Liam.

(91) *Scenario II*

John did not meet:

Alfie, 18, student from London;
 Liam, 19, student from London;

John met:

Archie, 20, student from London;
 Percy, 21, student from London.
 Klaus, 22, student from Berlin;
 Helmut, 24, student from Berlin;
 Fabrice, 24, student from Paris;
 Pierre, 25, student from Paris.

Crucially, the same speakers who judge the *it*-cleft sentences in (89i–ii) as true in Scenario II, (91), do not judge the sentence “John met the youngest students from London” (i.e. (75) above) as true in the same scenario. This shows that in English the *it*-cleft can have the Relative-2 reading (for some speakers). I will now discuss that the availability of the Relative-2 reading with *it*-clefts is consistent with hypothesis (ii), but not hypothesis (i).

Since the overt movement of the focus *London* is possible, could it be the case that what blocks the Relative-2 reading for (75) is the impossibility of moving *London* covertly as on hypothesis (i)

in (77)? Why would such covert movement be blocked? Perhaps because there is no covert focus movement in English. But then in Bulgarian the availability of overt focus fronting, (87), is not sufficient to derive the Relative-2 reading. This indicates that the (marginal) availability of the Relative-2 reading with clefts in English is not solely due to the fact that the focus *London* moves creating a possible landing site for *-est*. The English and Bulgarian extraction facts argue against hypothesis (i).

Let us consider, however, if, on hypothesis (i), the restriction on the covert movement of the DP-internal focus could be attributed to the constraints on the processing of covert operations. To obtain the Relative-2 reading for (75) the covert movement of two elements is required, of *London* and of *-est* (cf. (76c)). Though the movement of *-est* is free on hypothesis (i), it needs to be preceded by the movement of *London*. In the *it*-cleft, (89), this movement happens overtly, directly indicating a possible landing site for *-est* (again, the same is not possible in Bulgarian, where overt focus fronting, (87), does not yield the Relative-2 reading). Yet, the movement of *-est* itself cannot be as free as hypothesis (i) would predict, because the Relative-2 reading with *it*-clefts is not easily accessible to all speakers. Although hypothesis (i) assumes that this movement is unproblematic, it involves the replacement of the definite determiner by the indefinite determiner at LF (otherwise relative readings cannot be derived, as discussed in section 2.3). This additional operation of the replacement of *the* by *a* at LF should presumably also incur some processing cost²¹. Thus, for the derivation of relative readings with *it*-clefts, there would be two LF operations: the QR of *-est*, the replacement of *the* by *a*. There are also two LF operations in the derivation of relative readings with indefinite superlative DPs in basic word order sentences (in Polish and Bulgarian): the QR of a DP-external/internal constituent, the QR of *-est*. Arguably, two LF operations are less costly to

²¹ Which of the following (a) and (b) options would be more taxing for the processor? (a) The violation needs to be computed first in order for the processor to decide whether to replace *the* by *a*. (b) The determiner can somehow be left unspecified till after the scope relations are computed. Such questions need to be asked by the proponents of the view that *-est* can take DP-external scope in the presence of a morphologically definite determiner. I believe that the grammar excludes the need for such complex operations by preventing semantically anomalous operations – I claim in section 2.6.3 that the QR of *-est* in the presence of the definite determiner results in a semantic island violation and is thus excluded by the grammar.

process than three. The derivation of relative readings with definite superlative DPs (in English and Bulgarian) requires three covert operations: the QR of a DP-external/internal constituent, the QR of *-est*, the replacement of *the* by *a*. However, the three covert operations are required for both Relative-1 and Relative-2 readings, so we still have no explanation for the lack of asymmetry in the availability of overt movement of DP-internal and DP-external constituents with definite superlative DPs. There is no such asymmetry with covert movement out indefinite superlative DPs either, that is, the sentences with indefinite superlatives and basic word order can equally easily receive the Relative-1 and Relative-2 readings (which indicates that the two covert operations, the QR of a DP-external/internal constituent, the QR of *-est*, are available). Could it be that when there are three LF operations, with definite superlatives, such an asymmetry is somehow manifested? I do not see what could account for this and maintain the analysis on hypothesis (i).

In fact, in the next section I show that outside of superlatives both morphologically definite and indefinite DPs impose a restriction on the QR of their subconstituents. It is then rather puzzling why with indefinite superlatives such movement is readily available for the Relative-2 reading. I also show that in the absence of the definite determiner, scope economy constraints (Fox 2000, Reinhard 2006) allow the derivation of the Relative-2 reading by performing the two covert operations, the QR of *-est*'s third argument and the QR of *-est*, but they exclude the derivation of the Relative-1 reading by using the same operations. The reason for this is that the QR of *-est*'s third argument from a DP-external position is semantically vacuous and thus violates the scope economy constraint on optional QR. This result further excludes the processing-based explanation for the unavailability of the Relative-2 readings with definite superlative DPs in English sentences with basic word order, as opposed to *it*-clefts. If, according to the scope economy principles, the QR of *-est*'s third argument is licit from a DP-internal position, but illicit from a DP-external position, it cannot be that that the former is more costly in processing than the latter. I now conclude that the restrictions that hypothesis (i) postulates on the movement of *-est*'s third argument from inside the superlative DP cannot be explained in terms of processing. In fact, the assumption that the movement of *-est* outside the DP is freely available can be challenged on processing grounds since this movement requires an additional LF operation, the replacement of the definite determiner *the* by the indefinite *a*.

On hypothesis (ii) the movement of *-est* is not available if the superlative DP is definite. This avoids the need for the LF operation of replacement of *the* by *a*. Isn't, however, the finding that

the Relative-2 reading obtains in English *it*-clefts in the presence of overt A'-movement a problem for hypothesis (ii)? It is not, if it can be shown that Relative-2 in those cases obtains via the same mechanism that derives Relative-1 while keeping *-est* DP-internally. On hypothesis (ii), the overtly moved constituent does not saturate *-est*'s third argument, because *-est* remains DP-internally (its third argument is bound by the definite determiner), but its semantics can still constrain the comparison class so that Relative-2 obtains. In section 4.5.3, 'Relative-2 in *it*-clefts and *wh*-questions', I propose a derivation of the Relative-2 reading where *-est* is DP-internal but a suitable comparison class is established on the basis of the existential presupposition of the cleft-construction, and the fact that the movement of the pivot leaves a gap.

2.6.2 Morphological definiteness and QR of the third argument of *-est*

It can be shown that covert movement of quantified noun phrase in superlative DPs in English is necessary. The sentence in (92) can have the reading where *every city* takes wide scope, (92b) (Pancheva and Tomaszewicz 2012).

- (92) Some boy met [_{DP1} the youngest students from [_{DP2} every city]].
- a. $\exists > \forall$ 'There is a boy who met the youngest students from every city.'
- b. $\forall > \exists$ 'For every city there is a boy who met its youngest students.'

It is unclear, however, whether for the inverse scope reading (92b) DP2 *every city* QRs out of DP1 to the sentential level, or rather the whole DP1 moves to scope over *some boy*. To decide between the two options we need examples with three quantifiers over individuals. In fact, (93) shows that interweaving scope, (93c), is not allowed, which has been taken to indicate that DPs are scope islands for quantifiers (May 1985, Larson 1987, Heim and Kratzer 1998, Barker 2001, Buring 2004, Charlow 2010.)

- (93) Two boys met [_{DP1} students from [_{DP2} every city]].

- a. $2 > \forall > \exists$ Two boys are such that for each city they met the students from that city.
- b. $\forall > \exists > 2$ Each city is such that there are students from that city who were met by two boys.
- c. $*\forall > 2 > \exists$ *Each city is such that there are two boys who met students from that city (i.e. for each boy the students can be different).

At the same time, (93) does require QR of DP2 to the edge of DP1 (the interpretation requires “inverse linking”, i.e. the quantifier needs to take scope outside of the PP complement of a DP), (94).

(94) a. LF for (93a):

Two boys met $[_{DP1} [_{DP2} \text{every city}]_i \text{students from } t_i]$.

b. LF for (93b):

$[_{DP1} [_{DP2} \text{every city}]_i \text{students from } t_i]_j$ two boys met t_j .

What is not possible is the movement of DP2 to the edge of the clause. Indeed, the latter is required for the derivation of the Relative-2 reading.

However, we need to ask if the constraints barring the QR of DP2 to the clausal level in (93) are the same ones that prevent the QR of *London* in (75) for the Relative-2 reading in English. The following data from Polish shows that this may not be the case. As mentioned in section 2.5, Polish alongside other article-less Slavic languages freely allows Relative-2 for superlative sentences, and whenever Relative-2 is derived, *-est* must be taking DP-external scope and its third argument must be at the edge of the clause. However, in examples parallel to (93) above, (95), interweaving scope of quantifiers is also not possible. The Subject-Verb-Object order in (95a) has the same readings as (93), while the scrambled orders in (95b-c) admit only the wide scope reading (in (95c) *every* is contrastively focused).²²

²² It is not possible to scramble to get a $\forall > 2 > \exists$ surface scope; in (i) below the PP can only be interpreted as modifying *two girls*.

- (i) Z każdego miasta dwie dziewczyny przywitały studentów.
 from each city two girls met students

(95) a. Dwie dziewczyny przywitały studentów z każdego miasta.

two girls met students from each city

‘Two girls met students from every city.’

$2 > \forall > \exists$

$\forall > \exists > 2$

* $\forall > 2 > \exists$

b. Studentów z każdego miasta przywitały dwie dziewczyny.

students from each city met two girls

‘Two girls met students from every city.’

$\forall > \exists > 2$

* $\forall > 2 > \exists$

c. [?]Z każdego miasta studentów przywitały dwie dziewczyny.

from each city students met two girls

‘Two girls met students from every city.’

$\forall > \exists > 2$

* $\forall > 2 > \exists$

We have empirical arguments that DPs are islands for the covert movement of quantifiers, but the fact that the same restriction is observed in English and in Polish calls into question the relevance of the QR of DPs headed by *every/some* in inverse linking constructions to the QR of the third argument of *-est*. According to hypothesis (ii) whatever constrains the covert movement of *every city* in (93)-(95) could also be responsible for constraining the movement of *London* for the Relative-2 reading. Since there is no correlation between the two cases in Polish, the two covert operations cannot be parallel.

Consider also the fact that *wh*-quantification into inverse linked DPs is impossible, (96) (whether they are in subject or object position (Larson 1987)), but *wh*-movement out of superlative DPs, as we have seen in (84) and (86), is fine.

‘Two girls from every city met students’.

- (96) a. *[Which freeway in a large California city] did two engineers
 repair [DP1 some exits from [DP2 _]]? ((16b) in Larson 1987)
 b. *[Which city] did two boys met [DP1 students from [DP2 _]]?

Notably, the reasons for the QR of *every city* for the inverse scope reading in (92)-(95) and the QR of *London* in (76c) for the derivation of the Relative-2 reading are different. Though both movements derive a new reading, it is only in the inverse linking construction that the movement is required by the grammar to resolve a type-mismatch: DP2 is quantificational (i.e. it is of type $\langle\langle e, t \rangle t \rangle$) so it cannot be directly combined with the noun (type $\langle e, t \rangle$). Since DP2 on its own cannot QR to the top sentential node (as has been claimed on the basis of data as in (93)), it QRs to the edge of DP1 that contains it, by which DP1 remains a constituent at LF and denotes a generalized quantifier (with its type adjusted to $\langle\langle e \langle et, t \rangle \langle et, t \rangle \rangle$).

The movement of *London* in (76c) is not obligatory in this way, its sole purpose is the derivation of the Relative-2 reading. It is an instance of OPTIONAL QR – a QR operation that applies only when it is necessary to derive an interpretation that a sentence would otherwise not have (e.g. the inverse scope readings in (92b) and (93b)). It has been argued that QR operations that do not result in a truth-conditional difference are excluded by principles of economy (Fox’s (2000) Scope Economy, Reinhart’s (2006) Interface Economy). When *-est* takes DP-external scope for Relative-1 and Relative-2 readings, it is required that a constituent of the right type to saturate its argument has QRed to the edge of the clause, (97a), (98a). In the case of Relative-1, this first intermediate step on its own does not result in a new interpretation, the QR of *John* has no semantic effect – (97a) receives the absolute reading since the comparison class is as in (97b). In (98a), however, the trace is interpreted as a variable that is free within the DP. The denotation of the NP is assignment dependent, (98b). The comparison class contains students of a certain age from a place whose choice depends on the assignment *g*, (98c).

(97) *Derivation of Relative-1*

- a. 1st Step:

John₁ [TP *t*₁ met [DP (the) [-*est* C]₂ [NP *d*₂-young student from London]]]]

- b. $C \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from London}]\}$

c. 2nd Step:

John₁ [-*est* C]₂ [_{TP} *t*₁ met [_{DP} (the) *d*₂ [_{NP} *d*₂-young student from London]]]]

d. $C \subseteq \{x: \exists d [x \text{ met a } d\text{-young student from London}]\}$

(98) *Derivation of Relative-2*

a. 1st Step:

London₁ [John met [_{DP} (the) [-*est* C]₂ [_{NP} *d*₂-young student from *t*₁]]]]

b. $\llbracket [2 [t_2\text{-young student from } t_1]] \rrbracket^g = \lambda d \lambda x [x \text{ are } d\text{-young student from } g(1)]$

c. $C \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from } g(1)]\}$

d. 2nd Step:

e. London₁ [-*est* C]₂ [John met [_{DP} (the) *d*₂ [_{NP} *d*₂-young students from *t*₁]]]]

f. $C \subseteq \{x: \exists d [Jan \text{ met a } d\text{-young student from } x]\}$

The first step of the derivation of the Relative-2 reading does not result in a semantically vacuous representation. The derivation of the Relative-1 reading, on the other hand, is excluded by economy principles since the QR of a DP-external constituent has no effect on semantics until *-est* has QRed as well. This result is just the opposite of what hypothesis (i), (77), is aiming for: ruling out the QR of a DP-internal constituent for the derivation of Relative-2, while simultaneously allowing the QR of a DP-external constituent for Relative-1.

The discussion of the last two subsections showed that definite superlative DPs are not islands for the movement of constituents that can saturate *-est*'s third argument. In section 2.6.1, I discussed the possibilities of extraction from the DP-internal position in the superlative DP, and I showed that the definite determiner does not preclude overt subextraction when the DP has an inherently unique denotation, which is necessarily the case with superlatives. Yet, the availability of this movement does not readily allow for the Relative-2 reading with the definite determiner in Bulgarian and English. In both of these languages overt movement of a DP-internal constituent is possible in the presence of the definite determiner, but only in English does this movement allow the Relative-2 reading for some speakers. If overt movement facilitates the Relative-2 reading in English, hypothesis (i) would have to be revised to refer specifically to covert movement. However, such a revision would not suffice, since as I showed in section 2.6.2, that although definite DPs appear to be scope islands, the arguments do not carry over to superlative DPs. DPs

are scope islands in both English and Polish, therefore hypothesis (i) cannot explain why there is a restriction on the covert movement of *London* in (76c) in English, but not in Polish. Later on, in section 3.2.3, I will additionally show that Polish presents a reverse case to English – in some configurations overt movement out of a superlative DP is impossible, but covert movement for the Relative-2 reading is available. Thus, the availability of overt or covert movement of *-est*'s third argument does not correlate with the availability of the Relative-2 reading in a language. The availability of the movement of *London* cannot be the only factor determining the availability of Relative-2.

In contrast to hypothesis (i) in (77), hypothesis (ii) postulates that the parameter subject to cross-linguistic variation is the other crucial ingredient of the derivation of the Relative-2 reading: the QR of *-est*. On hypothesis (i) it is simply assumed that the Movement Theory is right in allowing *-est* to scope DP-externally for the Relative-1 reading. But to accept the Movement Theory for a given language, as Heim (1999) points out, we should be able to show that *-est* is able to take DP-external scope in this language.

While hypothesis (i) is fully compatible with the Movement Theory, hypothesis (ii) gives up on its core assumption that *-est* is always free to scope outside the superlative DP on relative readings. Additionally, hypothesis (ii) allows for a natural augmentation of the Movement Theory: QR is supposed to be blocked from islands. The proposal that the derivation of the Relative-2 reading is blocked by the inability of *-est* to scope outside the DP, entails that *-est* is also unable to take DP-external scope for the derivation of the Relative-1 reading, as in (76b). What follows is that hypothesis (ii) requires a mechanism for the derivation of relative readings such that *-est* remains DP-internally in the presence of *the* and only Relative-1, but not Relative-2, can be obtained. Recall that the DP-internal Theory of relative readings introduced in Section 2.2 (Farkas and Kiss 2000, Sharvit and Stateva 2002) has precisely this effect – it prevents the generation of the Relative-2 reading by keeping *-est* DP-internally, but allows the derivation of the Relative-1 reading through additional pragmatic constraints on the comparison class. The DP-internal theory makes the right predictions for languages like English, but it fails to account for the cross-linguistic variation in the availability of the Relative-2 reading.

As we proposed in Pancheva and Tomaszewicz (2012), the DP-internal Theory and the Movement Theory can be combined if we adopt hypothesis (ii) and propose that what restricts the movement of *-est* in (76b-c) is the presence of the definite determiner (as evidenced by Fact 2,

(16)/(78)). In contrast to hypothesis (i), which requires the determiner to be semantically vacuous on relative readings, hypothesis (ii) allows us to investigate the role of semantic definiteness. I propose that linking the two issues: (i) the unavailability of the Relative-2 reading in the presence of the definite determiner (Pancheva and Tomaszewicz 2012, Tomaszewicz 2013), and (ii) the source of cross-linguistics restrictions on the Relative-2 reading, (77), should inform us about the status of *the* in superlative DPs (Szabolcsi 1986; Heim 1999; Gutiérrez-Rexach 2010; Krasikova 2012; Szabolcsi 2012) – should the theory allow *the* in superlatives to be semantically vacuous or should it be treated as semantically definite? In section 2.3, I showed that when the determiner is semantically definite, the derivation of the Relative-1 reading with *-est* taking DP-external scope is impossible. Now in section 2.6.3 I show the same for the Relative-2 reading. We thus see that when *-est* is DP-external, the interpretation of *the* as definite leads to a semantic anomaly – on both Relative-1 and Relative-2 readings, the resulting truth conditions and the presuppositions of *-est* clash. This result provides us with the evidence that the scope of *-est* is constrained by the semantic definiteness of the DP.

2.6.3 Semantic definiteness

The assumption that *-est* can take DP-internal and DP-external scope, requires that the definite article in the superlative DP is semantically vacuous. As discussed in section 2.1.1 on the absolute reading, *-est* stays DP-internally and *the* plays its usual role quantifying over individuals contributing uniqueness. The DP in (99b) denotes the unique student from London who is younger than all other students from London in *C*, (99d).

(99) a. John met the youngest student from London.

Absolute reading: ‘John met this student from London who is younger than all other (relevant) students from London.’

b. John met [_{DP} the [-*est* C] λd [*d*-young student from London]]

c. $C \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from London}]\}$

d. $\llbracket \text{DP} \rrbracket = \lambda x \exists d [x \text{ is a } d\text{-young student from London} \wedge \forall y [y \in C \wedge y \neq x \rightarrow \neg [y \text{ is a } d\text{-young student from London}]]]$

As shown in section 2.3, when *-est* takes DP-external scope for the Relative-1 reading *the* cannot be interpreted as contributing uniqueness. I will now show that the same holds for the Relative-2 reading – DP-external scope of *-est* is incompatible with semantic definiteness of the DP.

Consider the derivation of the Relative-2 reading in (100) where the definite determiner is present at LF. Here *C* is required to contain cities from which John met the unique student of some age, (100c). For each city there can only be one student of that age, because due to monotonicity if John also meets a student younger than that age, uniqueness no longer holds.

(100) a. John met the youngest student from London.

Relative-2 reading: ‘John met a younger student from London than from any other city.’

Attempt at Relative-2 with *the*:

b. London [-*est* *C*] $\lambda d \lambda x$ [John met [_{DP} **the** *d*-young student from *x*]]

c. $C \subseteq \{x: \exists d$ [John met the unique *d*-young student from *x*]]

d. $\llbracket(100b)\rrbracket = \exists d$ [John met the unique *d*-young student from London $\wedge \forall y$ [$y \in C$
 $\wedge y \neq \text{London} \rightarrow \neg$ [John met the unique *d*-young student from *x*]]]

The scenario in (101), which we saw in section 2.6.1, (91), illustrates a situation where the Relative-2 reading is true. However, in this situation the presupposition of *-est* in (100c) is not satisfied, because John meets two students from London. Assuming monotonicity, Archie is not the unique 20 year old student, because Percy is a 20 year old student too (being 21 entails being 20 years old).²³ This shows that in the presence of the definite determiner the specification of the presupposition on the Relative-2 reading is wrong.

(101) John did not meet:

Alfie, 18, student from London;

²³ If monotonicity is dropped, to satisfy the presupposition in (100c) John cannot meet two students of the exact same age from the same city. For example, in (101) both Fabrice and Pierre are 24 years old (if they are twins then their age is more or less identical) and John met them both, so in this scenario the presupposition in (100c) is not satisfied.

Liam, 20, student from London;

John met:

Archie, 20, student from London;

Percy, 21, student from London.

Klaus, 22, student from Berlin;

Helmut, 24, student from Berlin;

Fabrice, 24, student from Paris;

Pierre, 24, student from Paris.

The truth-conditions in (100d) also do not come out right: “there is a degree d such that John met the unique student from London who is d -young and it is not the case that John met the unique d -young students from the other cities in C ”. Even if the presupposition is satisfied, as in the scenario in (102), the sentence can never be true if monotonicity is assumed. In (102) the youngest student, Archie, is 20 years old, but because of monotonicity Klaus and Fabrice are not only the unique 22 and 24 year olds, but also the unique 20 year olds from their cities. In this case, 20 years old is the degree such that John met the unique student from London of that age, and such that John also met the unique students of from Berlin and Paris of that age.²⁴

(102) John met:

Archie, 20, student from London;

²⁴ If this illustration seems counterintuitive consider the truth conditions for the (DP-external) relative reading of the sentence *Archie is the youngest student* derived with DP-external *-est* in the presence of *the*, (i). Assuming monotonicity, in the scenario in (102), the presupposition in (i-b) is not satisfied, and the sentence is false, because Archie is not the unique 20 year old student. Due to monotonicity, all of the students are 20 years old. (As discussed in section 2.3 DP-external relative readings cannot be derived with DP-external *-est* when *the* is present at LF.)

- (i) a. Archie [-*est* C] $\lambda d \lambda x$ [is_{DP} **the** d -young student]]
 b. $C \subseteq \{x: \exists d [x \text{ is the unique } d\text{-young student}]\}$
 c. $[[\text{(i-a)}]] = \exists d [\text{Archie is the unique } d\text{-young student} \wedge \forall y [y \in C$
 $\wedge y \neq \text{Archie} \rightarrow \neg [y \text{ is the unique } d\text{-young student}]]]$

Klaus, 22, student from Berlin;
 Fabrice, 24, student from Paris;

Thus, in the presence of the definite determiner at LF, as in the derivation in (100), neither the presupposition about the contents of the comparison set, nor the truth conditions are correct.

Let's now illustrate how in the absence of the definite determiner, Relative-2 is derived correctly, (103). The comparison class contains cities from which John met students of a certain age, (103b), and this presupposition is satisfied in the situation in (101), because John can meet more than one student of some age from each city. The truth conditions in (103c) come out right: for each city other than London John has to meet students who are older than *d*.

(103) Relative-2 without *the*:

- a. London [-*est* C] $\lambda d \lambda x$ [John met [_{DP} *d*-young student from *x*]]
- b. $C \subseteq \{x: \exists d$ [John met a *d*-young student from *x*]
- c. $\llbracket(103a)\rrbracket = \exists d$ [John met a *d*-young student from London $\wedge \forall y$ [$y \in C \wedge y \neq$ London $\rightarrow \neg$ [John met a *d*-young student from *x*]]]

The presence of the definite determiner at LF prevents the derivation of relative readings through DP-external scope of *-est*. This result is compatible with hypothesis (ii) in (77): in the presence of the definite determiner unavailable interpretations are generated, so a definite DP can be seen as a semantic island for *-est*. By rejecting the assumption of the Movement Theory that the definite determiner can be semantically vacuous, we obtain support for hypothesis (ii) that it is the constraints on the movement of *-est* itself that are responsible for the cross-linguistic variation in the availability of the Relative-2 reading. The origin of these constraints is semantic: definite superlative DPs do not allow DP-external scope for *-est* because of the semantics of the definite determiner.

I will note at this point that Coppock and Beaver (2014) also conclude that because of the uniqueness presupposition of the definite determiner, when *the* is present at LF with *-est* scoping DP-externally, the relative readings cannot be derived. However, as I noted in footnote 3, they do not consider the effect of uniqueness introduced by *the* on the presupposition of *-est* about the content of *C*. They discuss Relative-1 readings and conclude that due to the uniqueness

presupposition the truth-conditions come out wrong if the lexical entry for *-est* comparing maximal degrees is used (as in (ii) in footnote 12), but with our lexical entry in (47), on which a threshold matters for the elements in C , “an analysis presupposing uniqueness does not seem to be unsalvageable” (p. 189). Ultimately, they propose that Relative-1 readings are derived with *-est* staying DP-internally, and with a definite determiner that has “weaker” semantics than standardly assumed, so that in effect the superlative DP does not denote a unique individual (type e), but instead it denotes an existential quantifier (type $\langle\langle e, t \rangle, t \rangle$) that presupposes uniqueness but not existence. They introduce a new 4-place lexical entry for *-est* on which its second argument is an association relation (reflecting the idea in Farkas and Kiss (2000), presented here in section 3.1.5, that the individual argument of *-est* is associated with a contextually salient function), (104). The ∂ -operator of Beaver and Krahmer (2001) introduces the presupposition that x , a member of the set of entities under comparison, is associated with y , a member of the “contrast” set C , by some contextually salient relation R .

$$(104) \llbracket -est_{C\&B} \rrbracket = \lambda C_{\langle e, t \rangle} \lambda R_{\langle e, et \rangle} \lambda G_{\langle d, et \rangle} \lambda x_e . \exists y [\partial [R(y, x) \wedge C(y)] \wedge \exists d [G(x, d) \\ \wedge \forall y' \forall x' [R(y', x') \wedge C(y') \wedge y \neq y' \rightarrow \neg(G(x', d))]]]$$

Both the contrast set C and the association relation R are contextually provided. On the absolute reading R states that x and y are identical. On the relative readings, as they note following Farkas and Kiss (2000), R is not simply any contextually salient association, but it is a relation with the contrast set C which needs to be licensed by the sentential environment containing either focus, a *wh* operator or a PRO.

I observe that on the semantics in (104) the DP-internal focus on *London* in (105a) derives the Relative-2 reading with DP-internal *-est* in the presence of the definite determiner.²⁵ The focus allows for R to be a relation between the students that John met and the cities they were from. Accordingly, C is a set of cities. The predicate *youngest* is true of an individual who is a d -young

²⁵ In (105a) $[-est C R]$ combines directly the adjective, which is fine because C and R indicate what counts for the comparison. It was noted in section 2.1.1 that when Heim’s (1999) *-est*, (47), combines the directly with the gradable predicate, the presupposition that all the members of C have a degree of the property denoted by *-est*’s sister does not ensure the right contents of the comparison set C .

student from some city who John met (presupposition) such that no other individual who is a student from some other city who John met is also *d*-young. The uniqueness presupposition of the definite determiner is trivially satisfied.

- (105) a. John met $[_{DP} \text{the } [_{AP} [-est \ C \ R] \ \lambda d \ [d\text{-young}]] \text{ student from } [_{London}]_F]$
 b. $R = \lambda x \lambda y \exists d [x \text{ met a } d\text{-young student from } y]$
 c. $C \subseteq \{y: \exists x \exists d [x \text{ met a } d\text{-young student from } y]\}$
 d. $[_{AP}] = \lambda x \exists y [\partial [R(y,x) \wedge C(y)] \wedge \exists d [[x \text{ is } d\text{-young}]$
 $\wedge \forall y' \forall x' [R(y',x') \wedge C(y') \wedge y \neq y' \rightarrow \neg[x' \text{ is } d\text{-young}]]]$

Since the semantics for *-est* in Coppock and Beaver (2014), (104), allows for the derivation of the Relative-2 reading in the presence of the definite determiner, (105), it is incompatible with our cross-linguistic generalization that the presence of the definite determiner blocks the Relative-2 readings (Fact 2, (16)). Since their entry aims to account for the effects of focus on relative readings, the fact that it leads to overgeneration provides us with the evidence that focus effects should be encoded in such a way in the semantics of *-est* that they are dependent on its scope. In Chapter 4, section 4.4, I propose how the requirement for focus is formally encoded in the 3-place entry for *-est* in (47) (as introduced in Heim 1999), (245).

In the next section I show that on the standard approach, where the content of *C* is dependent on the syntax (by *-est*'s presupposition, (47), all the members of *C* have a degree of the property denoted by its sister) and the context can place further constraints on *C*, but all the other arguments of *-est* are syntactically expressed (unlike *R* which is syntactically null), the Relative-2 readings are correctly blocked by keeping *-est* DP-internally.

2.6.4 DP-internal *-est* and Relative-2?

Perhaps the Movement Theory could be combined with the treatment of *the* as semantically definite if for the derivation of the Relative-2 reading both *-est* and its third argument can undergo short movement (below the determiner)?

Without the movement of *-est*'s third argument, Relative-2 cannot be derived. In section 1.2.4, I showed that when *-est* takes DP-internal scope both the absolute and the Relative-1 reading can

be derived. In fact, both of these readings are derived from the same LF, and additional restrictions on the comparison class are introduced by the pragmatics (Farkas and Kiss 2000, Sharvit and Stateva 2002). For example, in (106b) the contents of C are established on the basis of the denotation of *-est*'s second argument, NP₂, (106c), giving rise to the absolute reading, (106e), and Relative-1, (106f). The Relative-2 reading cannot be derived from the LF in (106b), because NP₂ determines the members of C as students from London, and not students from different cities.

(106) a. John met the youngest student from London.

b. John met [DP the [NP₁ [-est C] 1 [NP₂ d_1 -young student from London]]]

c. $\llbracket \text{NP}_2 \rrbracket = \lambda d \lambda x [x \text{ is a } d\text{-young student from London}]$

d. $\llbracket \text{DP} \rrbracket = \iota x \exists d [x \text{ is a } d\text{-young student from London} \wedge \forall y [y \in C \wedge y \neq x \rightarrow \neg [y \text{ is } d\text{-young student from London}]]]$

e. *Absolute* $C \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from London}]\}$

f. *Relative-1* $C \subseteq \{x: \exists d \exists y [x \text{ is a } d\text{-young student from London} \wedge y \text{ met } x]\}$

I will demonstrate now that Relative-2 also cannot be derived if *London* undergoes short QR adjoining below the determiner, (107a). As a result of this movement, NP₃, on the basis of which the contents of C are specified, contains a variable ranging over cities, (107c).

(107) Attempt at Relative-2 with DP-internal scope of *-est* and movement of London

a. John met [DP the [NP₁ [London] [NP₂ [-est C] [NP₃ 1 2 d_1 -young [NP₄ student from t_2]]]]]]

b. $\llbracket \text{NP}_4 \rrbracket^g = \lambda x [x \text{ is a student from } g(1)]$

c. $\llbracket \text{NP}_3 \rrbracket = \lambda d \lambda y \lambda x [x \text{ is a } d\text{-young student from } y]$

However, NP₃ is now of type $\langle d, \langle e, \langle e, t \rangle \rangle \rangle$, but according to the lexical entry in (47) *-est*'s second argument should be of type $\langle d, \langle e, t \rangle \rangle$. We could perhaps assume an alternative entry for *-est* as a 4-place relation, as in (108)²⁶, and as a result the comparison class is a set of pairings between students and cities, (109c).

²⁶ In the semantics for *-est* in (47) C , as a shorthand, is referred to as a set of individuals, while in fact C is the characteristic function of the set of individuals. In (108), I am using $\langle x, y \rangle \in C$ as a shorthand as well.

$$(108) \llbracket \text{-est-4-place} \rrbracket = \lambda C_{\langle \langle e, \langle e, t \rangle \rangle, t \rangle} \lambda D_{\langle d, \langle e, \langle e, t \rangle \rangle \rangle} \lambda x_e \lambda y_e \exists d [D(d)(x)(y) \\ \wedge \forall \langle x', y' \rangle \in C [\langle x', y' \rangle \neq \langle x, y \rangle \rightarrow \neg(D(d)(x')(y'))]]$$

Presuppositions: a. $\langle x, y \rangle \in C$, b. $\forall \langle x, y \rangle [\langle x, y \rangle \in C \rightarrow \exists d [D(d)(x)(y)]]$

$$(109) \text{ a. John met } [_{\text{DP}} \text{ the } [_{\text{NP1}} [\text{London}] [_{\text{NP2}} [\text{-est } C] [_{\text{NP3}} 1 \ 2 \ d_1\text{-young } [_{\text{NP4}} \text{ student from } t_2]]]]]] \\ \text{ b. } \llbracket \text{NP}_3 \rrbracket = \lambda d \lambda y \lambda x [x \text{ is a } d\text{-young student from } y] \\ \text{ c. } C \subseteq \{ \langle x, y \rangle : \exists d [x \text{ is a } d\text{-young student from } y] \} \\ \text{ d. } \llbracket \text{NP}_1 \rrbracket = \llbracket \text{-est-4-place} \rrbracket (C)(\llbracket \text{NP}_3 \rrbracket)(\llbracket \text{London} \rrbracket) = \exists d [\lambda x [x \text{ is a } d\text{-young student from} \\ \text{London}] \wedge \forall \langle x', y' \rangle \in C [\langle x', y' \rangle \neq \langle x, \text{London} \rangle \rightarrow \neg(\llbracket \text{NP}_3 \rrbracket (d)(x')(y'))]]$$

However, because of the denotation of NP₁, (109d), the truth conditions for (109a) do not specify the Relative-2 reading. They require that John meets the student from some city, who is younger than all the relevant students from other relevant cities, whether or not John met them. In our scenario in (101), Alfie is in the set of relevant students as specified by *C* in (109c). Thus for the sentence to be true, John would have to meet Alfie, which is not what the actual Relative-2 reading requires in the scenario, namely, that John meets Archie.

$$(110) \text{ a. } [\text{London}] \ 1 \ \text{John met } [_{\text{DP}} \text{ the } [\text{-est } C] \ 2 [_{\text{NP1}} d_2\text{-young } [_{\text{NP2}} \text{ student from } t_1]]]] \\ \text{ b. } \llbracket [2 [_{\text{NP}} d_2\text{-young student from } t_1]] \rrbracket^g = \lambda d \lambda x [x \text{ is a } d\text{-young student from } g(1)] \\ \text{ c. } C \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from } g(1)] \quad (\text{presuppositions of -est, (47), (110c)}) \\ \text{ d. } \llbracket \text{DP} \rrbracket^g = \iota x \exists d [x \text{ is a } d\text{-young student from } g(1) \wedge \forall y \in C [y \neq x \\ \rightarrow \neg y \text{ is a } d\text{-young student from } g(1)]]$$

2.6.5 Conclusions for section 2.6

In this section I discussed the evidence for and against two possible ways the cross-linguistic restrictions on Relative-2 can be accounted for – hypothesis (i) and (ii) presented in (77), and repeated below:

- | | |
|----------|---|
| (111) | What makes the derivation of the Relative-2 reading impossible in a language? |
| (= (77)) | Hypothesis (i): Restrictions on the movement of <i>-est</i> 's third argument out of the DP.
Hypothesis (ii): Restrictions on the movement of <i>-est</i> out of the superlative DP. |

I conclude that hypothesis (ii) finds not only better support in the data, but also allows us to make a new contribution to the theory of superlatives – assign a role to the definite determiner, which on hypothesis (i) is necessarily semantically vacuous (on Relative-1 readings).

On hypothesis (i), *-est* is free to scope outside of the DP, but syntactic constraints block the movement of the DP-internal constituent to saturate *-est*'s third argument. This raised the question whether the movement from this position is blocked in general. In section, 2.6.1, we saw that both *wh*-movement and subextraction of a DP-external constituent in English *it*-clefts and in the Bulgarian focus construction are possible. We also saw that parallel movement is not possible out of non-superlative definite DPs, which indicates that (morphological) definiteness interacts with movement differently in superlative and non-superlative DPs. In allowing subextraction, definite superlative DPs pattern with other definite DPs that have inherently unique dentations.

Thus, while hypothesis (i) is correct in assuming that if *the* blocks extraction out of some non-superlative DPs, it can also be held responsible for blocking extraction out of superlative DPs, the fact that overt extraction is possible from superlative DPs forces us to re-formulate hypothesis (i) so that only covert movement is blocked. (Importantly, as I discussed in section 2.6.1, *the* blocks extraction out of some but not all definite DPs, so it does not automatically follow that if *the* allows extraction from a superlative DP, this DP is indefinite as suggested in Szabolcsi 1986).

In section 2.6.2 I reviewed the evidence that definite DPs are scope islands. Again, as in the case of overt A'-movement, we found no parallelism between the constraints on covert movement of quantifiers out of definite DPs and the constraints on the covert movement of *-est*'s argument.

A DP-internal quantifier was shown to not be able to scope out to the sentential level both in English and Polish, but in Polish a DP-internal argument can QR for the Relative-2 reading. This means that the scope island effect is not responsible for blocking Relative-2. I then argued that economy constraints on optional QR operations also do not provide support for hypothesis (i). Syntactic economy constraints on the movement of scope taking elements exclude the derivation of the Relative-1 reading by DP-external scope of *-est* even in the absence of the definite determiner. This result is the opposite of what hypothesis (i) is aiming for.

Importantly, I showed that overt A'–movement (as in the case of clefts) does allow for the Relative-2 interpretation for some native speakers of English. Hypothesis (i) is thus faced with a question: what is the nature of the constraint on the covert movement of *-est*'s third argument preventing Relative-2 if parallel overt movement can derive this reading for some native speakers? I excluded an explanation of this asymmetry based on the cost of processing of covert operations. The movement of *-est*'s third argument is excluded by scope economy considerations if it takes place from a DP-external position, while the movement from a DP-internal position is allowed (because it creates a new meaning), therefore, the former and not the latter should be harder/impossible to process.

Hypothesis (ii) rejects the basic assumption of the Movement Theory that the movement of *-est* is unconstrained, and, instead, treats its availability as the only parameter regulating the availability of the Relative-2 reading. As a result, hypothesis (ii) is fully compatible with the extraction facts presented above in sections 2.6.1 and 2.6.2. The availability of overt and covert A'–movement from the DP-internal position presented a challenge for hypothesis (i), but on hypothesis (ii) the availability of this movement is not expected to correlate with the availability of the Relative-2 reading independently of the availability of *-est*'s movement. That is, on hypothesis (ii), once the movement of *-est* is blocked (by the semantic definiteness of the DP), it does not matter if *London* is capable of moving outside the superlative DP.

The fact that the Relative-2 reading is present when a DP-internal constituent is moved overtly, for some speakers of English, is only problematic for hypothesis (i) since that hypothesis needs to explain why the covert counterpart of this movement is not possible for the same speakers. On hypothesis (ii), the overtly moved constituent does not saturate *-est*'s third argument, because *-est* remains DP-internally (its third argument is bound by the definite determiner), but its semantics can still constrain the comparison class so that Relative-2 obtains. This correctly predicts that the

Relative-2 reading will never be available in the absence of such overt movement of the DP. I present the required mechanism in Chapter 4, and demonstrate that when *-est* is limited to DP-internal scope, we obtain the required result: the Relative-1 reading can be derived without any overt movement, but Relative-2 cannot be derived unless there is over movement from a DP-internal position (section 4.5.3, ‘RELATIVE-2 IN *IT*-CLEFTS AND *WH*-QUESTIONS’).

Hypothesis (ii) is not only consistent with the extraction facts, but it allows me to treat the definite determiner as semantically contentful. The proposal for the restrictions on the movement of *-est* in the presence of the definite determiner (as evidenced by Fact 2, (16)/(78)), (Pancheva and Tomaszewicz 2012, Tomaszewicz, to appear) has a semantic motivation. Whenever the superlative DP is morphologically definite, the determiner has to be interpreted as definite, but for a definite determiner to be compatible with the semantics of *-est*, the latter needs to be DP-internal. As shown in section 2.3, if *-est* scopes DP-externally for the Relative-1 reading and the determiner is semantically definite, the result is uninterpretable. In section 2.6.3 I showed that also with DP-external scope for the Relative-2 reading, semantic definiteness prevents the derivation of the correct reading. I have thus obtained evidence that definiteness of the superlative DP interacts with the scope of *-est* (hypothesis (ii), (77)) due to semantic reasons.

Assuming the role of the definite determiner as blocking the movement of *-est* on hypothesis (ii), we can correctly account for both the English and Polish facts seen so far and also those introduced in the next section (2.7, ‘DP-external scope of *-est* cross-linguistically’). This account of superlative ambiguities suggests a special syntactic property for the definite determiner – it creates a semantic island for the movement of the superlative operator *-est*. Weak islands, that is, domains which block some but not all kinds of extraction (those involving negation, tenseless *wh*-questions, VP-adverbs, extraposition, and scope islands in the classification of Szabolcsi 2006) have been shown to result from semantic violations (Rullmann, 1995, Szabolcsi and Zwarts, 1993, Fox and Hackl, 2006, Abrusán 2007, 2011, 2014).

At this point, we require the evidence for the crucial ingredient of the derivation of the Relative-2 reading: the QR of *-est*. On hypothesis (i) it is simply assumed that the Movement Theory is right in allowing *-est* to scope DP-externally for relative readings. Hypothesis (ii) proposes to constrain the movement of *-est* depending on the definiteness of the DP – we should thus find evidence for the QR of *-est* out of morphologically indefinite DPs. In the section 2.7.1, I present the empirical arguments from Heim (1999) for and against allowing *-est* to scope DP-externally in

English, and in section 2.7.2 Aihara's (2009) arguments that in Japanese, as opposed to English, we have clear evidence that *-est* does scope outside the DP on relative readings. I will also discuss Hungarian data and argue that the unavailability of the absolute reading does not necessarily indicate DP-external scope of *-est*, but instead can result from contextual factors.

In Chapter 3, section 3.2.1, I provide evidence that the derivation of the Relative-2 reading in Polish requires the movement of *-est* to a DP-external scope position, hence this movement can be seen as a viable parameter for cross-linguistic variation (i.e. hypothesis (ii)). This evidence from Polish will be used to further argue against hypothesis (i). The empirical data from Polish will also point to the crucial role of focus, but not of focus movement, in the derivation of relative readings. As mentioned in the introductory section, it has been long observed in the literature that relative readings are facilitated by focus, yet the absolute-relative ambiguity cannot be attributed to the effects of focus alone (section 1.1). On my proposal, the cross-linguistic differences in relative readings result from the interaction of three factors: the scope of *-est*, definiteness and focus.

2.7 DP-external scope of *-est* cross-linguistically

The Movement Theory (Szabolcsi 1986, Heim 1999) treats the absolute and the relative readings of a superlative sentence as a structural ambiguity resulting from DP-internal vs. DP-external scope of *-est* (the details of the two derivations were presented in section 2.1). DP-internal *-est* derives the absolute reading, and for relative readings, *-est* moves out of the DP. In this section I discuss empirical arguments for the movement of *-est* that have been provided in the literature. Note that the existence of the Relative-2 readings had not been noticed prior to Pancheva and Tomaszewicz (2012), hence, the availability of this reading had not been used as a diagnostic for the movement of *-est* outside the DP. The Relative-2 reading cannot be derived without *-est* scoping DP-externally, so the availability of this reading in a language provides the evidence for the possibility of DP-external scope of *-est* in that language. Relative-1, on the other hand, can be derived either with DP-external *-est* or with *-est* remaining DP-internally. What kind of evidence could indicate that in a particular sentence the Relative-1 reading is derived by *-est* scoping DP-externally?

Szabolcsi (1986) argues that some evidence for the movement of *-est* comes from consideration of island effects. With subjunctive complement clauses, (112a), two relative interpretations are available: with respect to the subject of the matrix clause (i), and with respect to the embedded subject (ii). With indicative complements, the relative reading set with respect to the matrix subject is unavailable, (112b).

- (112) a. Who demanded [that you get the fewest letters]? (Szabolcsi 1986)
 (i) ‘Who demanded that you get fewer letters than anybody else demanded that you get?’
 (ii) ‘Who demanded that you get fewer letters than anybody gets?’
 b. Who said [that you got the fewest letters]?
 (i) *‘Who said that you got fewer letters than anybody else said that you got?’
 (ii) ‘Who said that you got fewer letters than anybody got?’

QR is known to be restricted out of indicative clauses, but available out of infinitive and subjunctive clauses (Kayne 1981, 1998, Longobardi 1992, a.o.). Correspondingly, if *-est* is able to scope out of the DP, in (112a) it can take scope in the matrix clause moving out of the subjunctive complement, (113a), or it can take scope within the embedded clause, (113b). In (112b), *-est* cannot scope out of an indicative complement, (113c-d).

- (113) a. who [-*est*]₁ demanded [_{CP} that you get the *d*₁-few letters] (Reading (112a)(i))
 b. who demanded [_{CP} that you [-*est*]₁ get the *d*₁-few letters] (Reading (112a)(ii))
 c. *who [-*est*]₁ said [_{CP} that you got the *d*₁-few letters] (Reading (112b)(i))
 d. who said [_{CP} that you [-*est*]₁ got the *d*₁-few letters] (Reading (112b)(ii))

The island effects, however, are also compatible with an analysis where *-est* remains DP-internally. The QR of the whole superlative DP predicts exactly the same constraints on the available interpretations for (112a-b). The superlative DP is able to QR out of a subjunctive clause, (114a), but not out of an indicative clause, (114c). In Chapter 4, section 4.5.2, I introduce a DP-internal analysis for relative readings in the presence of the definite determiner, and show how the island-sensitive QR of the superlative DP and the mechanism of focus association derive the relative readings with subjunctive vs. indicative embedded clauses.

- (114) a. [DP the few-*est* letters]_I who demanded [CP that you get t_1] (Reading (112a)(i))
 b. who demanded [CP that [DP the few-*est* letters]_I you get t_1] (Reading (112a)(ii))
 c. *[DP the few-*est* letters]_I who said [CP that you got t_1] (Reading (112b)(i))
 d. who said [CP that [DP the few-*est* letters]_I you got t_1] (Reading (112b)(ii))

More evidence for the possibility of DP-external scope of *-est* cross-linguistically should come from cases where systematically the absolute and the relative readings are not possible in the same syntactic configuration. We find arguments in the literature that such evidence is found in the data from Japanese and Hungarian (I discuss it in the next section, 2.7.2). (In the Appendix in 2.7.3 I also discuss the data from Italian that has been used as an argument for a structural ambiguity between the absolute and relative readings. I conclude that, in fact, it does not provide evidence for DP-external scope on relative readings in Italian.)

2.7.1 QR of *-est* and the loss of Absolute

Heim (1999) points out that when *-est* takes DP-external scope (as in the LF in (117a)) only one reading is derived, the relative reading. This means that when the relative reading of a sentence in a given language is derived by scoping *-est* DP-externally, this sentence cannot have the absolute reading, for which *-est* needs to be interpreted DP-internally. Consequently, when the sentence that has a relative reading derived by DP-external scope is presented in a scenario where the relative reading is false, it should be judge false, even if the absolute reading is true in that scenario (e.g. two climbers climb the highest mountain in the context, as in the scenario in (115) which I will discuss next). This is because the conditions that make the absolute reading true are irrelevant (given that the absolute reading is not available for a sentence with DP-external *-est*). In other words, Heim's diagnostic for DP-external scope in a language relies on finding a context where the comparison between climbers (as on the relative reading (117a)) leads to a different result than the comparison of mountains climbed by relevant people (as on the absolute reading (117b)). This way we can detect whether a sentence has a relative reading but no absolute reading.

In the scenario in (115) it is false that John climbed a mountain higher than anyone else did, because Bill climbed the same mountain.

(115) Scenario:

climber	mountain	height
Bill	m1	3200 m
John	m1	3200 m
Mary	m2	2500 m

(116)=(45) John climbed the highest mountain.

- a. ‘John climbed the mountain that is higher than all (relevant) mountains.’ *Absolute*
 b. ‘John climbed a higher mountain than any other (relevant) person did.’ *Relative-1*

If the relative reading of the sentence in (116) results from DP-external scope of *-est* with *John* merging as its third argument, (117a), then speakers should look only at the comparison between climbers and accept the statement in (118).

(117) a. $[_{TP} \text{John } [-est \ C] \ \lambda d \ \lambda x \ [x \text{ climbed } [_{DP} \text{ a } d\text{-high mountain}]]]$

$C \subseteq \{x: \exists d [x \text{ climbed a } d\text{-high mountain}]\}$

b. John climbed $[_{DP} \text{ the } [-est \ C] \ \lambda d \ [d\text{-high mountain}]]$

$C \subseteq \{x: \exists d \exists y [x \text{ is a } d\text{-high mountain} \wedge y \text{ climbed } x]\}$

(118) John didn’t climb the highest mountain: Bill climbed one just as high, in fact the same one. ((32) in Heim 1999:14)

Speakers of English, according to Heim, have a hard time accepting (118) as true. A theory on which *-est* remains DP-internal straightforwardly predicts that (118) should be judged as incoherent (as opposed to (119), Heim 1999) because it requires comparison between mountains and not climbers, (117b).

(119) John isn’t the tallest man: Bill is equally tall. ((33) in Heim 1999:14)

Thus, the empirical result for English appears to be that *-est* does not raise out of the DP for relative readings. The same test for Bulgarian yields a clear result. Given the scenario in (115), speakers

judge the sentence in (114a) that contains the definite determiner as misleading, and the sentence in (114b) where the definite determiner is absent as false. This result reflects Fact 3, (20), that only in the presence of the definite determiner is the absolute reading available, and suggests that the Relative-1 reading in (114a) is derived by DP-internal scope of *-est*, and the Relative-1 reading in (114b) by DP-external scope.

- (120) a. Ivan iskachi naj-visoka-**ta** planina.
 Ivan climbed *est*-high-**the** mountain
 b. Ivan iskachi naj-visoka planina.
 Ivan climbed *est*-high mountain

As I pointed out before, it cannot be judged by introspection whether we are comparing relevant climbers or mountains climbed by relevant climbers. The diagnostics for which of the comparisons is done in a language need to involve Heim’s scenario above, (115). If speakers judge a counterpart of (116) in a given language as false in this scenario, it will mean that their LF is as in (117a), that is, they are comparing climbers. Accordingly, we can conclude that the test sentence has the relative reading and no absolute reading. This way we can obtain evidence that *-est* can scope DP-externally for relative readings in a given language.

2.7.2 Japanese and Hungarian

Aihara (2009) reports that in the scenario in (115), native speakers of Japanese judge the sentence in (121a) as possibly true, but they judge (121b) as unambiguously false. In (121b) the superlative free morpheme *ichiban* (corresponding to the English periphrastic *most*) is fronted in overt syntax.

- (121) a. John-ga ichiban takai yama-ni nobot-ta. (Japanese)
 John-NOM most high mountain-to climb-PAST
 ‘John climbed the highest mountain.’
 b. Ichiban_i John-ga t_i takai yama-ni nobot-ta.
 most John-NOM high mountain-to climb-PAST
 ‘John climbed the highest mountain.’

Japanese speakers' judgments indicate that when judging the truth of (121b), they are performing a comparison between climbers and not between mountains. Hence, the sentence has the LF in (117a) and lacks the absolute reading for which a comparison between mountains is required. Aihara (2009) takes this as evidence that the absolute/relative ambiguity in Japanese is structural – it results from different scope of the superlative morpheme. Since with overt fronting of the superlative *ichiban*, as in (121b), we have evidence for DP-external scope (resulting in the comparison between climbers), it can be assumed that in Japanese *-est* can raise covertly to take DP-external scope on the relative readings. Note, however, that given that the sentence in (121a), where *ichiban* is not fronted, can have both the absolute and the relative reading, we do not have evidence that *-est* must raise covertly for relative readings, only that it can.

In Hungarian, somewhat similarly to Japanese, a fronting configuration also precludes the absolute reading. In Hungarian, however, the superlative expression stays in its base position, but it is the NP of the superlative DP that is left-dislocated. In (122), the NP *green horse* is sub-extracted from the superlative DP to the topic position (Szabolcsi 1986, Farkas and É. Kiss 2000). The sentence has only the relative reading determined by the adverbial *here*. The adverbial, crucially, is in the pre-verbal focus position – as will be discussed in section 3.1.5 in Hungarian pre-verbal focus is obligatory for relative readings. In this configuration, the relative interpretation determined by *here*, (122a), is the only one available. The absolute reading, (122b), is not possible.

(122) [_{TOP} Zöld ló-val] [_{FOC} itt]találkoztam a legszebb-bel. (Hungarian)
 green horse-with here met-I the prettiest-with (Szabolcsi 1986)

- a. 'I met a prettier green horse here than anywhere else'
- b. *'As for green horses, it was here that I met the prettiest of them, i.e. the prettiest green horse that there is'

Szabolcsi (1986) takes the unavailability of the absolute interpretation for (122) to indicate that *-est* takes DP-external scope, which is allowed because the superlative DP is interpreted as indefinite at LF. The evidence for the latter comes from the fact that only indefinite DPs allow sub-extraction in left-dislocation, (123a) and superlatives pattern together with indefinites, (123b).

- (123) a. Doktorral ITT találkoztam hárommal / *a hárommal. (Hungarian)
 doktor.with here met.I three.with the three.with (Szabolcsi 2012)
 ‘Of doctors it’s here that I met with three / *with the three’
- b. Doktorral ITT találkoztam a legtöbbel / a legkevesebbel.
 doctor.with here met.I the most.with the fewest.with
 ‘Of doctors it’s here that I met with the most/the fewest’

Accordingly, the LF for (122) should contain an indefinite determiner, and *-est* should scope at the clausal level taking the adverbial *here* as its third argument, as in (124a). (To simplify, I assume that *meet* is a 3-place predicate, so that *here* is its argument, (124c). I’m also assuming that the trace of the topicalized constituent is of type $\langle e, t \rangle$ and its assignment dependent denotation is a predicate selected by the assignment function g , (124b)).

- (124) a. [green horse] 1 here [-*est* C] 3 2 [TP I met [DP A [NP1 d_3 -pretty [NP2 $t_{1, \langle e, t \rangle}$]]] t_2]
 b. $\llbracket t_{1, \langle e, t \rangle} \rrbracket^g = \lambda x [(g(1))(x)]$
 c. $\llbracket [3\ 2\ [TP\ I\ met\ [DP\ A\ [NP1\ d_3\text{-pretty}\ [NP2\ t_{1, \langle e, t \rangle}]]]]\ t_2 \rrbracket^g =$
 $= \lambda d \lambda y \exists x [I\ met\ x\ in\ y \wedge x\ is\ d\text{-pretty} \wedge (g(1))(x)]$
 d. $C \subseteq \{y: \exists d \exists x [I\ met\ x\ in\ y \wedge x\ is\ d\text{-pretty} \wedge (g(1))(x)]\}$

The resulting specification of the comparison class is the set in (124c), that is, the set of places where I met a pretty individual x with a property selected by g . This is not the right comparison – the topicalized NP must reconstruct for the comparison between places where I met pretty green horses, (125).

- (125) a. [~~green horse~~] 1 here [-*est* C] 2 [TP I met [DP A [NP1 d_2 -pretty [NP2 green horse]]]]
 b. $C \subseteq \{y: \exists d [I\ met\ a\ d\text{-pretty}\ green\ horse\ in\ y]\}$

Does the lack of the absolute reading necessarily indicate that in the LF for (122) *-est* scopes DP-externally? In section 3.1.5 I discuss the effects of focus on relative readings in Hungarian and conclude that the interpretation of the contrastive topic, which requires the presence of narrow focus in Hungarian, can explain why the absolute reading is unavailable even if *-est* is interpreted

DP-internally. This data supports the view that relative readings are licensed by a linguistic antecedent (explicit or implicit) in the discourse context, as opposed to pure contextual relevance on the absolute reading. The linguistic discourse context places a restriction on the contents of the comparison set, and this restriction may be incompatible with the comparison needed for the absolute readings. The presence of a contrastive topic in (122) indicates a context where we need to compare among the green horses that I met in different locations, and not among the green horses that there are in the universe of discourse.

2.7.3 Italian

Italian presents another case where the absolute-relative asymmetry has been claimed to be a structural ambiguity. As in the case of Hungarian, however, I conclude that while different syntax may result in different interpretations, we don't have evidence for *-est* scoping out of DP on the relative readings. As opposed to Japanese, both Hungarian and Italian obligatorily contain the definite determiner in the superlative DP just like English does (Japanese lacks the definite determiner just like Polish).

Cinque (2010) observes that in Italian post-nominal superlative adjectives allow both absolute and relative readings, (126a), while with the superlative in the pre-nominal position the relative reading is unavailable, (126b).

- (126) a. Chi ha scalato la montagna innevata **più alta?** (Italian)
 Who has climbed the mountain snowy most high (Cinque 2010:12)
 'Who climbed a mountain that is higher than all relevant mountains?'
 'Who climbed a higher mountain than anyone else did?'
- b. Chi ha scalato la **più alta** montagna innevata?
 Who has climbed the most high mountain snowy
 'Who climbed a mountain that is higher than all relevant mountains?'
 *'Who climbed a higher mountain than anyone else did?'

Assuming a strict movement theory (such that relative readings require DP-external scope), the contrast between (126a) and (126b) could be explained if somehow the syntax of (126b) prohibits

[DP la [FP2 [montagna_j innevata t_j]_i più alta t_i]]]
 mountain snowy most high

(130) DP in (126b) (without movement of *-est*):

Absolute reading of (126) (the only available reading)

[DP la [FP2 più alta [montagna_j innevata t_j]]]]
 most high mountain snowy

Let us first note that even if *-est* stays DP-internally, Relative-1 readings can be derived via contextual restrictions on *C*, so the impossibility of the relative reading for the structure (130) is surprising if all that is going on here has to do with the scope of *-est*. Secondly, Cinque's proposal that the relative reading arises only when the superlative is merged as a reduced relative clause cannot be motivated by the fact that with superlatives in relative clauses the absolute does not obtain – in fact, the opposite is true: *John climbed the mountain that is the highest* has only the absolute reading. It would have to be a pure stipulation that relative readings cannot be derived with *-est* DP-internally, and that DP-external *-est* has to originate in a reduced relative clause, because it is not clear to me how the syntax could explain why in (129a) *-est* is permitted to scope DP-externally, but not in (130) or (129b). Recall from section 2.1.1 that the derivation of the absolute reading requires that *-est* undergoes short movement within the DP so that the noun is within its scope, as shown in (49a). Consequently, both in (129) and (130) *-est* is not interpretable in-situ, but must move out of FP₁/FP₂ to a position below the determiner so that *d-high snowy mountain* is in its scope. Perhaps, on the absolute reading that position is within FP₂, which somehow blocks further movement of *-est*, (131b), (132), as opposed to (131a). It is difficult to conceive what that constraint should be.

(131) DP in (126a) (after movement of *-est*):

- a. [DP la **-est** [FP2 montagna_j innevata t_j]_i [FP1_{[reducedRC} **d** alta] t_i]]]
 mountain snowy high
- b. [DP la [FP2 **-est** [montagna_j innevata t_j]_i **d** alta t_i]]]
 mountain snowy high

(132) DP in (126b) (after movement of *-est*):

[_{DP} la [_{FP2} *-est* [*d* alta [_{montagna_j} innevata t_j]]]]]
 high mountain snowy

An alternative explanation for the unavailability of the relative reading when the superlative adjective is pre-nominal, as in (126b), comes from the consideration of the semantics of pre-nominal adjectives in Romance. The generalization is that pre-nominal adjectives must be non-restrictive, (128b) (Zamparelli 1993, Cinque 1994, Cinque 2010). Morzycki (2008) proposes that non-restrictive modifiers are semantically computed in a separate dimension, which is based on the old basic observation that non-restrictive modification is interpreted as if in a separate utterance, a comment on the primary utterance, as exemplified by the paraphrase in (133b).

(133) Every unsuitable word was deleted. (Larson and Marušič 2004)

a. Restrictive reading: ‘Every word that was unsuitable was deleted.’

b. Non-restrictive reading: ‘Every word was deleted; they were unsuitable.’

On Morzycki’s analysis non-restrictive meaning is computed in a parallel dimension to the semantic computation of the rest of the sentence, the expressive-meaning dimension (as in Potts 2003). Syntactically, this could be implemented as the presence of a head that takes APs as specifiers and NPs as complements, (134b), and contributes the two-tier computation for predicate modification, so that the superlative adjective contributes the non-restrictive reading in the paraphrase in (134a). On its descriptive meaning (subscripted with A), the EP simply denotes the predicate in (134c). The superlative is interpreted in the expressive meaning dimension (subscripted with B), (134c) and does interact with the computation of the truth-conditions of the whole sentence.

(134) a. Giovanni scalò la più alta montagna. (Italian)

Giovanni climbed the most high mountain snowy

‘Giovanni climbed the mountain; it was the highest mountain’.

b. Giovanni scalò [_{DP} la [_{EP1} [*-est* C] [_{EP2} *d* alta [_{EP3} E [_{NP} montagna]]]]]]

Giovanni climbed the high mountain

- c. $\llbracket \text{EP}_1 \rrbracket^A = \lambda x [x \text{ is a mountain}]$
 d. $\llbracket \text{EP}_1 \rrbracket^B = \lambda x \exists d [x \text{ is a } d\text{-high mountain} \wedge \forall y [y \in C \wedge y \neq x \rightarrow \neg[y \text{ is a } d\text{-high mountain}]]]$

Of course, nothing prevents C in (134d) to be contextually specified as the set of relevant mountain climbed by someone, and we would obtain the reading ‘Giovanni climbed the mountain; it was the highest mountain of all the mountains that others climbed’. However, in this paraphrase, the second clause does not force the reading that there is a comparison between the climbing achievements of Giovanni and other climbers. The mountain that Giovanni climbed is a salient unique mountain in the context where it merely happens to be higher than the mountains climbed by others. In case of restrictive modification, where the superlative is computed in the descriptive meaning dimension, the mountain that Giovanni climbed is uniquely identified as the mountain that was higher than those climbed by others. Admittedly, more evidence is needed for the assumption that with pre-nominal superlatives in Italian *-est* is not interpreted as belonging to the ordinary truth-conditional meaning of the sentence, but in a separate meaning dimension (or, perhaps, as part of a separate utterance resulting from the syntax of appositive). Another alternative would be to consider an analysis on which the pre-nominal superlative adjective is a reduced relative clause, while the post-nominal superlative adjective is within the DP – this is the exact opposite of Cinque’s (2010) proposal. Merging the superlative adjective as a reduced relative would correlate with the fact that, as observed above, in English *John climbed the mountain that is the highest* has only the absolute reading. Accordingly, prenominal superlatives in Italian would be constrained to the absolute reading, while the post-nominal ones should result in an ambiguity just like DP-internal superlatives in English do. This idea, however, requires additional diagnostics for the reduced relative clause vs. DP-internal source of superlative adjectives in accordance with Cinque’s (2010) diagnostics for direct and indirect modification in Italian. I conclude that the contrast in the availability of relative readings with post-nominal vs. pre-nominal adjectives in Italian does not provide evidence for movement of *-est* outside the DP.

2.7.4 Relative readings in intensional contexts

A crucial argument in favor of the Movement theory is put forth in Heim (1999) where it is shown that the movement of *-est* to different scope positions can straightforwardly derive the range of readings available with intentional verbs that is attested in English.²⁷ The different readings in the context of the intentional *want* are paraphrased in (135) and their LFs are given below in (136).

(135) John needs to climb the highest mountain.

- a. The mountain, which is higher than any other mountain, is such that John needs to climb it.

Absolute, De re

- b. The mountain, which is higher than any other mountain in the worlds compatible with John's needs, is such that John needs to climb it.

Absolute, De dicto

- c. John needs to climb a mountain higher than any actual mountain anybody else needs to climb.

Relative-1, De re

- d. John needs to climb a mountain higher than whatever mountain anybody else climbs.

Relative-1, De dicto

- e. John needs to climb a mountain higher than anybody else needs to climb but possibly lower than the actual mountains that others do climb.

Relative-1, 'Upstairs' De dicto / 'Survey reading'

(136) a. LF for (135a):

John needs in w_0 λw_1 [PRO to climb _{w_1} [the [[C *-est*] *d-high* _{w_0} mountain _{w_0}]]]]

$C \subseteq \{x: \exists d [x \text{ is a } d\text{-high mountain in } w_0]\}$

Absolute, De re

b. LF for (135b):

John needs in w_0 λw_1 [PRO to climb _{w_1} [the [[C w_1 *-est*] *d-high* _{w_1} mountain _{w_1}]]]]

$C_w \subseteq \{x: \exists d [x \text{ is a } d\text{-high mountain in } w]\}$

Absolute, De dicto

²⁷ As pointed out to me by Yael Sharvit a movement based account of superlative readings in intensional context requires the assumption of monotonicity. Dropping the monotonicity assumption results in interpreting *d-high* as 'exactly *d* high' and in changing the meaning of *-est* in a way that yields a counter intuitive meaning for the LF in (136e) (Sharvit and Stateva 2002, p. 468, (34)).

c. LF for (135c):

John [*C -est*] $\lambda d \lambda x[[A \textit{d-high}_{w_0} \textit{mountain}_{w_0}] \lambda y[x \textit{needs in } w_0 \lambda w_2 [\textit{PRO to climb}_{w_2} y]]]]$

$C \subseteq \{x: \exists d [x \textit{needs in } w_0 \textit{to climb in } w \textit{ a } \textit{d-high mountain in } w_0]\}$ *Relative-I, De re*

d. LF for (135d):

John *needs in* $w_0 \lambda w_1 [\textit{PRO} [C_{w_1} \textit{-est}] \lambda d \textit{to climb}_{w_1} [A \textit{d-high}_{w_1} \textit{mountain}_{w_1}]]]$

$C_w \subseteq \{x: \exists d [x \textit{climbs in } w \textit{ a } \textit{d-high mountain in } w]\}$ *Relative-I, De dicto*

e. LF for (135e):

John [*C -est*] $\lambda d \lambda x[x \textit{needs in } w_0 \lambda w_1 [\textit{PRO to climb}_{w_1} [A \textit{d-high}_{w_1} \textit{mountain}_{w_1}]]]]$

$C \subseteq \{x: \exists d [x \textit{needs in } w_0 \textit{to climb in } w \textit{ a } \textit{d-high mountain in } w]\}$

Relative-I, 'Upstairs' De dicto / 'Survey reading'

The paraphrases in (135a-b) illustrate two absolute interpretations derived from the LFs in (136a-b). In (135b) the comparison set is relativized to John's 'need' worlds. This reading arises in the context such as (137), where the question calls for "de dicto answers, that is, answers which do not express an attitude towards some particular mountain" (Heim 1999).

(137) Q: How high a mountain does John need to climb?

A: (135b)

In (136c-d) *-est* takes DP-external scope and two relative readings are derived on which John is compared to other climbers with respect to either the actual world or John's need worlds. In the actual world John points to a higher mountain than other mountains and says that he wants to climb it (de re). Or, in his need words John is the best climber without there being an actual mountain (de dicto).

Of special interest is the 'survey context' reading ('upstairs' de dicto) in (135e), which, for example, fits the scenario given in (138) (from Sharvit and Stateva 2002)). On this reading John's needs are satisfied if he climbs a 5000ft mountain, but Mary climbs a 9000ft one.

(138) Scenario:

Mary needs to climb a 3000 ft mountain (or higher) to improve her ranking.

Bill needs to climb a 4000 ft mountain (or higher) to improve his ranking.

John needs to climb a 5000 ft mountain (or higher) to improve his ranking.

The Movement Theory straightforwardly predicts the availability of the LF in (136e) where *-est* lands in a position between the subject and the matrix verb, which derives the set of potential climbers as the value for *C*.²⁸ According to Heim (1999) the comparison of climbers in terms of their desires is required for the derivation of the ‘upstairs’ de dicto reading, but if *-est* remains DP-internally only mountains can be compared. Sharvit and Stateva (2002), however, propose that this reading can also be derived with *-est* remaining DP-internally, if some non-standard assumptions about the interpretation of the DP are added²⁹. The motivation for the DP-internal analysis of *-est* on the ‘upstairs’ de dicto reading in English comes from the fact that (i), as discussed above in section 2.7.1, English fails the diagnostic for DP-external scope of *-est* on relative readings (the

²⁸ I am grateful to Yael Sharvit for the observation that the LF in (122e) is incompatible with the presence of the definite determiner (just like the corresponding LF of *John climbed the highest mountain* as I discussed in section 2.3). If we replace *a* in (136e) with *the*, as in (iv), *-est* second argument is a function which maps every pair $\langle d, x \rangle$ to “true” just in case *x* climbs in all of *x*’s “need” worlds the unique mountain that is *d*-high.

(i) John [*C -est*] $\lambda d \lambda x [x \text{ needs in } w_0 \lambda w [\text{PRO to climb}_w [\text{the } d\text{-high}_w \text{ mountain}_w]]]$

$C \subseteq \{x: \exists d [x \text{ needs in } w_0 \{w: x \text{ climbs in } w \text{ the } d\text{-high mountain in } w\}]\}$

The truth conditions require there to be some *d* such that John climbs the unique *d* high mountain in all his “need” worlds, and every *y* in *C* who is not John (and there *is* at least one such *y* in *C*) has at least one “need” world *w* with a unique *d* high mountain such that *y* doesn’t climb that mountain. Given the monotonicity assumption, these truth conditions conflict with the restrictions on *C*. As we saw in footnote 12 dropping the monotonicity assumption yields wrong truth conditions when *the* is replaced with *A*.

²⁹ Sharvit and Stateva (2002) propose that definite DPs such as *the highest mountain* may be interpreted as individuals or as properties of individuals (type $\langle e, t \rangle$). A type-shifting operator IDENT-*W** is applied to the property of being highest mountain, and yields a set of properties (which in each world in *W** have the same value as the property of being highest mountain). The definite determiner, it is proposed, is cross-categorial and can apply to this set of properties yielding a unique contextually relevant property. Coppock and Beaver (2014) point out that while Sharvit and Stateva’s use of non-standard semantics for the definite determiner makes it seem like the problem of upstairs de dicto readings with superlatives is not fully resolved, such readings pose a challenge for several other contexts unrelated to superlatives (Schwager 2009).

truth of the relative reading cannot be evaluated independently from the truth of the absolute reading, which would be the case if the two resulted from different scope of *-est*, and (ii) if *-est* was able to scope DP-externally in English, Relative-2 readings should be allowed (section 2.4).

2.8 Summary and conclusions for Chapter 2

In Chapter 2, I discussed how the superlative morpheme *-est* can be treated as a quantificational operator that can take scope at different levels at LF. The Movement Theory proposes that the absolute and relative readings of sentences with superlatives are a result of a structural ambiguity: *-est* scopes DP-internally on the absolute reading, and DP-externally for relative readings (section 2.1). I showed that the DP-external scope of *-est* results in a semantic anomaly when the definite determiner is interpreted as definite in the superlative DP at LF (section 2.3). The semantic anomaly is avoided by allowing the definite determiner to be interpreted as indefinite at LF when *-est* scopes DP-externally. However, as observed in Pancheva and Tomaszewicz (2012), this necessary assumption of the Movement Theory predicts the availability of relative readings that are unattested in morphologically definite superlative DPs (sections 2.4-2.5). In English, Bulgarian and Swedish, in the presence of a definite article, relative readings can only be established with respect to a DP-external constituent (Relative-1 readings), but not with respect to a DP-internal constituent (Relative-2). Relative-2 readings obtain in the absence of the definite determiner in Bulgarian and Swedish and in determinerless Slavic languages.

In section 2.6, I discussed possible structural considerations that could prevent the derivation of the Relative-2 reading while maintaining the view of the Movement Theory that morphological definiteness does not prevent *-est* from scoping DP-externally. I concluded that neither restrictions on overt extraction of individual- or predicate-denoting expressions out of superlative DPs in general nor on the covert movement of such expressions can account for the blocking of the Relative-2 reading in morphologically definite DPs. I argued that abandoning the assumption that the overt definite determiner can be treated as indefinite at LF allows us to explain the restrictions on Relative-2 as a semantic island effect: *-est* cannot scope out of definite DPs because the result is uninterpretable.

As a consequence of my proposal, cross-linguistically there are two ways to relative readings: (i) with *-est* staying DP-internally, (139), and (ii) with *-est* scoping DP-externally in the absence of *the*, (140). When the definite determiner is present, *-est* necessarily stays inside the DP, while further contextual restriction can specify *C* for the Relative-1 reading, (139a), but not the Relative-2 reading, (139b) (the addition of the condition underlined in (139b) not only has no effect on the specification of *C*, but it would require a peculiar interpretation, i.e. *C* contains students from London who are students from some city). Even if we allow the covert QR of *London*, resulting in the presence of a variable within the DP, (139c-d), the Relative-2 reading cannot be derived (for details see section 2.6.4).

(139) **Relative readings in the presence of *the*** (English, Bulgarian, Swedish)

Relative-1

- a. John met [_{DP} **the** [[*-est* *C*]₁ *d*₁-young student from London]]

$$C \subseteq \{x: \exists d \exists y [x \text{ is a } d\text{-young student from London} \wedge \underline{x \text{ was met by } y}]\}$$

Relative-2 impossible

- b. John met [_{DP} **the** [[*-est* *C*]₁ *d*₁-young student from London]]

$$C \subseteq \{x: \exists d \exists y [x \text{ is a } d\text{-young student from London} \wedge \underline{x \text{ is from } y}]\}$$

- c. John met [_{DP} **the** [London]₁ [*-est* *C*]₂ [*d*₂-young student from *t*₁]]

$$C \subseteq \{\langle x, y \rangle: \exists d [x \text{ is a } d\text{-young student from } y]\} \quad (\text{details in (109)})$$

- d. [London]₁ John met [_{DP} **the** [[*-est* *C*]₂ [*d*₂-young student from *t*₁]]

$$C \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from } g(1)]\} \quad (\text{details in (110)})$$

When the definite determiner is absent, *-est* is free to scope out of the DP for relative readings, (140). For Relative-2 readings *-est* must scope DP-externally to obtain the right specification of the comparison set *C*, (140c), but for Relative-1 readings nothing forces DP-external scope, (140a), because contextual restriction can provide the right specification for *C*, (140b). In fact, the

derivation of the Relative-1 reading by DP-external scope for *-est*, (140a), might be precluded by scope economy constraints, as discussed in section 2.6.2.

(140) **Relative readings in the absence of *the*** (Bulgarian, Swedish, Polish)

Relative-1

- a. [John]₁ [-*est* C]₂ [*t*₁ met [_{DP} *d*₂-young student from London]

$C \subseteq \{x: \exists d [x \text{ met a } d\text{-young student from London}]\}$

→ *possibly excluded by scope economy*

- b. John met [_{DP} [-*est* C]₁ *d*₁-young student from London]

$C \subseteq \{x: \exists d \exists y [x \text{ is a } d\text{-young student from London} \wedge \underline{x \text{ was met by } y}]\}$

Relative-2

- c. [London]₁ [-*est* C]₂ [John met [_{DP} *d*₂-young student from *t*₂]

$C \subseteq \{x: \exists d [\text{John met a } d\text{-young student from } x]\}$

In section 2.7 I reviewed the empirical arguments in the literature for the availability of DP-external scope. In Japanese when the superlative is fronted, the Relative-1 reading is available, while the absolute reading is lost, which suggests that overt fronting forces DP-external scope for *-est*. In English, on the other hand, Relative-1 readings cannot be derived by DP-external scope, because the absolute reading is always available. In Hungarian, a split construction results in the loss of the absolute reading, which is compatible with an LF where *-est* is DP-external, but since the presented construction involved obligatory topicalization and focus, we might be able to derive its interpretation via contextual effects, which is what I will consider in the coming sections in Chapter 3. In Italian pre-nominal, as opposed to post-nominal superlative adjectives, do not allow relative readings, which I argued cannot be explained in terms of scope, since DP-internal *-est* needs to allow for relative readings because *C* is by definition dependent on what is relevant in the context.

In section 3.1, I summarize the evidence for the role of focus in Relative-1 readings found in the literature and recapitulate the focus facts in indefinite superlatives in Bulgarian introduced as Fact 4 in (23) in section 1.2.2. In section 3.2, I discuss the role of focus in Relative-2 readings and conclude that the Polish and Bulgarian data indicate that when the superlative morpheme *-est* scopes out of superlative DPs it necessarily associates with focus. In Chapter 4, I propose to account for the effects of focus on relative readings as an instance of anaphoric restrictions on quantifier domains – relative readings are licensed when the context explicitly provides an antecedent, or when an implicit antecedent can be recovered from the material salient in the current discourse.

Chapter 3: The role of focus in relative readings

In this chapter, I present the empirical arguments that the availability of relative readings of superlatives interacts with the availability of focus. Taking focus as an effect of discourse congruence, the presence of focus indicates what the implicit linguistic antecedent in the current discourse context is. I conclude, that with DP-internal *-est* it is not focus per se that is necessary for the derivation of relative readings, but the effects of focus on relative readings indicate that these readings need to be licensed by the context. Thus, the focus effects with DP-internal *-est* are exactly the same as the focus effects on quantifier domains resulting from the anaphoric dependence on the same background context (von Stechow, 1994, Beaver and Clark 2008, a.o.).

Crucially, the data from Bulgarian and Polish presented in section 1.2.2 in support of Facts 4-5 ((23), (28)) and now further discussed for Polish in section 3.2, indicate that even though DP-external *-est* can derive the Relative-2 reading without any reference to focus, the focus on the DP-internal constituent is mandatory. I will discuss in detail the two variants of the construction involving the fronted superlative adjective which I presented in (24)-(26) to introduce Fact 5. I conclude that when the superlative morpheme *-est* scopes out of superlative DPs it necessarily associates with focus.

3.1 Focus and Relative-1

3.1.1 Prosodic focus in English is optional

As noted in the introductory section, the specification of the comparison set is affected by prosodic focus in English (Ross 1964, Jackendoff 1972, Szabolcsi 1986, Heim 1999, Farkas and É. Kiss 2000, Sharvit and Stateva 2002, a.o.). Prosodic focus on *John* in the sentence in (141a) results in a comparison that involves the relevant people who bought cakes for Mary. With focus on *Mary*, as in (141b), the comparison set involves other people than Mary for whom John bought cakes. Crucially, the presence of focus does not exclude the availability of the absolute reading, which is consistent with the DP-internal analysis for relative readings in English (as concluded in Chapter 2). Both the relative and the absolute readings are derived with *-est* DP-internally, and the

interpretation contributed by focus can, but does not have to, be used to specify the comparison class C for relative readings. On the absolute reading, narrow focus is interpreted contrastively, for example, in (141a) focus on *John* results in the interpretation that John rather than someone else was the person who bought Mary the cake more expensive than all the other relevant cakes (it is not necessary that other cake buyers are involved).

- (141) a. JOHN_F bought the most expensive cake for Mary.

Available readings:

$C \subseteq \{x: \exists d [x \text{ is a } d\text{-expensive cake}]\}$ *Absolute*

$C \subseteq \{x: \exists d \exists y [x \text{ is a } d\text{-expensive cake} \wedge y \text{ bought } x \text{ for Mary}]\}$ *Relative-1*

- b. John bought the most expensive cake for MARY_F.

Available readings:

$C \subseteq \{x: \exists d [x \text{ is a } d\text{-expensive cake}]\}$ *Absolute*

$C \subseteq \{x: \exists d \exists y [x \text{ is a } d\text{-expensive cake} \wedge \text{John bought } x \text{ for } y]\}$ *Relative-1*

Evidence that in English the presence of focus is not necessary for establishing relative readings, comes from the data such as (142) where elements that are not prosodically prominent are relevant for the determination of the comparison class. In the sentences in (142), modeled after examples in Szabolcsi (1986) and Heim (1999), not only are *who* (or its trace) and the non-overt pronoun PRO (the subject of the adjunct clause) not prosodically prominent, but the phonological focus is on another constituent, *cakes*. Thus, in (142) focus does not determine the relative reading, since the relative reading is based on alternatives to *who*/PRO, and not on the alternatives to the focused constituent.³⁰

³⁰ As mentioned in section 2.5 quantity superlatives cannot receive the absolute reading either in English (Szabolcsi 1986; Hackl 2009) or in Polish (Pancheva, to appear). For example, while the sentence ‘*John bought the most expensive cakes*’ on the absolute reading conveys that John bought those cakes for Mary that were the most expensive in the store, the sentence ‘*John bought the most cakes for Mary*’ cannot mean that John bought the largest number of cakes for Mary. Szabolcsi (1986) and Hackl (2009) take this to indicate that with quantity superlatives *-est* takes DP-external scope so that the comparison is between cake buyers. However, this analysis wrongly predicts that Relative-2 should be available with most/fewest in

- (142) a. We should console the girl who bought the fewest CAKES_F. *Relative-1*
 b. One can win this contest by PRO buying the fewest CAKES_F for Mary. *Relative-1*

A focused constituent is standardly taken to be marked by a syntactic feature F visible to semantics and phonology, which typically is realized by intonational prominence such as pitch accent (Jackendoff 1972, Selkirk 1984, 1995, Rooth 1985, 1992, Krifka 1992, a.o.). If focus needs to have a phonological reflex, (142) would suggest that focus is not necessary for relative readings; indeed this is Heim's (1999) conclusion. Szabolcsi (1986, 2012), Farkas and É. Kiss (2000), Sharvit and Stateva (2002) similarly propose that focus is not necessary for relative readings: either focus or another operator, such as an interrogative or relative *wh*-element, can trigger relative readings (cf. *who* in (142a) above). Sharvit and Stateva (2002) and Szabolcsi (2012) further suggest that even the superlative morpheme itself (i.e. *most* or the adjective containing the suffix *-est*) can be focused and this focus pattern can yield both absolute and relative readings.

Note that the placement of focus in (141) is determined by the context (explicit or implicit), therefore, the effect of focus on the interpretation of superlatives indicates the context-dependency of relative readings. When a sentence is uttered out of the blue, prosodic focus indicates the implicit background context (Jackendoff 1972; Rooth 1985, 1992; Selkirk 1984, 1996; Roberts 1996; a.o.). For example, the focus on John in (141) evokes a context such as the one in (143), but not the one in (144).

- (143) Context: Bill, Paul and John bought cakes for Mary.
 a. JOHN_F bought the most expensive cake for Mary.
 b. #John bought the most expensive cake for MARY_F.

- (144) Context: Bill, Paul and John bought cakes for Mary.
 a. JOHN_F bought the most expensive cake for Mary.
 b. #John bought the most expensive cake for MARY_F.

English, '*John more cakes for Mary than anything else he bought her*'. Pancheva (to appear) proposes a DP-internal analysis for quantity superlatives in the presence of the definite determiner.

As noted above, the presence of focus may be licensed by the context, as in (145) where *John* contrasts with *Bill*, but it does not need to trigger a relative reading. The absolute reading is available irrespective of focus.

(145) Speaker A: Bill bought the most expensive cake for Mary.

Speaker B: (No.) JOHN_F bought the most expensive cake for Mary.

The observation that focus needs to be licensed by the context may seem trivial, but note that this means that the question of whether or not the relative interpretation requires focus, amounts to the question whether a licensing context is needed. A separate issue, on the other hand, is whether in the presence of explicit context, the focus structure of a sentence that is congruent with that context needs to have a prosodic realization. Consequently, the fact that prosodic focus is not necessary for relative readings to arise does not imply that a given constituent is not interpreted as a focus, that is, evoking the relevant contextual set of alternatives. As already observed in Szabolcsi (1986) when a written sentence is presented out of the blue in English, any of the constituents may be interpreted as focused, and hence compatible with different contexts. Presumably, readers assign implicit prosody to the sentence during reading (as supported by the experimental evidence in Bader 1998, Fodor 2002, Stolterfoht et al. 2007, Carlson 2013, Jun and Bishop 2014), but even during listening English native speakers have been shown to interpret which constituent is in focus based on the context, and not solely on the acoustic signal. Bishop (2012) conducted an experimental study of the knowledge of the prosody of focus as opposed to its realization in production. What a listener perceives in the acoustic signal is partially influenced by her knowledge of the utterance's linguistic structure (e.g. 'phoneme restoration effect', Warren 1970; Samuel 1981). Bishop studied listeners' expectations about how prosodic prominence relates to a certain information structural contrast: the size of the focus constituent (ranging from broad to narrow focus). He concluded that listeners' judgments of prosodic prominence are significantly and independently affected by their interpretation of the utterances' information structure (a nuclear accented object was heard as more prominent, even though the same sound file was presented, when it was narrowly focused rather than when it was situated within a broader focus constituent). Thus, it appears that what matters for the semantics is whether the feature F can be

perceived and interpreted, and not whether it is actually phonologically realized in English. In Hungarian, on the other hand, a constituent can be interpreted as F-marked only if it appears in a specific syntactic position as I discuss in the next section.

Furthermore, note that even when the context licenses narrow focus, it cannot trigger a relative reading if it is situated DP-internally. In the examples above in (142) the focus is on *cakes*, the constituent that is internal to the superlative DP. This focus cannot contribute to the interpretation of the superlative, since English does not allow DP-internal relative readings (Relative-2) (Fact 1, (14) in section 1.2.1). Now in (146a-b) the prosodic focus on *Mary* can result in the relative reading (i) where the comparison involves individuals who bought different numbers of cakes for someone. When this focus is ignored, the comparison in (ii) involves the individuals who bought different numbers of cakes for Mary.

(146) a. We should console the girl who bought the fewest cakes for MARY_F.

Available relative readings:

(i) ‘We should console the girl who bought fewer cakes for Mary than for anyone else.’

(ii) ‘We should console the girl who bought fewer cakes for Mary than any other girl.’

b. One can win this contest by PRO buying the fewest cakes for MARY_F.

Available relative readings:

(i) ‘One can win this contest if one buys fewer cakes for Mary than for anyone else.’

(ii) ‘One can win this contest if one buys fewer cakes for Mary than anyone else does.’

Now the question is how the relative readings in (142) and (ii) in (146) are derived. As first observed by Szabolcsi (1986) the presence of an operator, in *wh*-questions or relative clauses, is crucial for (142a) and (146). Heim (1999) further noted that the PRO in (142b) similarly facilitates the relative reading. Recall how in the absence of explicit or implicit context only the absolute reading is available for (9) in Section 1, repeated below in (147). The prosodic pattern in (147) is only compatible with the Relative-1 reading if supporting context is present (i.e. comparison between John and other people is relevant) and focus is interpreted contrastively. In (148), on the other hand, the context explicitly indicates that comparison between different boys is relevant.

(147) (=9)John met the youngest student from LONDON_F.

Available readings: Absolute (without context), Relative-1 (with context)

(148) We will congratulate the boy who met the youngest student from LONDON_F.

Available readings: Absolute, Relative-1

I observe that in (148) the presence of a gap in the subject position is not enough to derive the relative reading, but the contribution of the head of the relative clause is essential. If we try to specify the comparison class C just on the basis of the relative clause, we don't get the right specification. Let me illustrate this point by first showing the derivation where *-est* scopes DP-externally in the absence of the definite determiner in the superlative DP (i.e. in a language like Polish, not English), as in (149). Here the syntax determines that C contains individuals who met a student from London of some age, (149a). However, the relative reading of (148) is not that the boy met younger students from London than any other relevant person did, but rather than any other relevant boy did. In other words, the head of the relative clause *boy* needs to be interpreted inside of the relative clause, and it affects the relative reading of the superlative. Similarly, when we keep *-est* DP-internally, as in (150), it is not enough to add to the underlined condition to the specification of C (the underlined information comes just from the consideration of the subject gap), (150a). To get the actual relative reading of (148) the fact that the head noun *boy* and the relative clause modifier combine intersectively has to be taken into account, and the denotation of the head noun has to be included in the specification of C , (149b), (150b).

(149) [DP the [NP boy [CP who 1[TP t_1 [-est C] 2[TP met[DP a[NP d_2 -young student from London]]]]]]]

a. $C \subseteq \{x: \exists d [x \text{ met a } d\text{-young student from London}]\}$

b. $C \subseteq \{x: \exists d [x \text{ met a } d\text{-young student from London} \wedge \underline{x \text{ is a boy}}]\}$

(150) [DP the [NP boy [CP who 1[TP t_1 met [DP the [-est C] 2[NP d_2 -young student from London]]]]]]]

a. $C \subseteq \{x: \exists d \exists y [x \text{ is a } d\text{- young student from London} \wedge \underline{y \text{ met } x}]\}$

b. $C \subseteq \{x: \exists d \exists y [x \text{ is a } d\text{- young student from London} \wedge \underline{y \text{ met } x} \wedge \underline{y \text{ is a boy}}]\}$

The relative reading of the sentence (148) is thus a result of the contextual specification of *C* by the immediate context, the relative clause and the noun that it modifies. Assuming that context licenses relative readings and focus is the realization of discourse coherence (in that focus evokes implicit context, but with explicit context it does not need to be prosodically realized for relative readings) allows us to account for the availability of the Relative-1 reading in (147), above, and (151), below, despite the absence of focus on *John*. Although in both cases there is narrow focus on *London* (a DP-internal constituent which cannot trigger a relative reading in English), and not on *John*, the Relative-1 reading seems to be available. While for (147) some additional context is needed to support the Relative-1 reading, for (151) explicit context does not seem necessary, because Relative-1 is the only possible interpretation for that sentence: quantity superlatives do not have absolute readings (cf. footnote 30). In (151) the focus on *London* can easily be interpreted contrastively, and the sentence receives the interpretation ‘John met fewer students from London, and not from some other city, than anybody else met’. The reason the relative interpretation is available without explicit context in (151), but not in (147), is that for (151) constructing a suitable implicit context saves the sentence from having no interpretation at all.³¹

(151) John met the fewest students from LONDON_F.

Available readings: Relative-1?

Whether or not the Relative-1 reading is indeed available for (147) and (151) is not a problem for the account that relative readings require a licensing context – if the implicit context is difficult to retrieve, the relative interpretation will be harder to compute, but in cases where the focus structure is simply incompatible with a particular context, the corresponding relative interpretation will be impossible. Crucially, if the focus is interpreted contrastively and cannot interact with the DP-internal *-est* (because the focus itself is DP-internal), relative readings established with respect to a constituent that lack prosodic focus are possible. In cases such as (146), on the other hand,

³¹ It is debatable whether the availability of relative interpretation for (147) and (151) depends on the possibility of interpreting *John* as a secondary focus, which needs not be “phonologically visible” (Rooth 1992, Partee 1994, Krifka 2005, Büring 2008, Rooth 2009).

DP-external focus can interact with DP-internal *-est* and accordingly it precludes relative readings with respect to other constituents (i.e. those that are not in focus).

The English data illustrating the effects of the prosodic focus, or its absence, on the Relative-1 reading, indicates that the Relative-1 reading does not require prosodic focus on the constituent with respect to which it is established. What is necessary, however, is that the focus structure of the sentence is compatible with the context, explicit or implicit, that supplies the relevant set of alternatives. This fits straightforwardly with the DP-internal analysis for *-est* on relative readings (Heim 1999, Farkas and É. Kiss 2000, Sharvit and Stateva 2002, Stateva 2002). When *-est* stays inside the DP, further contextual restriction specifies *C* for the Relative-1 reading by adding the condition underlined in (152a-b) (in the concluding section of Chapter 2, section 2.8, it was shown in (139) that the with DP-internal *-est* the underlined information may be added to the specification of *C* based on what is relevant in the context). In (152a) the focus on *John* evokes the set of alternative people who met students from London in Paris and this is added as a further condition to the specification of *C* obtained from the syntax in accordance with the presuppositions of *-est*. In (152b) focus is absent, and the specification of *C* results from the context (and syntax). In (152c) the presence of DP-internal focus, on *London*, has no effect on *C* because the condition that a student *x* is from some city *z* cannot override the specification by the syntax that *x* is from London. *C*, here, is further constrained by the implicit context. The reading of (152c) can be paraphrased as ‘John met in Paris a younger student from London, and not from some other city, than anyone else did’. In (152d), focus on the DP-external constituent *Paris* constrains *C*, while in (152e) the same focus adds a condition that is incompatible with the context where the comparison is between students met by different people in Paris. A suitable context for this focus placements is given in (152f).

(152) **Focus and Relative-1 readings with DP-internal *-est***

a. (Of all the boys who met students in Paris, ...)

... [**John**]_F met [_{DP} the [[*-est* *C*]₁ *d*₁-young student from London]] in Paris

$C \subseteq \{x: \exists d \exists y [x \text{ is a } d\text{-young student from London} \wedge \underline{x \text{ was met by } y \text{ in Paris}}]\}$

→ *focus and contextual specification impose congruent requirements on C*

- b. Of all the boys who met students in Paris, ...
 ... John met [DP the [[-est C]₁ d₁-young student from London]]
 $C \subseteq \{x: \exists d \exists y [x \text{ is a } d\text{-young student from London} \wedge \underline{x \text{ was met by } y \text{ in Paris}}]\}$
 → *focus is absent, C results from contextual specification*
- c. Of all the boys who met students in Paris, ...
 ... John met [DP the [[-est C]₁ d₁-young student from **[London]_F]] in Paris
 $C \subseteq \{x: \exists d \exists y \exists z [x \text{ is a } d\text{-young student from London} \wedge \underline{x \text{ is from } z} \wedge \underline{x \text{ was met by } y \text{ in Paris}}]\}$
 → *focus and contextual specification impose incongruent requirements on C*
 → *C results from contextual specification, because focus cannot override the specification of C resulting from the syntax***
- d. John met [DP the [[-est C]₁ d₁-young student from London]] in **[Paris]_F**
 $C \subseteq \{x: \exists d \exists z [x \text{ is a } d\text{-young student from London} \wedge \underline{x \text{ was met by John in } z}]\}$
 → *explicit context is absent, focus imposes a requirement on C*
- e. (Of all the boys who met students in Paris, ...)
 ... John met [DP the [[-est C]₁ d₁-young student from London]] in **[Paris]_F**
 $\#C \subseteq \{x: \exists d \exists y \exists z [x \text{ is a } d\text{-young student from London} \wedge \underline{x \text{ was met by } y \text{ in Paris}} \wedge \underline{x \text{ was met by John in } z}]\}$
 → *focus and contextual specification impose clashing requirements on C*
- f. (Of all the cities where he met students, ...)
 ... John met [DP the [[-est C]₁ d₁-young student from London]] in **[Paris]_F**
 $C \subseteq \{x: \exists d \exists z [x \text{ is a } d\text{-young student from London} \wedge \underline{x \text{ was met by John in } z}]\}$
 → *focus and contextual specification impose congruent requirements on C*

The different configurations in (152) schematically illustrate that with DP-internal *-est*, focus is unnecessary for Relative-1 readings, but the focus structure of the sentence needs to be congruent with the contextual specification of *C*.

3.1.2 Optionality of focus in Polish

The Polish example in (153) further illustrates the point that focus on the constituent with respect to which the Relative-1 is established may be absent when (i) the context clearly specifies the relevant comparison set, and (ii) the focus structure of the sentence is congruent with that contextual specification. In (153) the superlative adjective is focused, and there is no focus on the indirect object *him* since the weak version of the pronoun is used (the strong form *jemu* is needed for focus). This focus structure is compatible with Relative-1 reading on which cake recipients are included in the comparison. Here the context explicitly specifies that Jan is compared to other happy people, and what makes the second superlative sentence coherent with this context, is the comparison set containing cakes that are associated with the set of happy people (as opposed to any other set of cakes that is pragmatically salient).

(153) Jan jest najszczęśliwszy ze wszystkich, bo ...

Jan is happiest of all because

... Maria mu dała [najDROższe]_F ciastko.

Maria him_{WEAKPRONOUN} gave most-expensive cake

‘Jan is the happiest of all, because Maria gave him the most expensive cake’.

Polish is a determinerless language, so the superlative DP in (153) may either be interpreted as definite or indefinite depending on the context. My analysis predicts the optionality of focus on the indirect object in (153) as in this case *-est* can be interpreted DP-internally (as it always is with morphologically definite superlative DPs). In section 3.2.1, I show how the focusing of the superlative adjective in Polish is felicitous in the contexts where a set of alternative properties is relevant (e.g. for (153) it could be the most expensive, the cheapest, the biggest, the smallest cake, etc.), which means that *-est* is interpreted DP-internally. In Chapter 4, section 4.6, I show how Relative-1 readings are derived when the superlative expression itself is focused.

The Polish data in (153) thus further supports my conclusion based on the English data in 3.1.1 that with DP-internal *-est* it is not focus per se that is necessary for the derivation of relative readings, but the effects of focus on relative readings indicate that these readings need to be licensed by the context.

3.1.3 Optional focus with definite superlatives in Bulgarian

Crucially, Bulgarian reveals that focus is optional only when *-est* takes DP-internal scope. In the presence of the definite determiner, Relative-2 readings are not available in Bulgarian, which indicates that *-est* scopes DP-internally (Fact 4 in (23)). As we saw in (22), repeated below in (154), when the definite determiner is present, there is no need for focus on the constituent which is relevant for the relative reading. In (154) there is no focus on the indirect object, since it is a clitic pronoun. The immediately preceding context specifies that the comparison involves Maria and other girls, just like in the Polish sentence in (153).

- (154) Maria e naj-šastliva(ta) ot vsički momičeta, zaštoto ... (Bulgarian)
 ‘Maria is the happiest of all the girls, because...’
 ... Ivan **ji** dade [DP naj-skupa-**ta** torta].
 Ivan her_{CLITIC} gave *est*-expensive-the cake
 ‘... Ivan gave her a more expensive cake than he gave to anyone else.’ *Relative-1*

3.1.4 Obligatory focus with indefinite superlatives in Bulgarian

In Bulgarian, only definite superlatives allow relative readings in the absence of focus, when the context explicitly specifies what is involved in the comparison. The version of the sentence in (154) that lacks the definite determiner, (155), does not allow the Relative-1 reading on which cake recipients are compared. It allows the Relative-1 reading set with respect to *John* and the Relative-2 set with respect to *cake*. As opposed to the clitic pronoun, either *John* or *cake* can be interpreted as focused.

- (155) Maria e naj-šastliva(ta) ot vsički momičeta, zaštoto ...
 ‘Maria is the happiest of all the girls, because...’
 ... Ivan **ji** dade [DP naj-skupa torta]. (Bulgarian)
 Ivan her_{CLITIC} gave *est*-expensive cake
 #‘... Ivan gave her a more expensive cake than he gave to anyone else.’ *Relative-1*

‘Ivan gave her a more expensive cake than any other (relevant) person did.’ *Relative-1*

‘Ivan gave her a more expensive cake than any other (relevant) thing he gave her.’ *Relative-2*

The sentence in (156) is a counterpart of the English sentence in (142b), which showed that in English focus is not necessary for Relative-1 readings because elements that are not prosodically prominent can determine the comparison class. In (156) the definite determiner is obligatory, which shows that the Relative-1 reading here is derived with DP-internal *-est*. With an indefinite superlative DP the Relative-1 reading is not available because the *pro* subject cannot be interpreted as focused. Only with quantity superlatives, which lack the absolute readings, is the definite determiner optional in the same construction, (157) (which is similar to what we observed for the quantity superlative in English in (151), where only one Relative-1 reading was available irrespective of focus placement.)

(156) *pro* Možeš da spečeliš kato *pro* kupiš naj-skupa-*(ta) torta.
 can_{2P.Sg} SUBJ.COMP. win if buy_{2P.Sg} est-expensive-(the) cake
 ‘You can win by buying the most expensive cake.’

(157) *pro* Možeš da spečeliš kato *pro* kupiš naj-mnogo-(to) torti.
 can_{2P.Sg} SUBJ.COMP. win if buy_{2P.Sg} est-most-(the) cakes
 ‘You can win by getting the highest grade.’

The comparison between English, Polish and Bulgarian definite superlatives on the one hand, and Bulgarian indefinite superlatives on the other hand shows that the optionality of focus in contexts where the comparison is explicitly specified depends on the scope of *-est*. Focus is optional only when *-est* takes DP-internal scope, as evidenced by the obligatory presence of the definite determiner in Bulgarian (154) and (156). When the superlative morpheme *-est* scopes out of the DP it necessarily associates with focus. This is illustrated in the schema in (158): *-est*’s individual argument *John* needs to be focused, (158a), if focus is placed on some other constituent in the sentence, a clashing requirement on *C* is imposed, (158b). (F-marking on the constituent

John contributes a set of individuals {John, Bill, Maria, ...} – the full derivation of *C* is presented in section 4.4.)

(158) **Focus and Relative-1 readings with DP-external *-est***

a. [**John**₁]_F [*-est C*]₂ [*t*₁ met [_{DP} *d*₂-young student from London]

$C \subseteq \{x: \exists d [x \text{ met a } d\text{-young student from London}] \wedge x \in \{\text{John, Bill, Maria, ...}\}\}$

→ *focus adds a congruent requirement on C, lexical requirement of -est*

b. John [*-est C*]₂ [*t*₁ met [_{DP} *d*₂-young student from [**London**]_F]

$\#C \subseteq \{x: \exists d [x \text{ met a } d\text{-young student from London}] \wedge x \in \{\text{London, Paris, Berlin, ...}\}\}$

→ *focus adds a clashing requirement on C*

Since it does not follow from (158) that focus needs to be present if scope alone derives the relative reading, we must add the focus requirement to *-est*'s lexical semantics: the syntactic constituent that saturates its third argument must be the sentence focus, as in (158a). This requirement is void when *-est* is DP-internal, because in this case the individual argument is bound by the iota operator that is part of the meaning of the definite determiner (cf. (49a) in section 2.1.1).

In the next section I present the data from Hungarian, which has been argued to support the view that focus is necessary for relative readings (Szabolcsi 1986, 2012, Farkas and É. Kiss 2000), and discuss the differences between English and Hungarian. Both languages require the presence of the definite determiner (indicating DP-internal scope on my analysis), but only in Hungarian is focus obligatory for relative readings. I will conclude that this difference results from the fact that in Hungarian focus is obligatorily syntactically expressed (at least in some cases). As we saw in the introductory sections, 1.1, 1.2.2, when focus is syntactically expressed, it allows for only one relative reading in Bulgarian and Polish, (21b), (24)-(26)), which is due to the fact that it unambiguously indicates the (implicit) linguistic antecedent.

3.1.5 Syntactically-marked focus in Hungarian is obligatory

In Hungarian, a language that marks focus syntactically, focus is necessary for relative readings, though it does not preclude the absolute reading (Szabolcsi 1986, Farkas and É. Kiss 2000). Hungarian features prominently in the literature on focus because it exhibits two different focusing strategies, pre-verbal, (159a) and in-situ focus, (159b), each associated with different properties (É. Kiss 1998).

- (159) a. Péter [Marit]_F csókolta- -meg. (Hungarian)
 Peter Mary._{Acc} kissed PERF (Onea 2007)
 ‘Peter kissed MARY’
- b. Péter meg- csókolta [Marit]_F.
 Peter PERF kissed Mary._{Acc}
 ‘Peter kissed MARY.’

In (159a) the focused constituent in addition to receiving a pitch accent is moved to the immediately pre-verbal position (default word order in Hungarian is SVO), with the perfectivizing verbal affix *meg* appearing post-verbally. The pre-verbal position is the same where *wh*-phrases obligatorily appear in questions (Szabolcsi 1986, É. Kiss 1998). Sentences containing pre-verbal focus are felicitous answers to *wh*-questions (160A), while sentences with in-situ focus, (160A’), are not felicitous because they allow a non-exhaustive interpretation ((160A’) allows that Peter also kissed someone else, while (160A) does not), (É. Kiss 1998, Onea 2007, 2008³², a.o.). Pre-verbal foci may either be discourse-new or discourse-old, while the foci in-situ must be discourse-new (É. Kiss 1998, Surányi 2007).

- (160) Q: Kit csókolt meg Péter? (Hungarian)
 Who kissed PERF Peter (Onea 2007)
 ‘Who did Peter kiss?’

³² For Onea (2007, 2008) the in-situ focus in (160A’) requires a contrastive continuation, e.g. *Peter kissed Mary and not Anna*.

A: Péter [Marit]_F csókolta -meg.

Peter Mary._{Acc}kissed PERF

‘Peter kissed MARY’

A’:?Péter meg- csókolta [Marit]_F

Peter PERF kissed Mary._{Acc}

Crucially, it is the pre-verbal focus that is required for the relative readings of superlatives (Szabolcsi 1986, Farkas and É. Kiss 2000)³³, as well as for focus association with particles such as *only* (É. Kiss 1998, Balogh 2006, Onea and Beaver 2011). In (161a) *János* is in the pre-verbal focus position (the aspectual particle *meg* is after the verb) and the sentence can receive both the absolute and the relative reading where John’s climbing achievement is compared to other climbers. In (161b) the particle *meg* is pre-verbal and *János* is in a higher left-peripheral position interpreted as a topic. This sentence, which Farkas and É. Kiss (2000) call ‘focusless’, can only receive the absolute interpretation. In (161c) the whole superlative DP is in the pre-verbal focus position and again only the absolute interpretation is available.

(161) a. [_{FP} JÁNOS mászta [_{VP} meg a legmagasabb hegy - et]] (Hungarian)
 John climbed PERF the highest mountain._{Acc}(Farkas & Kiss 2000)

Available readings: Absolute, Relative

‘It was John who climbed the highest mountain.’

‘John climbed a mountain that was higher than what anybody else climbed.’

³³ Sometimes in the literature the Hungarian pre-verbal focus is referred to as ‘contrastive focus’ (e.g. in Gutiérrez-Rexach 2010 and Szabolcsi 2012) which is due to the distinction introduced in É. Kiss (1998) between *identificational* (*contrastive*) focus and *information* focus. The former is associated with the presupposition that there exist alternatives to the asserted proposition, while the latter is a “mere pragmatic–prosodic phenomenon, marked by primary stress, expressing new information” (É. Kiss 2008). Note, however, that pre-verbal focus is the default option in answers to *wh*-questions in Hungarian, whereas, as noted in the previous footnote for Onea (2007, 2008) the in-situ prosodic focus evokes contrast (and correction). Multiple foci constructions involve identificational foci, but while one focus is preverbal, the second is in-situ and it is assumed to undergo covert movement as evidenced by scope interactions with quantificational DPs (Surányi 2007).

- b. [_{TopP} János [_{VP} meg -mászta a legmagasabb hegy- et]]
 John PERFclimbed the highest mountain._{Acc}
Available readings: Absolute ‘John climbed the highest mountain.’
- c. [_{TopP} János [_{FP} A LEGMAGASABB HEGY- ET mászta [_{VP} meg]]]
 John the highest mountain._{Acc} climbed PERF
Available readings: Absolute ‘It was the highest mountain that John climbed.’

Szabolcsi (1986) and Farkas and É. Kiss (2000) point out that a sentence containing the quantity superlative *least/fewest*, which lack the absolute reading, are ungrammatical without a pre-verbal focus, (162).

- (162) a. [_{FP} JÁNOS itta [_{VP} (meg) a legkevesebb bort]] (Hungarian)
 John drank PERF the least wine (Farkas & Kiss 2000)
Available readings: Relative ‘It was John who drank the least wine.’
- b. * [_{TopP} János [_{VP} (meg) itta a legkevesebb bort]]
 John PERF drank the least wine
- c. * [_{TopP} János [_{FP} A LEGKEVESEBB BORT itta (meg)]]
 John the least wine drank PERF

The data in (162b-c) contrasts with the English examples where prosodic focus on *John* was absent, but there was focus on *London*, and yet the Relative-1 reading set with respect to *John* was still available if it was compatible with the context, (152) in section 3.1.1. It also contrasts with the Polish and Bulgarian examples ((153), (154)) containing phonologically reduced pronouns (which cannot be F-marked at the syntax-phonology interface) where the Relative-1 readings were nevertheless available. The Hungarian facts suggest that focus is not entirely optional with definite DPs, but rather semantic focus is needed – in (162b-c) semantic focus on *János* is impossible since *János* is not in the syntactic focus position (and presumably cannot move there covertly as in the case of multiple focus constructions where the post-verbal focus undergoes covert movement (Surányi 2007)). Is then semantic focus possible with clitics and other constituents lacking prosodic focus? I am hesitant to conclude this without investigating exactly parallel examples in Bulgarian,

Polish and Hungarian side by side, which is a project for future research. At this moment, I tentatively conclude that the fact that with (morphologically) definite superlative DPs in Hungarian focus is not optional, unlike in English and Bulgarian, could be taken to indicate that in this language the context that restricts *C* for relative readings requires that the focus structure is not merely congruous with the contextual specification (as in (152)), but that it provides an exactly matching specification.

In addition to syntactic focus, the relative interpretation becomes available in the presence of question *wh*-operators³⁴, (163) (Szabolcsi 1986, Farkas and É. Kiss 2000).

³⁴ As well as in the presence of relative *wh*-operators as noted in Szabolcsi (1986) and Farkas and É. Kiss (2000) though they do not provide examples of superlatives in relative clauses. Szabolcsi (1986) notes in a footnote that the Hungarian equivalent of ‘We should console the girl who got the fewest letters.’ “must have the superlative focused in the relative clause. I cannot explain this.” (p. 7, ft. 5). This contrasts with the English data discussed in the previous section, where relative readings could be obtained in relative clauses without focus, (142), (146), (148), and which I attributed to the licensing effect of context on relative readings. I observe that just like in Hungarian, in Polish, too, focus on *fewest* is necessary for a presupposition to arise that all other girls received some numbers of letters from Mary, (i) (In Chapter 4, section 4.6, I show how Relative-1 readings are derived when the superlative expression itself is focused.). Without it, as in (ii), the relative reading is established with respect to *Maria* as indicated by the paraphrase (thanks to Wojtek Witkowski for this observation).

(i) Musimy pocieszyć dziewczynkę, która dostała [NAJMNIEJ]_F listów od Marii.
 we-must console girl who got fewest letters from Maria
 ‘We must console the girl who got fewer letters from Maria than any other girl.’

(ii) Musimy pocieszyć dziewczynkę, która dostała najmniej listów od Marii.
 we-must console girl who got fewest letters from Maria
 ‘We must console the girl who got fewer letter from Maria than from anybody else.’

In (ii) *Maria* receives nuclear stress and can be interpreted as a right peripheral focus (which will be discussed in section 3.2) thus triggering the Relative-1 reading involving different senders of letters. (In Hungarian, for this reading *Maria* would have to appear in the preverbal focus position). This suggests that in both Polish and Hungarian, where focus is syntactically encoded, focus cannot be ignored as in the parallel English example in (146a). (In Hungarian there is focus movement within the relative clause (Lipták 2001), so given (161b), a ‘focusless’ relative clause won’t allow a relative reading, parallel to (164)).

- (163) Ki mászta meg a legmagasabb hegy-et? (Hungarian)
 who climbed PERF the highest mountain._{Acc} (Szabolcsi 1986)
 ‘Who climbed the highest mountain?’
Available readings: Absolute, Relative-1

Farkas and É. Kiss (2000) conclude that relative readings arise when the context supplies an “operator that takes a contextually provided finite set as argument, and whose semantics is compatible with the value being a unique element of that set” (p. 422). Focus in (161)-(162) and the *wh*-expression in (163) (which also appears in the pre-verbal position (Lipták 2001)) contribute the meaning that a set of individuals is relevant in the context. In contrast, in *why*-questions lacking a pre-verbal focus, nothing contributes this meaning and a relative reading is not available, (164).

- (164) Miért mászta meg János a legmagasabb hegy-et? (Hungarian)
 why climbed PERF John the highest mountain._{Acc} (Farkas and Kiss 2000)
 ‘Why did John climb the highest mountain?’
Available readings: Absolute

Since in the presence of focus or *wh*-operators ranging over individuals both relative and absolute readings are present, Farkas and É. Kiss (2000) propose that both readings are derived with *-est* staying DP-internally. They propose that the NP of the superlative DP is interpreted as a function whose domain is the set contributed by focus/*wh*-operators functionally (for example, *mountain* in (161) denotes the function f_{climb} which takes each member of the set of climbers as its argument and assigns to it a set of mountains that they climbed). If we assume that the set of climbers evoked by focus/*wh*-operators is used to restrict the *C* argument of *-est*, we obtain the same effect, while keeping *-est* DP-internally. The technical implementation is presented in Chapter 4. What I address now is my (tentative) conclusion based on the data in (162) that in Hungarian it is not enough that the contextual restriction on *C* be congruous with the focus structure of the sentence, as it is the case in my analysis of English in (152) where, for example, the absence of narrow focus is felicitous with a relative reading as long as there is no clash with the contextual specification. Instead, the contextual restriction on *C* and the alternatives contributed by focus structure

(assuming that in the absence of narrow focus, the sentence is interpreted as containing wide focus) must provide an exactly matching specification for *C*.

The Hungarian data is compatible with the assumption that relative readings require a licensing context. As discussed in the previous section, 3.1.1, in English, in sentences uttered out of the blue prosodic focus indicates the implicit background context. This context is used to specify relative readings. When a written sentence is presented out of the blue in English, any of its constituents may be interpreted as focused, and hence this sentence may be compatible with different contexts (this is presumably so, because the readers are supplying implicit focus). In Hungarian, however, only pre-verbal constituents can be interpreted as focused (i.e. there is a truth conditional effect of focus) (É. Kiss 1998). Therefore, in the absence of a pre-verbal focus, as in (161b-c), (162b-c), and (164), the sentences are incompatible with a context specifying a set of alternatives that imposes a further restriction on the comparison class. Similarly, when in an answer to a *wh*-questions, the constituent corresponding to the *wh*-expression in the question does not appear in the pre-verbal position, the answer is not appropriate (cf. (160)). Only in the pre-verbal focus position, but not in the topic position, (161b-c), can *János* be interpreted as a member of the set of alternatives licensing relative readings. Obviously, this raises the issue of the different ways topics and foci introduce alternatives, and their role in the restriction of quantifier domains (Jackendoff 1972, von Stechow 1994, Roberts 1996, Kadmon 2001, Büring 2003, 2014, Wagner 2012, Constant 2012). It is sometimes suggested that topics, just like foci, can restrict quantifier domains, but additionally they presuppose that the sentence is an answer to an implicit multiple *wh*-question. Interestingly, in Hungarian multiple *wh*-questions, only the second, immediately pre-verbal *wh*-phrase specifies the alternatives, but not the first one (Szabolcsi 1986). The question in (165) can have only one reading, which Szabolcsi specifies as ‘For every *x*, for which *y*, *x* saw *y* more frequently than how frequently *x* saw anyone else’.

- (165) *Ki kit látott a legtöbbször?* (Hungarian)
 who whom saw the most-frequently (Szabolcsi 1986)
 ‘Who saw whom most frequently?’

The requirement that in Hungarian the constituent with respect to which the relative reading is established is either a *wh*-operator or a syntactic focus, is thus explained by the fact that only in

these two cases the relevant set of alternatives is computed. In English, on the other hand, a constituent anywhere within the clause can be interpreted as focused, so as long as the relative reading is licensed by the context and the F-marking match (e.g. in (143) F is on *John* and not some other constituent) the contextual restriction on *C* can be obtained.

It should perhaps be noted that treating focus effects as one of the ways contextual restriction on *C* is obtained, straightforwardly accounts for the fact that neither in English, nor in Hungarian the presence of focus forces the relative readings, but is also compatible with the absolute interpretation. The focus on *John* in (166A) is compatible with the context in (166Q), which introduces a set of people who climbed the same mountain. Since the context already specifies that the comparison is between relevant mountains irrespective of the different climbers that climbed them, focus on *John* has no effect on the specification of *C*.

(166) *Absolute reading and focus*

Q: Someone climbed the highest mountain in the area yesterday. Who was it?

A: [John]_F climbed the highest mountain.

Let us now turn to the Hungarian data shown in section 2.7, in (122) (repeated below in (167), which is used in Szabolcsi (1986) as an argument of DP-external scope of *-est* in Hungarian on relative readings. With split-topicalization in Hungarian, involving the subextraction of the NP from the superlative DP, the absolute reading, (167b), is not available.

- (167) [TOP Zöld ló-val] [FOC itt] találkoztam a legszebb-bel. (Hungarian)
 green horse-with here met-I the prettiest-with (Szabolcsi 1986)
- a. ‘I met a prettier green horse here than anywhere else’
 b. *‘As for green horses, it was here that I met the prettiest of them,
 i.e. the prettiest green horse that there is’

The split-topicalization in (167) results in the NP being interpreted as a contrastive topic and requires the presence of a pre-verbal focus (Márta Peredy, p.c.), which in (167) is the adverbial

here. Contrastive topics in Hungarian are necessarily followed by foci (Szabolcsi 1981, Vallduví & Engdahl 1996, Molnár 1998).

An analysis on which the relative reading of (167) is derived by DP-external scope of *-est*, needs to explain what forces the obligatory covert movement of *-est* out of the DP so that the absolute reading cannot be derived, even though the topicalized NP is clearly able to reconstruct (cf. (124)-(125) in section 2.7). An analysis on which *-est* may stay DP-internally, as long as the context licenses the relative reading supplying a suitable restriction on *C*, predicts that in (167) the discourse effects of topic and focus marking necessarily have an effect on *C*. The absolute readings obtain in the presence of focus if the comparison set is already established in the context, (166), (168A).

(168) Q: Where did you meet the prettiest green horse that there is?

A: I met the prettiest green horse [here]_F.

The interpretation of the topic in (167) is expected to be incompatible with the context in (168A). The focus in (167) evokes a set of alternative locations, which have to be paired with the entities referred to by the topic, that is, we have to be comparing pretty green horses that I met in different places. This can be derived with *-est* DP-internally, (169b). Additionally, the interpretation of the topic requires that green horses contrast with other horses so that the comparison is as follows: ‘As for green horses, in each place *x* I met a pretty green horse; as for yellow horses, in each place *y* I met a pretty yellow horse; as for red horses, ...’. I suggest that this pairing, resulting from the topic-focus structure, is incompatible with the absolute reading requiring a comparison between all the green horses that there are.

(169) a. [~~green horse~~] [here]_F I met [DP the [[*-est* C]₂ [NP₁ *d*₂-pretty [NP₂ green horse]]]]

b. $C \subseteq \{x: \exists d \exists y [x \text{ is } d\text{-pretty green horse} \wedge \underline{\text{I met } x \text{ in } y}]\}$

I observe that exactly the same effect obtains in Polish: with contrastive topic in (170), the adverbial is interpreted (and accented) as focused, and the absolute reading cannot be derived (we cannot compare among pretty green horses without narrowing the set to those that I met in different places).

(170) Zielonego konia (to) tu widziałam najślicznieszego. (Polish)

green.Acc horse.Acc (TopPrt) here I-saw prettiest.Acc

a. ‘I saw a prettier green horse here than anywhere else’. *Relative-1*

b. *‘As for green horses, it was here that I saw the one prettier than any other relevant green horse’. *Absolute*

When the adverbial is absent, as in (171), the adjective is interpreted as focused (I discuss the semantics of split-topicalization in Polish in section 3.2.1) and now the pairing is between horses of some color and their different properties: ‘As for green horses, I saw the most beautiful one; as for yellow horses, I saw the funny one; as for red horses, ...’. This is the absolute reading, because we are taking into account all the relevant green horses that are out there, while in (170) we must compare only those that I met in some place, and not, for instance, those I keep at home.

(171) Zielonego konia (to) widziałam najślicznieszego. (Polish)

green.Acc horse.Acc (TopPrt) I-saw prettiest.Acc

‘As for green horses, I saw the one prettier than any other relevant green horse’. *Absolute*

I conclude, that the absence of the absolute reading does not necessarily indicate that *-est* scopes DP-externally in (167) (so that places and not horses are compared), but is also compatible with an analysis where *-est* stays DP-internally and the interpretation of the topic-focus structure constrains the comparison set in such a way that it cannot contain any relevant horses, as required on the absolute reading. If this is the case, Hungarian does not provide evidence that Relative-1 readings are obtained by DP-external *-est*, and we can maintain the analysis that in the presence of the definite determiner in the superlative phrase *-est* stays DP-internally.

3.1.6 Conclusions for section 3.1

Let us now summarize the findings of section 3.1 that allow me to conclude that when the superlative morpheme *-est* scopes out of superlative DPs, it necessarily associates with focus. When *-est* scopes within the superlative DP, in the presence of the definite determiner, *-est* may but need not associate with focus. In the latter case, the focus effects on relative readings are an

instance of contextual restriction on the domain argument of *-est*, that is, they are exactly the same as the focus effects on quantifier domains resulting from the anaphoric dependence on the same background context (von Stechow, 1994, Beaver and Clark 2008, a.o.).

Focus in English, which is expressed prosodically, can determine the choice between the different relative interpretations that a superlative sentence might have. At the same time, it has no effect on the availability of the absolute reading, and prosodic focus is not required for relative readings to arise when the context provides a suitable specification of the comparison set (which means either that the context licenses an implicit focus not realized prosodically, as in (151), or that the context directly supplies alternatives as in the case of *wh*-operators or PRO, in (142), (146)).

In Polish focus is optional for Relative-1 readings (as evidenced by examples with clitic pronouns as in (153)) just in case *-est* can be interpreted DP-internally. The DP-internal scope of *-est* is guaranteed when there is focus on the superlative adjective.

In Bulgarian focus is optional only when *-est* is DP-internal in definite superlative DPs (Fact 4 in (23)). When the superlative DP is indefinite, and focus is impossible because of the use of a clitic pronoun ((22)/(154)), the corresponding Relative-1 reading is impossible even if the context specifies what should enter the comparison.

In contrast, in Hungarian definite superlative DPs the contextual specification of the comparison set is not enough for relative readings to obtain – syntactically realized focus or a *wh*-operator are needed. I tentatively suggested that the obligatoriness of focus for relative readings with definite superlatives follows if in Hungarian the focus structure is required to not only be congruent with the contextual specification (as it is in English and Bulgarian where focus is optional for relative readings with definite superlatives), but it must provide an exactly matching specification. This is an independent property of how discourse congruence is realized in the focus structure in this language. Contextually licensed focus needs to be syntactically realized. Similarly to English, however, the presence of focus/*wh* does not preclude the absolute reading.

The difference between the different languages can be accounted for by taking focus structure to be determined by discourse coherence, and by assuming that relative readings need to be licensed by the context. Prosodic focus in an English, Polish or Bulgarian sentence uttered out of the blue indicates the implicit context that may be used to derive the specification of *C* for the relative reading with DP internal *-est*. A written sentence is then compatible with different focus

structures and thus different contexts (presumably because of implicit prosody). As already noted in Szabolcsi (1986), the same is not possible in Hungarian. In Hungarian, in a spoken or written sentence, only constituents in a dedicated pre-verbal position can be interpreted as focused, therefore, if this position is empty, the sentence is incompatible with a context that licenses relative readings.

In the next section, I show that the availability of Relative-2 readings depends not only on the availability of DP-external scope of *-est*, but also on the availability of focus interpretation for the third argument of DP-external *-est*. This result is very interesting, because it shows that although scope alone can derive all the possible readings of a superlative sentence lacking a definite determiner, relative readings with DP-external *-est* require focus for a reason other than interpretability (as it is the case with DP-internal *-est* where focus is needed to indicate how the implicit context restricts *C*). This is entirely in line with the conclusion based on the data from Bulgarian indefinite superlatives (Fact 4 in (23); section 3.1.4) that when *-est* scopes out of superlative DPs it necessarily associates with focus.

3.2 Focus and Relative-2

As pointed out in section 1.2.4 it is impossible to derive Relative-2 while keeping *-est* DP-internally, therefore, in a sentence that has the Relative-2 reading *-est* necessarily takes DP-external scope. (In section 2.6.4, it was additionally shown that with DP-internal *-est* even if movement creates a variable within the DP ranging over the alternatives relevant on the Relative-2 reading, the Relative-2 reading fails to be derived.)

Heim's (1999) diagnostic for the DP-external scope of *-est* (section 2.7.1) is based on the prediction that the truth of a relative reading can be evaluated independently of the truth of the absolute, if the two readings involve different LFs. We will see now, though, that in Polish the diagnostic provides unambiguous results only when the overt movement of the superlative expression is involved. The cases of overt movement of the superlative in Polish will reveal that DP-external scope of *-est* needs to be coupled with the focus on the third argument of *-est*.

The Polish sentence in (172) (already shown in (67)) can receive the absolute, the Relative-1 and the Relative-2 readings.

- (172)(=(67)) Jan spotkał najmłodszych studentów z Londynu. (Polish)
 Jan met youngest students from London.
- a. ‘John met those students from London that were the youngest among the *Absolute* (relevant) students from London.’
 - b. ‘John met younger students from London than any other (relevant) person did.’ *Relative-1*
 - c. ‘John met younger students from London than from any other city.’ *Relative-2*

(173) *Scenario*

John met:

Archie, 20, student from London;

Percy, 21, student from London.

Hans, 20, student from Berlin;

Uwe, 21, student from Berlin;

In the scenario in (173), where John met students from London and Berlin such that in both groups the youngest student is 20, it is (i) true that John met the youngest student of the relevant students from London (Absolute, (172a)), and (ii) false the John met a younger student from London than from any other city, (Relative-2, (172c)). Accordingly, the speakers of Polish can accept the statement in (174) as coherent, however, the fact that they can also access the absolute reading interferes with the judgment.

- (174) To nie prawda, że John spotkał najmłodszego studenta z Londynu,
 bo spotkał też studenta z Berlina w tym samym wieku.

It is not true that (172), because he also met a student from Berlin of the same age.

In contrast to (173), a construction which unambiguously expresses only the Relative-2 reading is straightforwardly interpreted as false in the scenario in (172). The construction is reminiscent of the Japanese and Hungarian data seen in section 2.7.2 in that it involves the splitting of the superlative DP. I introduced it in section 1.2.2 as the basis for Fact 5, (28) (“In Polish, the

topicalization of the superlative adjective and obligatory focus on a DP-internal constituent mandate the Relative-2 reading (precluding all other readings).”), and now I discuss it in detail.

3.2.1 The Split Superlative in Polish

The Polish sentence in (172) above is in principle three-way ambiguous; however, the prosody disambiguates between the three readings. The Relative-2 reading requires the prosodic focus on the noun *London*, this, however, does not preclude the absolute reading. Things are different in the sentence in (175) exemplifying a construction that I dub the SPLIT SUPERLATIVE (this sentence, but without the topic particle, was introduced in (27) in section 1.2.2). In (175) the superlative adjective is fronted via Left Branch Extraction and receives the status of the topic (optionally, a topic marker *to* may be present), while *London* is accented as a focus. The sentence in (175) admits only the Relative-2 interpretation, and so it cannot be truthfully uttered in the situation presented in the scenario in (173).^{35,36}

³⁵ For help with the Polish judgments I would like to thank Anna Bondaruk, Barbara Citko, Piotr Gulgowski, Joanna Błaszczak, Anna Janas, Łukasz Jędrzejowski, Piotr Kaźmierczak, Dorota Klimek-Jankowska, Karolina Krzyżanowska, Krzysztof Migdalski, Agnieszka Łazorczyk, Joanna Pietraszko, Agnieszka Pysz, Bożena Rozwadowska, Artur Rozwadowski, Ewa Tomaszewicz, Bartosz Wiland, Ewa Willim, Wojciech Witkowski.

³⁶ It is an interesting question why in the split construction reconstruction is not possible, so that the absolute reading could be obtained. Changes in the word order for the reasons of information structure should not prevent reconstruction to get the basic scope. Note, however, that to get the absolute reading both the overtly moved *-est* and its QRed argument *London* would have to reconstruct. Typically, A'/topic scrambling reconstructs (Neeleman 1994, Büring 1997a, 1997b, Krifka 1998, Neeleman and van de Koot 2008, Bobaljik and Wurmbrand 2012), but in this case also the reconstruction of the focus is needed, which does happen in (175). Compare (175) with (185), where there is only A'-movement of the superlative adjective and the reconstruction of *-est* is obligatory.

- (175) [NajMŁODszych]_{1-Topic} (to) Jan spotkał t₁ studentów z [LonDYnu]-Focus
 youngest_{Acc} TOPICPARTICLE Jan met students_{Acc} from London
 LH* HL*
- a. *‘Jan met those students from London who were the youngest.’ *Absolute*
 b. *‘Jan met younger students from London than anyone else did.’ *Relative-1*
 c. ‘Jan met younger students from London than from any other city.’ *Relative-2*

I first suggested in Tomaszewicz (2013) that the split superlative construction in (175) provides us with the evidence that Relative-2 not only requires DP-external scope of *-est* but also focus on its third argument. Here I will explain why this is so, and show that what is relevant is not the prosodic focus or a syntactic focus fronting construction, but the availability of focus interpretation, that is, the F-marking visible to the interface. We thus obtain evidence that the Relative-2 reading of (172) requires focus on the third argument of the DP-external *-est*.

First, let us consider the semantic and discourse effects of the topicalization of the adjective in (175). The canonical word order in Polish is SVO and A'-movement derives non-canonical word orders to satisfy the requirements of the discourse component of grammar (referred to as Information Structure (Vallduví 1992), Information Component (Lambrecht 1994), F-Structure (Erteschik-Shir 1997), Assertion Structure (Zubizarreta 1998)). In the Slavic languages various ‘split’ constructions (split scrambling, split topicalization) are associated with a “marked information structure” (Féry, Paslawska and Fanselow 2007: 3). Each of the parts of the split phrase has a different information status (topic, focus, given, new) even if they remain in a single intonation phrase.

In Polish, an all-new sentence (wide focus) receives the unmarked prosody, where pitch accents fall on each argument and adjunct, the last being the strongest, the (nuclear) pitch accent. Topics and foci are marked by pitch accents with different contours as well as intonational phrasing. The part of the sentence that constitutes the focus is that which provides the new information as provided in an answer to a *wh*-question. Topics convey the information which is already given in the question and which can be elided in the answer. With neutral intonation, in Polish, as in other Slavic languages, topics tend to precede foci, as schematized in (176) (Dyakonova 2009, Baylin 2012, a. o.).

(176) *Information Structure Ordering Rule in Slavic* (Dyakonova 2009, p. 55):

Topic > (Discourse Neutral Material) > Focus

In accordance with the rule in (176), the constituents that are interpreted as foci receive the nuclear stress (on the neutral intonation), a falling accent HL*. (HL* has been reported by Alter (1997) for Russian, and Féry et al. (2007) for Ukrainian³⁷, and according to my intuitions it is the same in Polish). Thus, the same contour can be used for either wide focus, (177), or for narrow focus, (178).

(177) A: Co się dziś wydarzyło w szkole? (Polish)

what RELFtoday happened at school

‘What happened at school today?’

B: [Jan spotkał stuDENTów]_F

Jan met students

HL*

(178) A: Kogo Jan spotkał?

who Jan met

‘Who did Jan meet?’

B: Jan spotkał [stuDENTów]_F

Jan met students

HL*

³⁷ Other studies on the prosody of narrow vs. wide focus in Slavic languages report a variety of contours for narrow focus (Andreeva and Oliver 2005 for Polish and Bulgarian, Eschenberg 2007 for Polish, Zsiga and Zec 2012). Their materials, however, did not control for a contrastive interpretation of narrow focus. Actually, Féry et al. (2007) report that in Ukrainian the object receives the HL* accent on the wide focus reading, but a H*L accent on the narrow focus reading. In Polish this is not obligatory, while narrow focus on the subject obligatorily receives the H*L contour. Obviously, more experimental work is needed, all of the cited studies were based on the recording of one or two speakers.

The rule in (176) has the effect that with neutral intonation the last constituent in the sentence, marked by the falling accent HL*, can receive the status of the focus. I will call this right-peripheral focus ‘syntactic focus’, (179i). This focus is illustrated in (180) where the subject *wh*-question is the most felicitously answered with the focused subject at the right-periphery of the sentence, (180a) (Dyakonova 2009, Neeleman and Titov 2009, Bailyn 2012, Jasinskaja 2012). In the answer (180b) the focused subject is in its canonical position and the sentence cannot have a neutral prosody – the left peripheral focus requires a rising pitch accent (H*L) on the subject with the remainder of the sentence de-accented, (179ii). A rising pitch accent tends to mark contrastive foci, (180c)³⁸.

(179) Two kinds of focus in Polish:

- (i) Right-peripheral focus with neutral prosody. (Syntactic focus)
- (ii) Left-peripheral focus with non-neutral prosody. (“Intonation Focus” in Bailyn (2012), p. 280: Any Focus that is not on the right is accompanied by IK-2 (H*L).)

(180) Kto spotkał studentów? (Polish)

who met students

‘Who met students?’

a. Studentów spotkał [JAN]_F

students met Jan

HL*

‘Jan met students.’

³⁸ The rising accent is probably not limited to contrastive statements. In a one speaker study on Polish by McKinney-Bock (ms.) the L+H* accent was also found on some associates to focus particles like *only* and *even*. Though the paradigm in (180) suggests that right-peripheral focus as in (180a) (syntactic focus (179i)) and left-peripheral focus as in (180b) (intonation focus (179ii)) are semantically equivalent, Bailyn (2012) and Dyakonova (2009) argue that the leftward movement of focused constituents is not triggered for the sole purpose of focusing. Dyakonova proposes that focus fronting is triggered by D-linking, in terms of Pesetsky (1987), which is distinct from the expression of topic and focus, though it still belongs to the properties of discourse.

- b. [JAN]_F spotkał studentów.
 Jan met students
 H*L
 ‘Jan met students.’
- c. Studentów spotkał [JAN]_{F-Contrastive} (a nie Marek)
 students met Jan and not Marek
 L+H*
 ‘Jan (and not Marek) met students.’

As Féry, Paslawska, and Fanselow (2007) report for Ukrainian, and which is also the case in Polish, the splitting of a constituent is driven exactly by the need to phrase the parts separately and assign different accents to them. The distinction between (180a) and (180c) is important because in the split topic construction, we observe the neutral prosodic contour, as in (180a). The Left-Branch Extraction of the superlative adjective prevents the projection of the focus marked by the nuclear pitch accent as in (177), that is, it prevents a wide focus interpretation – the noun that remains in-situ and receives the nuclear pitch accent is necessarily interpreted as narrow focus.

In (175), repeated below in (181), the fronted superlative adjective, is accented as a topic (with a rising LH* contour) and the rest receives the full intonational contour with the nuclear pitch accent on *London*, HL* (two intonation phrases are formed, as marked by the *i*-subscripts).

- (181) [[NajMŁODSzych]_{1-Topic (to)}]_i [Jan spotkał *t*₁ studentów z [LonDYnu]_{-Focus}]_i
 youngest_{Acc} TOPICPARTICLE Jan met students_{Acc} from London
 LH* HL*
- a. *‘Jan met those students from London who were the youngest.’ *Absolute*
 b. *‘Jan met younger students from London than anyone else did.’ *Relative-1*
 c. ‘Jan met younger students from London than from any other city.’ *Relative-2*

The split topic superlative construction, (181), appears to be an instance of what Büring (2003, 2014) calls contrastive topics (CT). On his proposal “CT- or F- marking is obligatory, namely if an element is not Given” (Büring 2003:529), so “contrastive” does not literally mean contrasting

with another element that has previously been mentioned, but with some contextually salient, possibly implicit, alternative. Consider Büring's example in (182) where the answers A1 and A2 are both appropriate as answers to the question Q, but, in fact, they directly answer the implicit subquestions SQ1 and SQ2.

(182) Q: How many (of the 74) abstracts got accepted? (Büring 2003)

SQ1: Did any abstracts get accepted?

A1: (Yes,) SOME_{CT} abstracts DID_F get accepted.

L+H* H* L-L%

SQ2: Did most abstracts get accepted?

A2: (Yes,) MOST_{CT} abstracts DID_F got accepted.

L+H* H* L-L%

The topic *some* in (182A1) contrasts with *any* in the implicit subquestion, but not with any explicit element in the preceding discourse. In the same way, the topic *youngest* in (181) contrasts with other degrees of youthfulness that are implicitly relevant in the context. The sentence (181) is felicitous in a discourse where different age groups of students are under discussion. It is a perfect continuation of the discourse in (183) and a perfect answer to the question in (184) that serves as the aboutness test (Reinhart (1981) proposes that *X* in the reply to requests such as ‘*tell me about X*’ or ‘*what about X*’ must be interpreted as a topic) as well as identifies the focus through the *wh*-expression ‘*which city*’.

(183) *Jan rekrutował studentów na stażystów w swojej firmie. Najpierw spotkał się ze studentami z Paryża, którzy mieli po 25-27 lat. Potem spotkał się ze studentami z Berlina, którzy mieli po 23-24 lata. Na koniec spotkał się ze studentami z Londynu, którzy mieli po 20-21 lat, lecz nie udało mu się spotkać osiemnastolatków z Londynu, którzy również się zgłosili. Tak więc, (175).*

John has been recruiting students for internships at his company. He first met with students from Paris who were 25-27 years old. Then he met students from Berlin, who were 23-24

*years old. Finally, he met students from London who were 20-21 years old, but he didn't manage to meet the eighteen year olds from London who also applied. **Therefore,***
(175).

(184) A: *Powiedz mi coś grupach wiekowych studentów, których spotkał Jan. Z jakich miast pochodzili?*

Tell me something about the age groups of students that Jan met. Which cities were they from?

B: [Najmłodszych]_T Jan spotkał studentów z [Londynu]_F, a [najstarszych]_T z [Paryża]_F.
youngest Jan met students from London and oldest from Paris
'The youngest students that John met were from London, the oldest from Paris.'

The prosody of (181)(=175)) contrasts with (185) where the Left-Branch Extracted superlative adjective *youngest* is contrastively focused (with a rising pitch accent H*L), while the part remaining in-situ is de-accented together with the rest of the sentence and interpreted as given (there is only one intonational phrase). With this prosody, Left-Branch Extraction of the superlative adjective in (185) results in the presence of the absolute reading only. The sentence in (185) is not appropriate in the discourses in (183) and (184). It requires a very specific context in which the property *youngest* is in the common ground and can be contrasted with other properties. For example, when properties such as *youngest*, *oldest*, *tallest*, *shortest* students are under discussion, (185) is a felicitous answer to the question in (186).

(185) [[NajMŁODszych]_{1-Focus} [Jan spotkał t₁ studentów z Londynu]-Given]_i
youngest_{Acc} Jan met students_{Acc} from London
H*L

- a. 'Jan met those students from London who were the youngest.' *Absolute*
- b. *'Jan met younger students from London than anyone else did.' *Relative-1*
- c. *'Jan met younger students from London than from any other city.' *Relative-2*

(186) Q: Jakich₁/których₁ studentów z Londynu Jan spotkał t₁ ?

what-kind/which students_{Acc} from London Jan met

‘What kind of/Which students of linguistics did Jan meet?’

A: (185).

We have thus identified two grammatical environments where the scope of *-est* must be constrained. In (181)(=175)) the scope of *-est* cannot be DP-internal since the absolute reading is unavailable, that is, just the pied-piped adjective reconstructs, (187a), and the only available reading is Relative-2, which requires DP-external scope (this situation is different from the split construction in Hungarian in section 3.1.5, as I explain below). In (185) the absolute is the only available reading, therefore *-est* must be able to reconstruct within the DP, together with the adjective, resulting in the LF in (187b).

(187) a. LF for (181)(=175):

[London]_F [~~young~~-*est* C] $\lambda d \lambda x$ [Jan met [_{DP} *d*-young students from *x*]]

$C \subseteq \{x: \exists d$ [Jan met *d*-young students from *x*]} *Relative-2*

b. LF for (185):

[~~young~~-*est*]_F Jan met [_{DP} the [-*est* C] λd [*d*-young students from London]]

$C \subseteq \{x: \exists d$ [*x* are *d*-young students from London]} *Absolute*

The contrast in the availability of the different readings for of (181)(=175)) and (185) provides clear evidence that the ambiguity is grammatical. Moreover, the contrast informs us about the role of focus in relative readings as I discuss in detail next. In (187b), due to syntactic focus on the superlative adjective, it is impossible to interpret any other constituent as focused and, accordingly, only the absolute interpretation obtains. In (187a) the third argument of *-est*, *London*, must be interpreted as focused. This data further indicates that while both the Relative-1 and the Relative-2 readings need to be licensed by context, it is only with DP-external *-est* that focus is obligatory.

The Polish split topicalization data also shows that while the presence of the Relative-2 reading and the loss of the absolute provides direct evidence for the DP-external scope of *-est*, the presence of the Relative-1 reading and the loss of the absolute does not provide such evidence. In section 3.1.5, I provided Polish examples parallel to the Hungarian ones where topic-focus structure mandated the Relative-1 reading and prohibited the absolute. In (170) (below as (188)) there is a

contrastive topic *green horse*, the adverbial *here* is focused and the only available reading is Relative-1 set with respect to the adverbial. In (189) the superlative adjective *greenest* is topicalized alongside the noun, *here* is the focus, and again the absolute interpretation is unavailable.

- (188) [Zielonego konia]_{1-Top} (to) [tu]_F widziałam najślicznieszego *t*₁. (Polish)
 green._{Acc} horse._{Acc} (TopPrt) here I-saw prettiest._{Acc}
 a. ‘I saw a prettier green horse here than anywhere else’. *Relative-1*
 b. *‘As for green horses, it was here that I saw the one prettier than any other relevant green horse’. *Absolute*

- (189) [Najzieleńszego konia]_{1-Top} (to) widziałam [tu]_F *t*₁.
 greenest._{Acc} horse._{Acc} (TopPrt) I-saw here
 a. ‘I saw a greener horse here than anywhere else’. *Relative-1*
 b. *‘As for green horses, it was here that I saw the one greener than any other relevant green horse’. *Absolute*

As discussed in 3.1.5, the contrastive topic-focus structure has the effect of evoking pairs between the set of alternatives to the topic and the focus alternatives. In (188) there is a pairing between sets of horses of different colors and places where I saw them; in (189) the pairing is between horses of different intensities of green and the places where I saw them. Thus, in each case the comparison set is restricted to horses that I saw, and this topic-focus structure cannot be ignored like in (190) which contains only prosodic focus and allows both the Relative-1 and the absolute reading.

- (190) [Tu]_F widziałam najzieleńszego konia. (Polish)
 here I-saw greenest._{Acc} horse._{Acc}
 a. ‘I met a greener horse here than anywhere else’. *Relative-1*
 b. ‘It was here that I met the horse greener than any other relevant horse’. *Absolute*

3.2.2 -Est's third argument and focus interpretation

As shown in the previous section, in the split superlative construction, the sub-extraction of the superlative adjective results in the assignment of special information status to the discontinuous sub-constituents of the DP. On neutral prosody, the rightmost constituent is interpreted as narrow focus, (191). On non-neutral prosody, the left-most constituent, the superlative adjective, is marked as narrow focus, (192).

(191) [Najmłodszych]_{1-Topic} Jan spotkał [DP t₁ studentów z [Londynu]-Focus]
 youngest_{Acc} Jan met students_{Acc} from London (Polish)
 ‘Jan met younger students from London than from any other city.’ *Relative-2*

(192) [Najmłodszych]_{1-Focus} [Jan spotkał [DP t₁ studentów z Londynu]]-Given
 youngest_{Acc} Jan met students_{Acc} from London
 ‘Jan met those students from London who were the youngest.’ *Absolute*

In each case the special information status is restricted only to the discontinuous sub-constituents of the DP and not to any other constituent. The case in (192) is simple: there is only one focus, on the fronted superlative adjective. Interestingly, when the superlative adjective is topicalized, there are two options. The first is more natural as it involves neutral prosody, by which the nuclear pitch accent falls on *London* marking it as narrow focus, (191). A more marked option involves adding a rising pitch accent to the other constituent of the DP, *students*, by which it is marked as narrow focus, (193). Note the resulting change in the interpretation – now the comparison is between students from London and other groups, for example, professors from London that Jan met.

(193) [Najmłodszych]_{1-Topic} Jan spotkał [DP t₁ [studentów]-Focus z Londynu]
 youngest_{Acc} Jan met students_{Acc} from London
 ‘Jan met younger students from London than any other group of people from London.’ *Relative-2*

None of the constituents outside the discontinuous DP can be the narrow focus. For example, placing a pitch accent on *Jan* as in (194) is ungrammatical. Even in a corrective statement it is barely acceptable, (195b-B).

(194) *[Najmłodszych]_{1-Topic} [Jan]_{-Focus} spotkał [DP t₁ studentów z Londynu]
 youngest_{Acc} Jan met students_{Acc} from London

Intended reading:

‘Jan met younger students from London than anyone else did.’ *Relative-1*

(195) A: Przybyli młodzi studenci z różnych miast. ...

Young students from different cities arrived. ...

[Najmłodszych]_T Jan spotkał studentów z [Londynu]_F

youngests Jan met students from London

‘Jan met younger students from London than from any other city.’

B: Nie! Nie Jan. */?[Najmłodszych]_T [Adam]_F spotkał studentów z Londynu.

‘No! Not Jan. Adam met younger students from London than from any other city.’

To recap, in (191), where the split topicalization of the adjective results in the noun *London* being obligatorily focused, the only available interpretation is Relative-2 on which students from different cities are compared. In (193), the superlative adjective is topicalized, the noun *students* is the focus, and the resulting interpretation is Relative-2 on which different groups of people from London are compared. In (185), where the sub-extracted superlative adjective is focused, the only available reading is the absolute.

On a pure scope theory, as in (196), it is unexplained what prevents the derivations of all the readings in the split superlative construction. Since the superlative is already moved overtly indicating DP-external scope, relative readings should be facilitated, yet, when the fronted superlative adjective itself is in focus, (185), only the absolute reading is available.

(196) (=76) *Absolute-relative ambiguity as a result of scope alone:*

a. John met [DP the [-est C] λd [d-young student from London]]

‘Jan met that student from London who was the youngest.’

Absolute

- b. John [-*est* C] $\lambda d \lambda x$ [*x* met [_{DP} a *d*-young student from London]]
 ‘Jan met a younger student from London than anyone else did.’ *Relative-1*
 → *this derivation is independently excluded by scope economy (section 2.6.2)*
- c. London [-*est* C] $\lambda d \lambda x$ [John met [_{DP} a *d*-young student] from *x*]]
 ‘John met a younger student from London than from any other city.’ *Relative-2*
- d. student [-*est* C] $\lambda d \lambda X$ [John met [_{DP} a *d*-young *X* from London]]
 ‘John met a younger student from London than any other people from London that he met.’ *Relative-2*

The split superlative data indicates that for relative readings with DP-external scope, it is necessary that the constituent that saturates *-est*’s third argument is interpreted as focused, (197), that is, as an element of a contextually given (or implicitly evoked) set of alternatives.

(197) Absolute-relative ambiguity as a result of **scope** and **focus**:

- a. John met [_{DP} the [-*est* C] λd [*d*-young student from London]]
 ‘Jan met that student from London who was the youngest.’ *Absolute*
- b. [**John**]_{Focus} [-*est* C] $\lambda d \lambda x$ [*x* met [_{DP} a *d*-young student from London]]
 ‘Jan met a younger student from London than anyone else did.’ *Relative-1*
 → *this derivation is independently excluded by scope economy (section 2.6.2)*
- c. [**London**]_{Focus} [-*est* C] $\lambda d \lambda x$ [John met [_{DP} a *d*-young student from *x*]]
 ‘Jan met a younger student from London than from any other city.’ *Relative-2*
- d. [**student**]_{Focus} [-*est* C] $\lambda d \lambda X$ [John met [_{DP} a *d*-young *X* from London]]
 ‘Jan met a younger student from London than any other people from London that he met.’ *Relative-2*

This is not possible when the narrow focus is on the fronted superlative adjective, as in (185) (below as (206a)). Focus on the fronted superlative adjective precludes focus on the third argument of *-est* preventing relative readings; accordingly the superlative is required to reconstruct for the absolute reading, (206b).

- (198)=(185) a. [**NajMŁODszych**]_{1-Focus} [Jan spotkał t_1 studentów z Londynu]-Given
 youngest_{Acc} Jan met students_{Acc} from London
 ‘Jan met those students from London who were the youngest.’ *Absolute*
- b. [~~young-est~~]_{Focus} Jan met [DP the [-*est* C] λd [d -young students from London]]
 $C \subseteq \{x: \exists d [x \text{ are } d\text{-young students from London}]\}$ *Absolute*

The proposal illustrated in (197) requires that QRed constituent that saturates *-est*'s third argument is interpreted as focused. However, it is not the case that the QR itself is a covert counterpart of focus movement that is available in a language (recall the Polish has both a right- and a left-peripheral focus position, (179)). If it were, then we should find parallels with overt focus movement such that when overt fronting is impossible, the covert movement from the same position should also not be available. In the next section I show that the movement of the third argument of *-est* cannot be thought of as covert focus movement, that is, the availability of the movement of the third argument is not contingent on the availability of focus fronting in a language.

The way focus in the split superlative construction determines the relative readings of *-est* is exactly parallel to the way focus determines the truth-conditions of a sentence containing the exclusive particle of *only*. The truth-conditional contribution of the exclusive particle *only* is determined by association with focus (Rooth (1985), (1992), 1996, von Stechow (1994), Beaver & Clark (2008)) (see section 4.3 for the technical implementation of focus effects on the interpretations of *only*). Note first, how focus is licensed by the preceding context in both the split superlative example in (199) and the example with *only* in (200a) ((4) in Tomaszewicz 2013: 227). In both cases, split topicalization is not felicitous out of the blue. As discussed in the previous section, in the split topic construction, the topic needs to contrast with some of the (implicit or explicit) information given in the preceding context; here the different prices of sweets Jan bought for Marek. Split topicalization unambiguously marks *cake* as focus. In (199) this focus determines that Relative-2 is the only available reading, and in (200a) *only* must associate with *cake*. (200a) contrasts with (200b) where association with *cake* is impossible, because with natural intonation the whole DP is interpreted as focused.

(199) Context: ‘Jan poszedł kupić różne drogie słodycze dla Marka. ...’ (Polish)

‘Jan went to buy various expensive sweets for Marek. ...’

[Najdroższe]_{1-Topic} *pro* kupił mu *t₁* [CIASTKO]_{-Focus}
 most-expensive_{Acc} *pro* bought him cake_{Acc}

‘He bought a cake that was more expensive than anything else he bought him.’

(200) Context: ‘Jan poszedł kupić różne słodycze dla Marka. ...’

‘Jan went to buy various sweets for Marek. ...’

a. Drogi_i *pro* kupił mu tylko *t_i* [ciastko]_F.
 expensive *pro* bought him only cake

‘He bought her sweets of which only the cake was expensive.’

b. *pro* Kupił mu tylko [drogie ciastko]_F.
 bought him only expensive cake

‘He bought him only an expensive cake and nothing else.’

In both (199) and (200) the truth-conditional contribution of *-est* and *only* is determined on the basis of the sole narrow focus that the sentence contains. No other interpretation is available because the syntax unambiguously marks focus and therefore no other constituent can be interpreted as focused.

3.2.3 Focus movement at LF?

In Polish, where the superlative DP is always morphologically indefinite, the availability of the Relative-2 reading indicates that the movement of *-est*'s third argument must have taken place covertly. Interestingly, this covert movement is available also when parallel overt movement is not possible, which is hard to explain if the trigger in both cases is the same, for example, focus. Overt focus fronting is available in Polish (as shown in the previous section, (179), but in some syntactic configurations the focus cannot be moved overtly. We would expect that the same structural considerations block the covert movement of the focus. If, on the other hand, the covert movement is unrelated to focus movement at LF, but it is instead associated with the scope *-est*, we do not

expect parallelism between overt and covert movement from the same position. *-Est* needs to tuck in under a QRed constituent of the right type to saturate its third argument, which can be described as a ‘parasitic’ scope configuration (Barker 2007; Szabolcsi 2012). Since, however, the QR of *London* in (197c) above does not seem to have any motivation other than to serve as *-est*’s argument, the two movement operations appear to be parasitic on one another. Again, if *London* QRed simply due the fact that any DP can undergo QR, the syntactic configuration should have an effect on both overt and covert movement from the same position. Recall that in section 2.6.2 I discussed how the QR of the third argument of *-est* is an instance of optional QR, that is, a QR operation driven by semantic considerations other than type mismatch. Accordingly, we can think of *-est* as providing the trigger for the covert movement of its third argument, that is, the two covert movements are mutually parasitic on one another. In this section I present examples showing that focus is not what triggers the covert movement of DP-internal constituents such as *London*. We will see that Relative-2 gets derived whether or not the constituent serving as the third argument can be moved overtly via *wh*-movement or focus fronting. This shows that in Polish covert movement is always available for the derivation of the Relative-2 reading irrespective of the constraints on overt focus fronting, which, as I just pointed out, is unexpected if both movement operations are motivated by focus.

In section 2.6, I discussed the hypothesis that the restrictions on the movement of *-est*’s individual argument out of the DP account for the cross-linguistic variation in the availability of the Relative-2 reading (hypothesis (i) in (77)). This section provides further arguments against the hypothesis (77i). Hypothesis (i) predicts that, within a single language, the variability in the availability of extraction out of a DP should affect the availability of the Relative-2 reading. We will now see that in Polish the variability in acceptability of overt extraction does not correlate with the availability of the Relative-2 reading.

I will now consider further examples of split superlatives, following the pattern in (191) (where the superlative adjective is topicalized and *-est*’s third argument is focused). The derivation of the Relative-2 reading for (191) requires the covert movement of the constituent *London*, structurally and prosodically marked as focused (cf. the LF in (197c)). This movement has its correlate in *wh*-movement in (201Q) and the overt movement of the PP ‘*from London*’ in (201A) (question-answer congruence identifies *London* as focus). We could assume that Polish has Relative-2 readings

because it can both QR *-est* out of the DP and overtly move focused constituents to the left-edge of the clause. The latter, however, is not necessary as the examples below show.

(201) Q: [Z jakiego miasta]₁ Jan spotkał studentów *t*₁ ? (Polish)

from which city Jan met students_{Acc}

‘Which city did Jan meet students from?’

A: [Z Londynu]₁ Jan spotkał studentów *t*₁ .

from London Jan met students_{Acc}

‘Jan met students from London.’

The examples in (202)–(203) show that the possibility of covert extraction of the constituent merging as *-est*'s third argument at LF need not coincide with the availability of overt extraction. (202), just like (181)(=(175), receives only the Relative-2 reading, for which the Genitive noun *linguistics* must raise just as *London* does in (197c). However, the overt counterpart of this movement results in unacceptability or reduced acceptability (with variation between speakers), (203Aa), according to the majority of my informants. In contrast, the speakers judge the sentence in (204A), where the fronted focus is a PP, as either fully acceptable or more acceptable than (203Aa) (i.e. all speakers prefer (204A) to (203Aa)). The sentence in (202) thus provides further evidence for the conclusion from section 2.6.1 ‘Morphological definiteness and extraction’, where I discussed English clefts, that the availability of overt movement of *-est*'s third argument cannot be solely responsible for the availability of Relative-2 readings in a language.

(202) [NajMŁODszych]₁-Topic (to) Jan poznał *t*₁ studentów [lingWISytyki]_{-Focus}
 youngest_{Acc} TOPICPARTICLE Jan met students_{Acc} linguistics_{Gen} (Polish)
 LH* HL*

- a. *‘Jan met those students of linguistics who were the youngest.’ *Absolute*
 b. *‘Jan met younger students of linguistics than anyone else did.’ *Relative-1*
 c. ‘Jan met younger students of linguistics than of any other major.’ *Relative-2*

(203) Q: Jakiego kierunku studentów spotkał Jan? (Polish)
 which_{Gen} major_{Gen} students_{Acc} met Jan

‘Students of which major did Jan meet?’

A: a. ^{*/?}[_{NP} Lingwistyki]_i Jan spotkał studentów *t_i*.

linguistics_{Gen} Jan met students_{Acc}

‘Jan met students of linguistics.’

b. Jan spotkał studentów lingwistyki.

Jan met students_{Acc} linguistics_{Gen}

‘Jan met students of linguistics.’

(204) Q: Z jakiego kierunku studentów spotkał Jan? (Polish)

from which_{Gen} major_{Gen} students_{Acc} met Jan

‘Students of which major did Jan meet?’

A: [_{PP} Z lingwistyki]_i Jan spotkał studentów *t_i*.

from linguistics_{Gen} Jan met students_{Acc}

‘Jan met students of linguistics.’

This same point can be further illustrated with a Genitive NP that does allow overt focus fronting, and with an adjunct that does not. The sentence in (205) in the given context receives the *Relative-2* reading, where the comparison class is set with respect to the NP-complement ‘crown caps’ as required by the context. The split construction grammatically precludes the absolute and *Relative-1* readings. As opposed to the Genitive NP in (203), now the Genitive NP has a partitive interpretation and allows both *wh*-movement and focus fronting, (206Q, Aa) (judged by my informants as acceptable but not fully so).

(205) *Context*: Although none of his friends had a collecting hobby, Marek started to collect stamps, crown caps and coins at the same time.

Po dwóch miesiącach największą_i pro miał *t_i* kolekcję [kapsli]_F. (Polish)

after two months biggest_{Acc} had collection_{Acc} crown-caps_{Gen}

‘In two months his collection of crown caps was bigger than his other collections.’

(206) Q: [?]Czego Marek miał kolekcję? (Polish)

what_{Gen} Marek had collection_{Acc}

‘What did Marek have a collection of?’

A: a. [?][Kapsli]_i Marek miał kolekcję *t_i*.

crown-caps_{GenN} Marek had collection_{Acc}

b. Marek miał kolekcję kapsli.

Marek had collection_{Acc} crown-caps_{Gen}

‘Marek had a collection of crown-caps.’

If we modify the NP ‘crown caps’ with an adjunct, on the *Relative-2* reading the comparison class will be set with respect to the adjunct, (207). The adjunct itself, however, resists overt fronting, (208) ((208Aa) is judged as questionable by my informants as opposed to (208Ab), which is fully acceptable³⁹).

(207) *Context*: Although none of his friends had a collecting hobby, Marek started to collect

crown caps for beer bottles, soda bottles and juice bottles. After two months ...

Największą_i pro miał *t_i* kolekcję kapsli [od piwa]_F. (Polish)

biggest_{Acc} had collection_{Acc} crown-caps_{Gen} from beer

‘His collection of crown caps for beer bottles was bigger than his collections of caps for other bottles.’

(208) Q: Kapsli od czego Marek miał kolekcję? (Polish)

crown-caps_{Gen} from what_{Gen} Marek had collection_{Acc}

‘What kind of crown-caps did Marek have a collection of?’

A: a. ^{*/?}[Od piwa]_i Marek miał kolekcję kapsli *t_i*.

from beer Marek had collection_{Acc} crown-caps_{Gen}

‘Marek had a collection of beer bottle crown-caps.’

³⁹ Somewhat surprisingly, (208Ab) is judged as fully acceptable in contrast to (206Aa). Perhaps this has to do with PF considerations, rather than strictly syntactic movement. This further reinforces my point that LF movement of the focus on the *Relative-2* reading is easily available in the split construction irrespective of the availability of overt focus fronting in Polish.

- b. [Kapsli od piwa]_i Marek miał kolekcję _{t_i}.
 crown-caps_{Gen} from beer Marek had collection_{Acc}
 ‘Marek had a collection of beer bottle crown-caps.’

In all of the above examples of split superlatives, the Relative-2 reading required covert movement of the focus that was a sub-constituent of the superlative DP: a PP-adjunct to the head NP in (181)(=(175)), a genitive complement in (202), a genitive-partitive complement in (205), and a PP-adjunct to the genitive complement in (207). However, the movement into the clause of these constituents is not always available overtly. These examples provide us with complementary evidence to the English and Bulgarian data in section 2.6, where we saw that the possibility of the overt movement of the focus extracted from the superlative DP cannot be the only factor determining the availability of the Relative-2 reading cross-linguistically. Overt movement facilitates the Relative-2 reading in English, but not in Bulgarian, while in Polish the Relative-2 reading obtains, even though the same environment resists overt extraction of focus in some of the cases.

This last point is important in ruling out the hypothesis in (77i) according to which the cross-linguistic availability of the Relative-2 reading depends solely on the availability of extraction from the superlative DP in a language. Crucially, this account predicts that, within a single language, the variability in the availability of extraction out of a DP should affect the availability of the Relative-2 reading. I have shown above that this prediction does not hold for Polish where the structure of the DP clearly affected the availability of overt extraction, but had no effect on covert focus movement, as Relative-2 was always available.

The account in (77ii) has nevertheless recently been defended by Shen (2014) who argues that even in a determiner-less language like Polish there are restrictions on the availability of the Relative-2 reading depending on the structure of the DP. On his account, the same structural considerations (specifically, the presence of a DP-projection as explained below) preclude the movement of a DP-internal constituent for the Relative-2 reading in both Polish and English, only that in Polish they show up in fewer environments. Below I review this account and show that in the light of the facts presented in sections 3.1–3.3, his analysis for the contrast between English and Polish cannot be maintained. This further undermines the hypothesis in (77ii) as the basis for cross-linguistic variation.

Shen (2014) follows Bošković and Gajewski's (2011) idea that different relative readings of superlatives will be available cross-linguistically depending on whether or not a language lacks a DP-projection. Bošković (2008) introduced the NP/DP cross-linguistic parameter according to which in determinerless languages the category D is not syntactically projected. Since Polish has no determiners, a superlative phrase such as 'youngest students' is an NP on that account. In English, 'the youngest students' is a DP. Bošković and Gajewski (2011) adopt the assumption of the Movement Theory allowing free movement of *-est* to DP-external position. As a consequence of the NP/DP parameter, on their proposal, *-est* in English has the option of adjoining to the NP, (209a), or QR within the clause, (209b), while in Polish it either needs to stay in-situ, (209c) (which on their account gives the absolute interpretation), or has to QR within the clause, (209d). Adjunction to NP in Polish-type languages is prohibited because in those languages NPs are arguments and adjunction to arguments is banned (Chomsky 1986).

(209) Bošković and Gajewski (2011)

English-type languages:

- a. [DP the [NP [-*est* C] [NP *d*-young students]]]
- b. [-*est* C] ... [DP the [NP *d*-young students]]

Polish-type languages:

- c. [NP *est*-young students]
- d. [-*est* C] ... [NP *d*-young students]

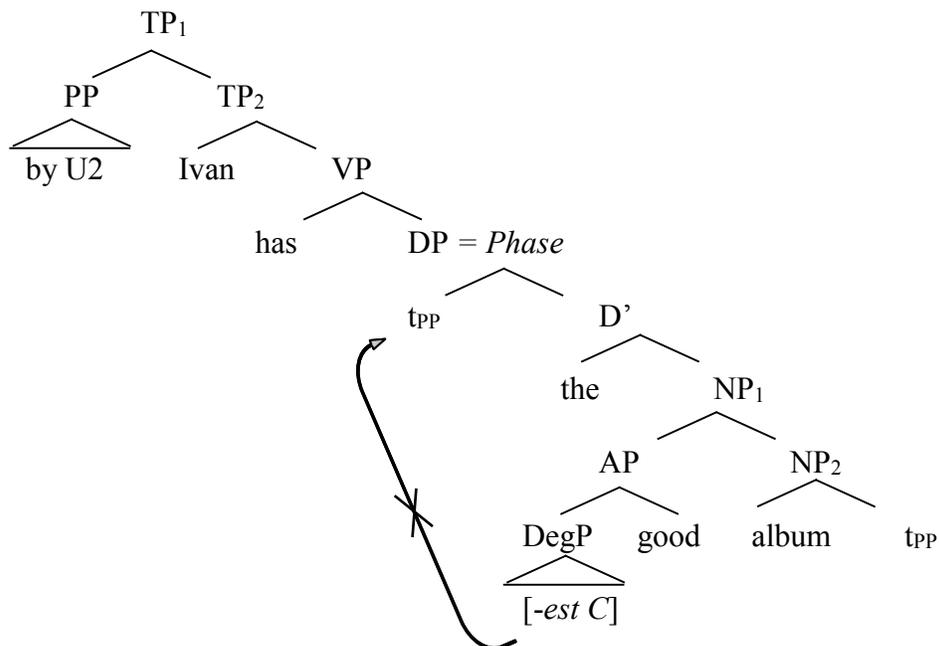
The typology in (209) makes no predictions for the availability of the Relative-2 reading in English- and Polish-type languages, but Shen (2014) uses it to argue that in English the DP-projection prevents the extraction of *-est*'s third argument out of the superlative DP, thus preventing Relative-2. At the same time, Shen makes predictions for contrasts within Polish with respect to the availability of the Relative-2 reading depending on the possibilities for extraction out of the NP. These possibilities depend on whether the superlative is contained within an NP that is a phase or not.

Shen (2014) follows the dynamic approach to phasehood in Bobaljik and Wurmbrand (2005), Wurmbrand (2013), and Bošković (2014). This approach proposes that the highest projection in

the extended projection of a lexical category is a phase, instead of treating only the ν P and the CP as phases (Chomsky 2001). Cross-linguistically, as well as within a language in different constructions, the number of phrases within the extended projection of the same category may be different. A nominal phrase in a determinerless language does not contain a DP projection, but it can either be an NP or a QP, that is, the presence of the quantifier in a nominal phrase results in the QP being projected. Shen argues that Relative-2 in a determinerless language can obtain in both cases, with either an NP or a QP being a phase, if the standard constraints on movement out of phases are satisfied. In contrast, Relative-2 can never be derived in a determiner language where the superlative DP is a phase, because of Chomsky's (2000) Phase Impenetrability Condition (PIC). The PIC requires that movement out of a phase must proceed through the specifier of the phase head. This means that for the Relative-2 interpretation of (210) both *-est* and its third argument must pass through Spec, DP. Since the first movement fills Spec, DP with a trace, the second movement is blocked, (211). On Shen's proposal, however, the same mechanism should exclude overt A'-movement in English (*wh*-movement and movement in *it*-clefts), which as I showed in section 2.6 not only is possible but also makes Relative-2 available. Shen acknowledges that his account needs to be somehow modified to allow for the possibility of overt A'-movement in English.

- (210) John has the best albums of/by U2. ((8) in P&T 2012: 294)
- a. 'John has better albums by U2 than anyone else does.' *Relative-1*
- b. *'John has better albums by U2 than by any other band.' *Relative-2*

(211) LF for (210), ((9) in Shen 2014: 413):



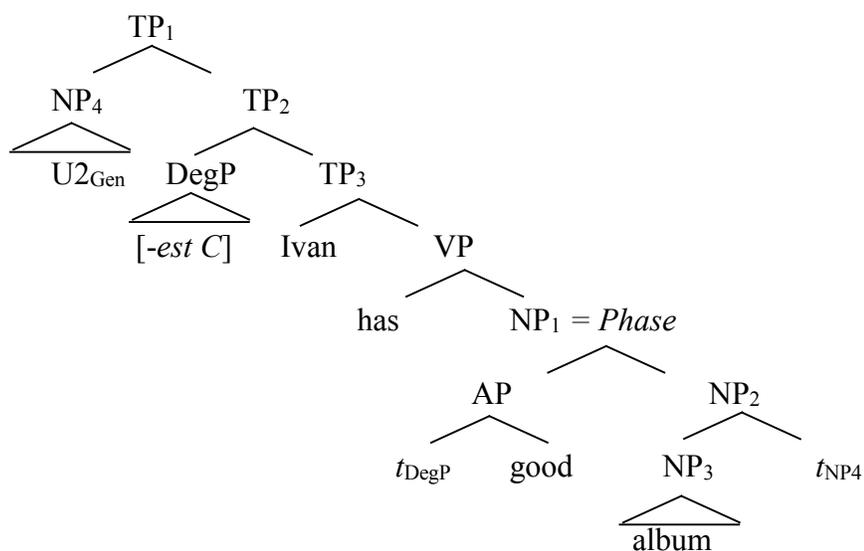
In a determinerless language like Polish the DP is never projected and in its absence, as in (212)–(213), the NP is the phase. In (213) both *-est* and *U2* are in adjoined positions (the edge of the phase), therefore, they move straight to adjoin to TP for the derivation of the Relative-2 reading.

(212) Jan ma najlepsze albumy U2. (Polish) ((15b) in P&T 2012: 295)

Jan has best_{Acc} albums_{Acc} U2_{Gen}

- a. ‘Jan has better albums by U2 than anyone else does.’ *Relative-1*
- b. ‘Jan has better albums by U2 than by any other band.’ *Relative-2*
- c. ‘Jan has those albums by U2 that are the best.’ *Absolute*

(213) LF for (212b), ((10) in Shen 2014: 413):



However, the PIC together with locality considerations not only preclude movement out of DPs, but also out of NPs from the complement position. In (213) the movement of the genitive noun *U2* is taken to be from an adjoined position, while in (214) the genitive noun *linguistics* is a complement of the N phase head. The movement from a complement position is precluded by locality considerations, and hence Shen wrongly predicts the unavailability of the Relative-2 reading for (214).

(214) Jan poznał najmłodszych studentów lingwistyki. (Polish)
 Jan met youngest_{Acc} students_{Acc} linguistics_{Gen} ((12a) in Shen 2014:414)

	Shen	my	
	2014	informants	
a. 'Jan met younger students of linguistics than anyone else did.'	√	√	<i>Rel-1</i>
b. 'Jan met younger students of linguistics than of any other major.'	*	√	<i>Rel-2</i>
c. 'Jan met those students of linguistics who were the youngest.'		√	<i>Abs</i>

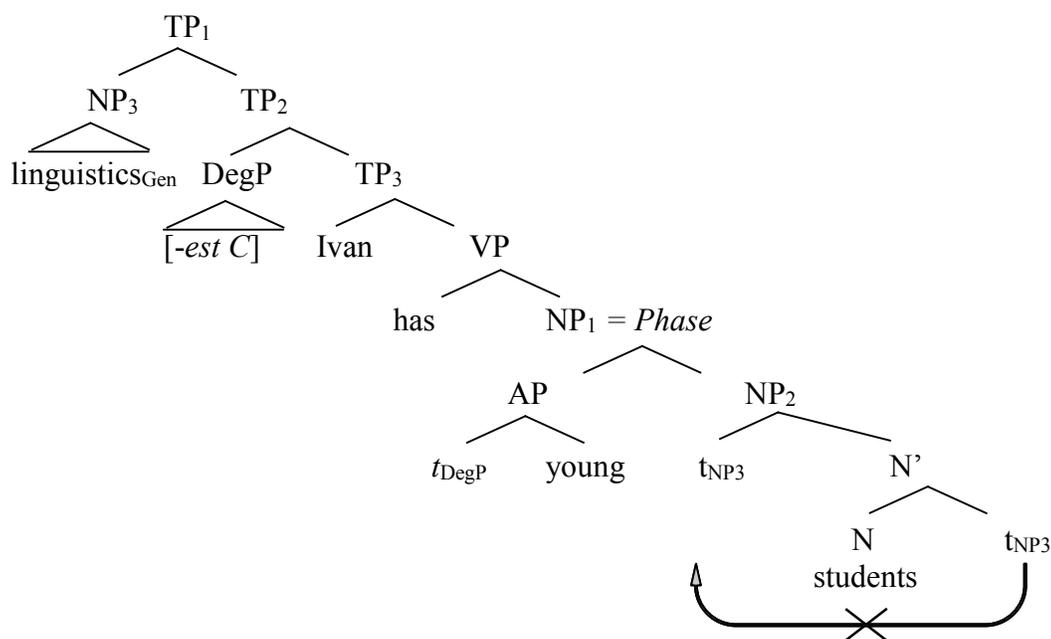
The example in (202) was the split version of (214) and it had only the Relative-2 interpretation. All of the native speakers I consulted⁴⁰ agreed that in a context requiring *Relative-2* the unambiguous (202) would most naturally be used, however, many of them also agreed that Relative-2 is an available interpretation for (214) (with a pitch accent on ‘linguistics’), albeit only secondary to the absolute reading.

The adjunct/complement asymmetry should arise as the result of Abels’ (2003) Anti-Locality Constraint, according to which there can be no movement from the complement to the specifier position of the same head. Such movement is unavailable because there is no formal reason to move given that all features are already satisfied in the Head-Complement Relation. Abels’ postulate relates to movement triggered by feature-checking. Shen applies this reasoning to a movement that is not feature-driven, but is optional on the Wurmbrand (2013)/Fox (2000) approach to QR. On this view obligatory QR resolves a type-mismatch, while optional QR applies to extend scope.⁴¹ The derivation of the Relative-2 reading for (214) requires the movement of *linguistics* from the complement of N to SpecNP₂, (215). This movement violates anti-locality; it is too local. (There are no problems with locality in (213), since the NP ‘U2’ (NP₄), being an adjunct, is merged at the edge of the phase (the edge domain consists of the phase head and its specifiers and adjuncts), and can move straight to SpecTP.)

⁴⁰ As listed in footnote 4.

⁴¹ The comparison between the movement of *-est*’s third argument (optional QR) and obligatory QR has been discussed in section 2.6.2.

(215) LF for (214b), ((12a) in Shen 2014: 414):



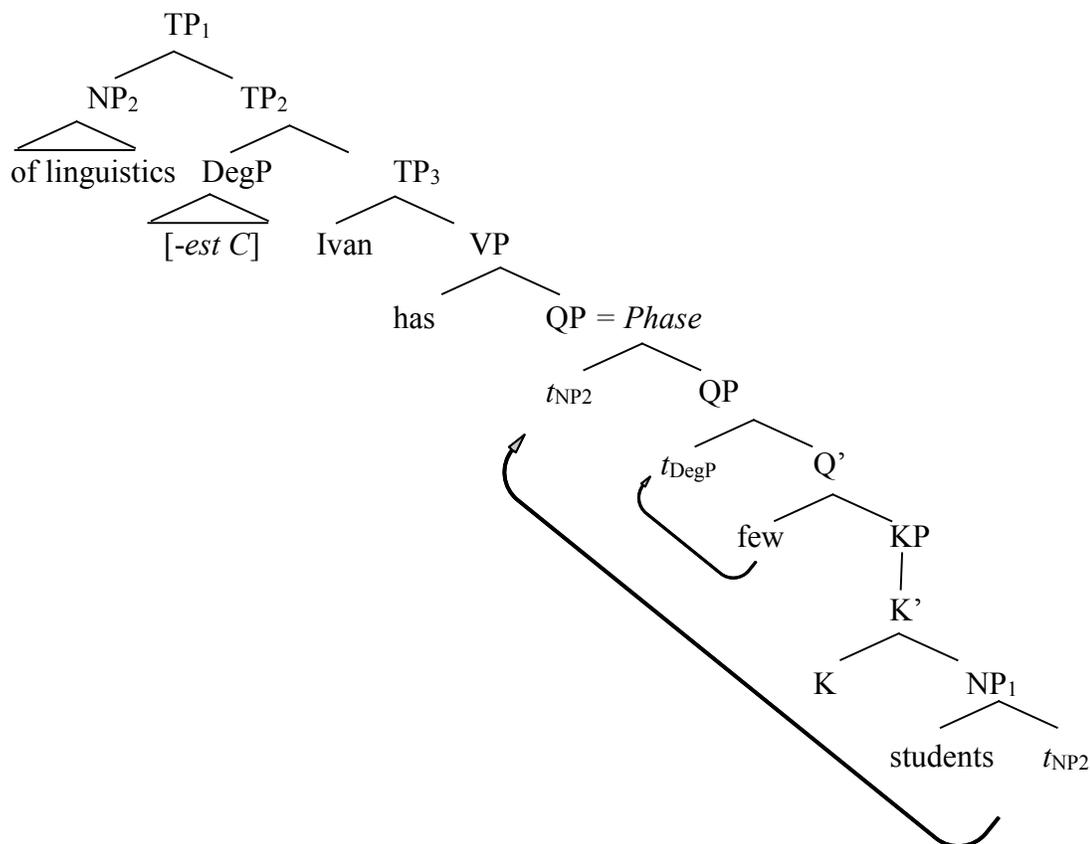
In addition to the adjunct/complement asymmetry, Shen's proposal also incorrectly predicts an asymmetry in terms of grammaticality between adjectival and quantity superlatives, such that (214) should be ungrammatical in contrast to (216). If (214) containing adjectival superlative disallowed Relative-2 due to the locality violations of the movement of *linguistics*, it should contrast with (216) that contains a superlative quantifier. The superlative quantifier is assumed to head its own projection and extend the nominal domain so that the QP is the phase, (217). The *-est* morpheme is merged in the SpecQP (as in Bošković and Gajewski 2011). The movement of the complement is not too local, unlike in (215), and can proceed through a QP adjoined position. (Curiously, in (211) the movement through Spec, DP is said to be blocked by the trace of *-est*, but in (217) the complement is allowed to adjoin rather than move through the specifier of QP. This adjunction is not precluded although the QP is an argument, even though for Bošković and Gajewski (2011) adjunction to arguments is not allowed. As Shen notes in footnote 4 (p. 6), an extra assumption about the difference between adjunction to QPs in Polish and to DPs in English is needed.)

(216) Jan spotkał najmniej studentów lingwistyki. (Polish)

Jan met fewest students linguistics_{Gen}

- a. ‘Jan met fewer students of linguistics than anyone else did.’ ✓ *Relative-1*
 b. ‘Jan met fewer students of linguistics than of any other major.’ ✓ *Relative-2*

(217) LF for (216), ((13) in Shen 2014: 414):



The predicted adjective-quantifier asymmetry does not hold, since as I pointed out, Relative-2 is available for (214) and not exclusively for (216). Note, however, that (214) is three-way ambiguous, while (216) is two-way ambiguous, as it lacks the absolute reading, therefore we expect Relative-2 to be more easily available for (216). The split superlative construction, on the other hand, unambiguously receives the Relative-2 interpretation, hence speakers report a strong preference for (202) in comparison to (214). Shen’s approach wrongly excludes the derivation of the Relative-2 reading for both (202) and (214), by which it wrongly predicts the complement-adjunct and adjective-quantifier asymmetries. Instead of categorical grammaticality judgments,

we, in fact, observe gradient acceptability due to competition contingent on the scope of *-est* (in the split construction the absolute reading is not available indicating clausal scope) and identification of narrow focus (splitting is a more reliable indicator of focus than prosody with canonical word order).

Shen's analysis aims to develop the hypothesis in (77ii) – the cross-linguistic variation in the availability of the Relative-2 reading can be attributed to the restrictions on the movement of sub-constituents of the superlative DP. Since these restrictions follow from the structure of the DP, different environments within the same language should affect the availability of the Relative-2 reading. For Polish, Shen's implementation of Bošković's approach to the structure of the NP/DP predicted that Relative-2 should be excluded when *-est*'s third argument is a complement to the head of the superlative NP – this prediction was wrong. We saw not only that Relative-2 was available in such cases (cf. (214)), but also that in the split construction this was the only possible interpretation (cf. (202)). The facts presented in sections 3.1–3.3 were consistent with the hypothesis (77i) – in Polish *-est* is free to take clausal scope and its third argument is then saturated by the constituent that undergoes focus movement at LF. Crucially, the LF movement of the focus was shown to be available even when the corresponding overt movement was subject to restrictions.

3.2.4 Conclusions for Section 3.2

The derivation of the Relative-2 reading requires *-est* to scope at the clausal level (as discussed in sections 1.2.4 and 2.6.4), by which we can infer that languages that allow Relative-2 allow DP-external scope for *-est*. In section 2.6 I discussed two approaches to the restrictions on the availability of the Relative-2 reading cross-linguistically, (hypotheses (i) and (ii) in (77), repeated below in (218)).

(218) (= (77))

What makes the derivation of the Relative-2 reading impossible in a language?
Hypothesis (i): Restrictions on the movement of <i>-est</i> 's third argument out of the DP. → rejected
Hypothesis (ii): Restrictions on the movement of <i>-est</i> out of the superlative DP. → supported

Hypothesis (i) is based on the assumption that the movement of *-est* is unconstrained, while hypothesis (ii) treats the constraints on this movement as the relevant cross-linguistic parameter. Crucially, on my proposal, on hypothesis (ii) it is not the movement of *-est* per se that is allowed in language A, but disallowed in language B, but rather there are elements in language B that block *-est*'s movement, and those elements are absent in language A. I rejected option (i) based on the English and Bulgarian data in section 2.6. In the last section, I provided further arguments against (i), showing that the Relative-2 reading in Polish is not dependent on the availability of movement out of the superlative DP in general.

The Polish split superlative construction unambiguously indicates which constituent is interpreted as focused. The Relative-2 reading is available as long as focus interpretation is possible, irrespective of whether there are constraints on the overt movement of that constituent. The Polish data supports the hypothesis (77i)/(218i), which as opposed to (77ii)/(218ii), predicts that Relative-2 depends only on the availability of the movement of *-est* out of the DP and not of (overt) movement of the third argument of *-est*. Crucially, the covert movement has been shown to be available even when the corresponding overt movement is subject to restrictions. This suggests that DP-external *-est* and its third argument are in a mutually parasitic scope configuration (which is unsurprising if the covert movement of *-est*'s argument is an instance of optional QR, driven solely by the semantic considerations, as opposed to obligatory QR triggered by type mismatch, as I discussed in section 2.6.2).

The Polish data further supports the conclusion based on Bulgarian in section 3.1.4 that focus is optional only when *-est* takes DP-internal scope. Even when the superlative expression raises

overtly, it must be possible to interpret the constituent that can saturate *-est*'s third argument as a narrow focus, or else the relative reading does not obtain, (219). We thus see that cross-linguistically *-est* obligatorily associates with focus unless its scope is constrained to the DP-internal position. This is a lexical requirement of *-est* and in the next chapter I present the details of the derivation of relative readings with DP-internal and DP-external *-est* adding the requirements for focus association.

(219) **Focus and Relative-2 readings with DP-external *-est***

- a. [**London**₁]_F [*-est* C]₂ [John met [_{DP} *d*₂-young student from *t*₂]
 $C \subseteq \{x: \exists d [\text{Ivan met a } d\text{-young student from } x] \wedge \underline{x \in \{\text{London, Paris, Berlin, ...}\}}\}$
 \rightarrow focus adds a congruent requirement on C, lexical requirement of *-est*
- b. London₁ [*-est* C]₂ [[**John**]_F met [_{DP} *d*₂-young student from *t*₂]
 $\#C \subseteq \{x: \exists d [\text{Ivan met a } d\text{-young student from } x] \wedge \underline{x \in \{\text{John, Bill, Maria, ...}\}}\}$
 \rightarrow focus adds a clashing requirement on C

3.2.5 Appendix: The materials in the elicitation of judgments in Polish

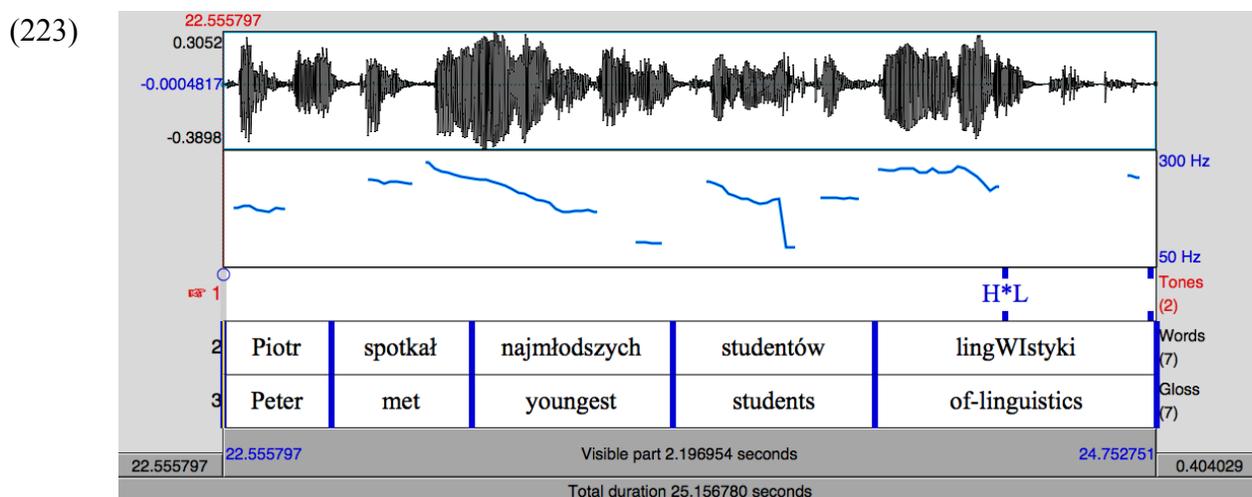
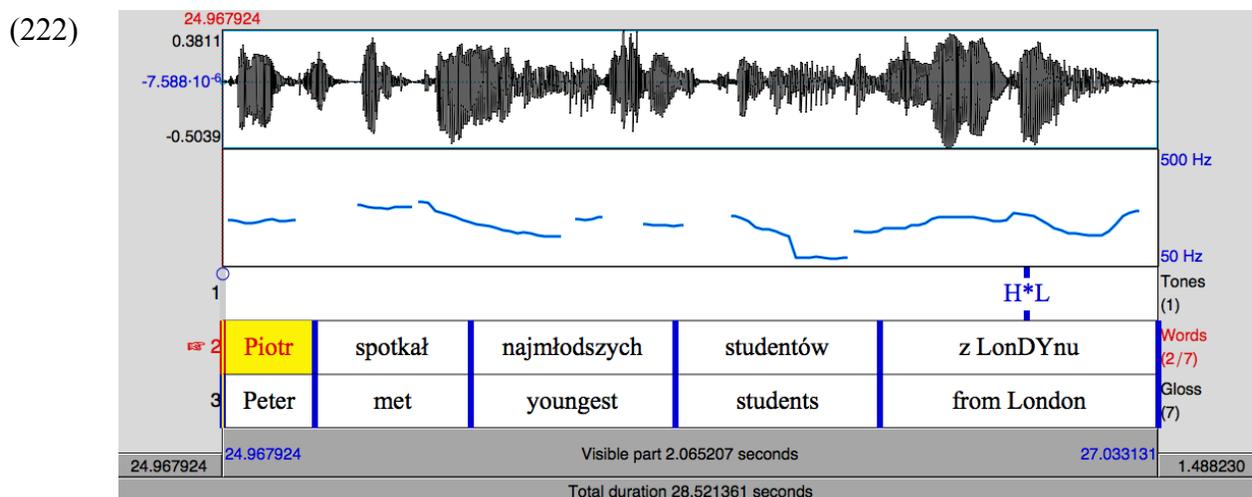
Relative-2 and prosodic focus

I tested the availability of the Relative-2 reading for the Polish examples given in (67) and in (214), repeated below:

- (220)=(67) Jan spotkał najmłodszych studentów z Londynu. (Polish)
 Jan met youngest students from London.
 Readings: *Absolute* (54a), *Relative-1* (54b), *Relative-2* (54c).

- (221)=(214) Jan poznał najmłodszych studentów lingwistyki.
 Jan met youngest_{Acc} students_{Acc} linguistics_{Gen}
 Readings: *Absolute* (214a), *Relative-1* (214b), *Relative-2* (214c).

I presented 17 native speakers of Polish with a context that required the Relative-2 reading, and then asked them to listen to a recording of the same context followed by the target sentence. The target sentence was only presented auditorily. As indicated by the pitch contours in (222)-(223), narrow focus on the DP-internal constituents *London* and *linguistics* was realized by the H*L accent. My informants judged whether the target sentence matched the context. 9 informants accepted (67)/(222) as suitable in the context. 7 accepted (214)/(223) as matching the context. When the hearers judged the sentence as incoherent in the context, they explained that the dominating interpretation for them was the absolute interpretation.



Split Superlative and Relative-2

I asked 8 native speakers of Polish (from the group of the 17 people who did the listening task) to read the context that required the Relative-2 reading for the sentence in (202) (the split version of (214)) followed by the target sentence. They judged whether the final sentence (the target sentence) had the meaning **A** ('The students of linguistics were younger than the students of other majors that Peter met') or the meaning **B** ('The students of linguistics that Peter met were the youngest students of linguistics'). All informants indicated **A**.

(224)(= (202)) Najmłodszych₁ Jan poznał t₁ studentów lingWISycki.

youngest_{Acc} Jan met students_{Acc} linguistics_{Gen}

Readings: *Relative-2* (214c) (**A**), **Absolute* (214a) (**B**), **Relative-1* (214b).

I asked 7 native speakers of Polish (from the group of the 17 people who did the listening task) to judge whether in the contexts in (i)-(iii) statement A or B was true. The second sentence of each context contained the split superlative. All speakers indicated that the statement paraphrasing the Relative-2 reading is true in (ii) and (iii), all but one indicated the Relative-2 as true for (i).

(i)	<p><i>Jan poszedł kupić różne drogie słodycze dla Marii.</i> 'Jan went to buy different expensive sweets for Maria.' <i>Najdroższe kupił jej ciastko.</i> most-expensive bought her cake.</p> <p>A: The cake was more expensive than other sweets that Jan bought for Maria. <i>(Relative-2)</i></p> <p>B: The cake was more expensive than other sweets among which Jan made his choice. <i>(Absolute)</i></p>
(ii)	<p><i>Jan postanowił powycinać wysokie drzewa przed domem, które zasłaniały mu widok.</i> 'Jan decided to cut down tall trees in front of his house that blocked the view.' <i>Najwyższą ściał topolę.</i> tallest cut poplar-tree.</p> <p>A: The poplar tree was taller than other poplars that grew in front of the house. <i>(Absolute)</i></p>

	B: The poplar tree was taller than other trees that Jan cut. (Relative-2)
(iii)	<p><i>Jan postanowił powyrzucać różne stare rzeczy, których od lat nie używał.</i> ‘Jan decided to throw away various old thing he hasn’t used for years.’ <i>Najstarszy wyrzucił parasol.</i> oldest threw-away umbrella.</p> <p>A: The umbrella was older than other umbrellas that Jan had. (Absolute)</p> <p>B: The umbrella was older than other things that Jan threw away. (Relative-2)</p>

3.3 Summary and conclusions for Chapter 3

Prior to Pancheva and Tomaszewicz (2012) the debate in the literature concerned the issue whether the effects of focus on the relative readings can be treated as evidence that *-est* remains DP-internal in the derivation of relative readings and the comparison set is determined on the basis of the DP, just like on the absolute reading, but focus (or a *wh*-operator) contributes a further restriction on this set (Heim 1999, Farkas and É. Kiss 2000, Sharvit and Stateva 2002) (section 3.1)⁴². As I

⁴² Heim (1999) proposes focus association for the derivation of the content of *C* when *-est* is DP-internal, but she ultimately argues for a purely scopal account. She also considers an alternative lexical entry for *-est* for which both scope and focus association are needed, and this approach has been further developed by Romero (2010, 2012), but as I show in Chapter Chapter 5: this analysis makes the wrong cross-linguistic predictions. Sharvit and Stateva (2002) extend Heim’s DP-internal approach and propose that for relative readings either *-est* (or the determiner *the* in intensional contexts) associate with focus or the superlative expression itself is focused. As I mentioned in section 2.2, they do not consider the Relative-2 reading. I show that DP-internal *-est* cannot associate with DP-internal focus for the Relative-2 reading (section 4.5.1)

mentioned in Chapter 2, the main argument against keeping *-est* DP-internally on relative readings came from the consideration of intensional contexts – by allowing DP-external scope for *-est*, the full range of interpretations is straightforwardly derived (section 2.7.4). In Pancheva and Tomaszewicz (2012) we observed that allowing DP-external scope for *-est* predicts that Relative-2 readings should be freely available. However, in languages where the definite determiner is present in the superlative DP, the Relative-2 reading is not possible. Following the proposal in that paper, that the Relative-2 reading is blocked by the presence of the definite determiner at LF, I proposed a semantic account of the definite island effect: the interpretation of the definite determiner together with DP-external scope for *-est* at LF is semantically anomalous (section 2.6 in Chapter 2).

Chapter 2, thus, left us with the conclusion that the Movement Theory (Szabolcsi 1986, Heim 1999) is right for languages with morphologically indefinite superlative DPs (with one caveat, *-est* scopes DP-externally for the Relative-2 reading, but possibly not for the Relative-1 reading because in the latter case the first movement step in the derivation may be excluded by the scope economy constraints on optional QR). On the other hand, the DP-internal Theory (Farkas and É. Kiss 2000, Sharvit and Stateva 2002) is right for languages with the definite determiner in the superlative DP, since keeping *-est* DP-internally does not allow for the derivation of the Relative-2 reading via contextual effects on the specification of the comparison class.

In Chapter 3, I discussed the evidence that when *-est* is kept DP-internal, the comparison set required for the Relative-1 reading can be established on the basis of the context and focus is not necessary. This has been the general consensus in the literature as I presented in section 3.1. The contextual effects on relative readings manifest themselves in the interaction between the availability of focus interpretation and the availability of different relative readings. The interpretation of a constituent as focused (whether triggered by prosodic prominence or by a dedicated syntactic position) evokes the implicit background context compatible with that focus. Thus, with DP-internal *-est* it is not focus per se that is necessary for the derivation of relative readings, but the effects of focus on relative readings indicate that these readings need to be

and that with focus on the superlative expression we can derive Relative-1 but not Relative-2 readings (section 4.6).

licensed by the context. This is entirely parallel to the focus effects on quantifier domains resulting from the anaphoric dependence on the same background context (von Stechow, 1994, Beaver and Clark 2008, a.o.).

In sections 3.1.4 and 3.2, I showed that when *-est* scopes DP-externally, focus is obligatory on *-est*'s third argument. In the absence of focus, when *-est* is DP-external (with indefinite superlatives in Bulgarian, and in split superlatives in Polish), neither the Relative-1 nor the Relative-2 readings are possible. Although scope alone can derive relative readings, we have empirical evidence that the constituent that can saturate *-est*'s third argument needs to be interpreted as the focus, (225) (already shown in (38)). I conclude that it is a lexical requirement of *-est* cross-linguistically that the constituent saturating its third argument is focused – this constraint is void with DP-internal *-est* as the individual argument is bound by the iota operator that is part of the meaning of the definite determiner, (cf. (49a) in section 2.1.1). In Chapter 4, I present the details of the derivation of relative readings with DP-internal and DP-external *-est* adding the requirement on focus association (based on the Rooth's (1985, 1992) semantics for focus).

(225)
(=(38))

Two ways to relative readings

The presupposition of *-est* and its scope determine the comparison class *C*, which is further subject to contextual specification:

(i) In the presence of the definite determiner, *-est* scopes DP-internally, and *C* is further restricted either by the focus or by explicit context (i.e. focus is not necessary).

(ii) In the absence of the definite determiner, *-est* can scope DP-externally, and if it does, focus is necessary and the focal presupposition and the presupposition of *-est* about the content of *C* must match.

Chapter 4: Focus and the restriction of *-est*'s *C* on relative readings

4.1 Introduction and Overview

On my account relative readings can be derived with *-est* moving DP-externally or staying DP-internally, and, as we have seen in the preceding chapter, focus is optional for relative readings only when *-est* takes DP-internal scope. I propose that *-est* carries a lexical requirement that the constituent that saturates its third argument is focused, therefore the optionality of focus for relative readings follows from the fact that when *-est* takes DP-internal scope this requirement is void (in this case, the third argument of *-est* is bound by the iota operator contributed by the definite determiner *the*). Accordingly, DP-external *-est* obligatorily associates with focus for relative readings, while DP-internal *-est* may associate with focus but it does not have to if the context directly specifies the comparison set. This means that in languages like English, where due to the presence of the definite determiner in the superlative DP *-est* is always DP-internal, *-est* does not need to associate with focus on relative readings.

Focus effects on relative readings with both DP-external and DP-internal *-est* indicate that relative readings require a licensing context. The availability of such context is reflected in the focus structure of the sentence, and thus the placement of focus results in the different relative readings. In the next section, I introduce the details of the two ways the relative readings are derived. When *-est* stays DP-internally, in the presence of the definite determiner, DP-internal focus cannot yield a relative reading. When *-est* is free to scope outside the DP, in the absence of the definite determiner, the focus has to be on *-est*'s third argument. In section 4.3, I introduce the mechanism of focus association that has been widely adopted to model discourse congruence effects and to account for the contextual effects on the interpretation of quantificational operators (Rooth 1985, 1992, von Stechow 1994, a.o.). The truth-conditional effects of focus on quantificational adverbs such as *only* or *always* are parallel to the effects of focus on relative readings. As pointed out in the introduction, the restriction of the domain of adverbs like *always* and *only* taking sentential scope is determined by discourse congruence, but in the case of *-est* syntax plays a crucial role. *-Est* introduces a presupposition that its domain argument *C* is dependent on its second argument, which in turn is determined on the scope of *-est*. Therefore, it

is the interaction between focal presupposition and the presupposition of *-est* that effectively determines the contents of the comparison class *C*.

Importantly, the focus association mechanism by itself accounts only for the contextual effects on the comparison class *C* with DP-internal *-est* (in which case *-est*'s domain *C* is contextually constrained just like the domain variables of other quantifiers). It has been argued (von Stechow 1994, Beaver and Clark 2008, a.o.) that the focus effects on quantifier domains are a result of the anaphoric dependence on the same background context, which predicts that phonologically reduced material such as clitics can still play a role in the specification of the domain, because in the absence of focus the context can still constrain the domain. For cases where operators require phonological focus, focus association needs to be lexically encoded, otherwise the domain variable can always be contextually resolved (Rooth 1992, Beaver and Clark 2008, a.o.). Therefore, the fact that DP-external *-est* in Bulgarian and Polish obligatorily requires focus on its third argument indicates that this is a lexical requirement of *-est*.

My proposal that *-est* obligatorily associates with focus unless its scope is constrained correctly predicts that:

- Although scope alone derives the relative readings when *-est* is DP-external, the constituent that QRs and saturates *-est*'s third argument must be able to be interpreted as F-marked (section 4.4).

- When *-est* is DP-internal, the relative readings are derived by narrowing down the comparison set *C* with respect to the alternatives supplied by the context. The context that introduces alternatives to a DP-external constituent provides alternatives that lead to Relative-1 readings (section 4.5.2). The context that introduces alternatives to a DP-internal constituent does not have an effect on *C* (section 4.5.1), unless the DP contains a variable (*it*-clefts and *wh*-questions allow for Relative-2 with DP-internal *-est*, (section 4.5.3).

In section 4.6 I show that focus association also makes the right predictions for the availability of relative readings when the superlative expression itself is a narrow focus (i.e. *-est* stays DP-internally).

4.2 Two ways to relative readings

The major empirical observation in Chapter 1 is that Relative-2, the relative reading established with respect to a constituent inside the superlative DP, is unavailable when the definite determiner is present, in English, Bulgarian and Swedish (Fact 2 in (16) in Chapter 1). Following the earlier claims in the literature (Heim 1999, Farkas and É. Kiss 2000, Sharvit and Stateva 2002), I show in this chapter that the focus association mechanism (Rooth 1992, von Stechow 1994, Heim 1999), in conjunction with the blocking effect of the definite determiner on the scope of *-est* that I proposed in Chapter 2 (sections 2.1-2.5), can account for the range of relative readings available when *-est* is DP-internal.

Fact 2 is illustrated with the English and Bulgarian examples in (226) and (227). In (226)-(227) the constituent *Ivan* can trigger a relative reading, (226b), but *London*, which is located inside the DP cannot, (226c). I have been calling relative readings with respect to a DP-external constituent Relative-1, and those with respect to a DP-internal constituent, Relative-2. The ‘missing’ Relative-2 reading is found in Slavic in the absence of the definite determiner in the superlative DP – both Bulgarian and Polish counterparts of (226) can receive Relative-2 where London is compared to other cities, (228)-(229). Crucially, in the presence of the definite article Bulgarian disallows Relative-2 just like English, (227).

(226) Ivan met [DP **the** youngest [NP student from London]].

- a. ‘Ivan met that student from London who was the youngest among the *Absolute* (relevant) students from London.’
- b. ‘Ivan met a younger student from London than anyone else did.’ *Relative-1*
- c. *‘Ivan met a younger student from London than from any other city.’ *Relative-2*

(227) Ivan se zapozna s naj-mlad-*ija* student ot London. (Bulgarian)

Ivan refl met with youngest-*the* student from London

Readings: *Absolute* (226a), *Relative-1* (226b), **Relative-2* (226c).

(228) Ivan se zapozna s naj-mlad student ot London. (Bulgarian)

Ivan refl met with youngest student from London

Readings: *Relative-1* (226b), *Relative-2* (226c), **Absolute* (226a).

(229) Iwan poznał najmłodszego studenta z Londynu. (Polish)
 Ivan met youngest student from London

Readings: *Absolute* (226a), *Relative-1* (226b), *Relative-2* (226c).

In Chapter 2 I discussed the evidence that the scope of *-est* is dependent on the presence of the definite determiner in the superlative DP. The second ingredient of my proposal, defended in Chapter 3, is that it is a lexical requirement of *-est* to require focus on the constituent that saturates its third argument when *-est* takes DP-external scope. This requirement is void when *-est* is DP-internal, in which case the comparison class on relative readings is constrained by the context and focus functions as an indicator of the implicit context, that is, focus is optional for relative readings. I now illustrate the two ways to relative readings, and in the next section introduce the technicalities of the focus association mechanism.

With DP-internal *-est*, contextual specification is responsible for those parts of the specification of the comparison class *C* that are underlined in (230). The presence of a licensing context is diagnosed by the presence of the congruent focus structure (the exact mechanisms is introduced in the next section), but focus per se is not necessary. F-marking of sentence constituents (e.g. *Ivan* in (230a), *London* in (230b-c)) indicates focus at the syntactic level, which is visible to both the semantic and phonological components (Jackendoff 1972, Rooth 1992, Selkirk 1996). At the semantic level the F-marked constituent is interpreted as contributing a set of alternatives of the same type. In (230a) it is a set of individuals *y* who met students *x*, in (230b) it is a set of cities *y* which students *x* are from. As shown in Chapter 3, section 3.1.1, focus optionally constrains *C* with DP-internal *-est*, but the focus structure of the sentence needs to be congruent with the contextual specification of *C* (cf. (152)). Correspondingly, in (230a) focus interpretation narrows down *C* to those students that someone met, while in (230b) the contribution of focus is vacuous, because by presupposition of *-est* the syntax already determines *C* to be the set of students from London (of some age), so focus cannot override this specification and create a set of students from some city. Here the context can narrow *C* down to those that were met by someone, that is, the same set as in (230a). The optionality of focus for relative readings with DP-internal *-est* was discussed in in Chapter 3 (section 3.1.1). In this chapter, I provide the derivations supporting the

conclusion from Chapter 2 that with DP-internal *-est*, DP-internal focus such as *London* in (230c) cannot provide a meaningful contribution to the specification of *C* and thus the Relative-2 reading is never derived. In section 4.5.1, I analyze different configurations at LF involving different scope of the focus operator that interprets the feature *F* on the focused elements (this mechanism is introduced in the next section), and none of these LFs is able to derive the Relative-2 reading. (It has already been shown in section 2.6.4 that the Relative-2 reading fails to be derived if the DP-internal constituent *London* moves, but *-est* remains DP-internally, (230d-e)).

(230) Focus is optional for relative readings with DP-internal *-est*

- a. [IVAN]_F met [DP **the** [[*-est* C] *d*-young student from London]] *Relative-1* (226b)
 $C \subseteq \{x: \exists d \exists y [x \text{ is a } d\text{-young student from London} \wedge \underline{x \text{ was met by } y}]\}$
 $\rightarrow C$ is specified via focus association
- b. John met [DP the [[*-est* C]₁ *d*₁-young student from [LONDON]_F]] *Relative-1* (226b)
 $C \subseteq \{x: \exists d \exists y [x \text{ is a } d\text{-young student from London} \wedge \underline{x \text{ is from } y} \wedge \underline{x \text{ was met by } y}]\}$
 $\rightarrow C$ is specified by context, not focus
- c. Ivan met [DP **the** [[*-est* C] *d*-young student from [LONDON]_F]] *Relative-2* (226c)
 $C \subseteq \{x: \exists d \exists y [x \text{ is a } d\text{-young student from London} \wedge \underline{x \text{ is from } y}]\}$ *impossible*
 \rightarrow focus and syntactic specification impose incongruent requirements on *C*
 \rightarrow focus cannot override the specification of *C* resulting from the syntax (Section 4.5.1)
 $\rightarrow C$ can be further constrained by context
- d. Ivan met [DP **the** [London]₁ [*-est* C]₂ [*d*₂-young student from *t*₁]]] *Relative-2* (226c)
 $C \subseteq \{\langle x, y \rangle: \exists d [x \text{ is a } d\text{-young student from } y]\}$ *impossible*
 \rightarrow movement of a DP-internal constituent does not derive Relative-2 (Section 2.6.4, (109))
- e. [London]₁ John met [DP **the** [[*-est* C]₂ [*d*₂-young student from *t*₁]]] *Relative-2* (226c)
 $C \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from } g(1)]\}$ *impossible*

→ movement of a DP-internal constituent results in the truth conditions that do not specify
Relative-2 (Section 2.6.4, (110))

In the absence of the definite determiner the superlative operator may scope outside the DP, and the constituent that raises to saturate *-est*'s argument determines the denotation of the lambda-abstract in the sister node of *-est* that in turn determines the comparison class, for example, in (231a) *Ivan* determines that *C* contains people who met students from London of some age. The addition of the focus association mechanism does not change the contents of *C*. The underlined information in (231a), does not add anything to the specification of the comparison set. The adoption of the focus association mechanism for relative readings predicts the felicity requirements on the placement of focus, that is, if focus is placed on a constituent other than *-est*'s third argument (e.g. *London* in (231b)), a clashing requirement on *C* is imposed. The specification in (231b) requires the members of *C* to be at the same time people and cities. However, it does not follow from the felicity conditions on focus placement that focus must be present; it merely follows that if there is an F-marked constituent in the sentence with DP-external *-est*, this constituent has to be *-est*'s third argument. Since we have seen that when focus is impossible, the corresponding relative reading is impossible even though *-est* is free to take DP-external scope (Fact 4 in (23), section 3.1.4: (158)), the requirement that the syntactic constituent that saturates *-est*'s third argument must be F-marked must be coming from *-est*'s semantics (as I concluded in section 3.1.4). In section 4.4, (245), I formalize the lexical focus requirement of *-est*.

(231) Focus is obligatory for relative readings with DP-external *-est*

a. [IVAN]_F [-*est* C] λd λx [x met [_{DP} a *d*-young student from London]] *Relative-1* (226b)

$C \subseteq \{x: \exists d [x \text{ met a } d\text{-young student from London} \wedge \underline{x} \in \{\text{Ivan, Bill, Maria, ...}\}]\}$

→ focus adds a congruent requirement on *C*, **lexical requirement of *-est***

b. Ivan [-*est* C] λd λx [x met [_{DP} a *d*-young student from [LONDON]_F]] *Relative-1* (226b)

$\#C \subseteq \{x: \exists d [x \text{ met a } d\text{-young student from London}] \wedge \underline{x} \in \{\text{London, Paris, Berlin, ...}\}\}$

→ focus adds a clashing requirement on *C*, **lexical requirement of *-est* not satisfied**

c. [LONDON]_F [-*est* C] λd λx [Ivan met [_{DP} a *d*-young student from x]] *Relative-2* (226c)

$C \sqsubseteq \{x: \exists d [\text{Ivan met a } d\text{-young student from } x \wedge x \in \{\text{London, Paris, Berlin, ...}\}]\}$
 \rightarrow *focus adds a congruent requirement on C, lexical requirement of -est*

- d. London [-*est* C] $\lambda d \lambda x$ [[IVAN]_F met [_{DP} *d*-young student from *x*]] *Relative-2* (226c)
 $\#C \sqsubseteq \{x: \exists d [\text{Ivan met a } d\text{-young student from } x \wedge x \in \{\text{Ivan, Bill, Maria, ...}\}]\}$
 \rightarrow *focus adds a clashing requirement on C, lexical requirement of -est not satisfied*

The gist of my proposal is thus the following: *-est* obligatorily associates with focus, (231), unless its scope is constrained to the DP-internal position, (230). This is a lexical requirement of *-est* and in the next section I present the mechanics of focus association in establishing the domains of quantification, and then show how this mechanism derives the empirical facts: DP-external *-est* obligatorily associates with focus, DP-internal *-est* can (but does not have to) associate with DP-external focus to derive Relative-1 readings, but it cannot associate with DP-internal focus for Relative-2 readings.

4.3 The focus association mechanism

In the so-called FOCUS ASSOCIATION mechanism the value of the (implicit) domain variable of a quantifier is determined with respect to the focus structure of the sentence (Rooth 1992, 1996, von Stechow 1994, Heim 1999). The focus structure introduces a presupposition about the context⁴³, and this presupposition can impose requirements on the restrictor of *-est* as long as they are compatible with the requirements of *-est*'s presuppositions.

⁴³ The *presuppositional theory of focus* of Rooth (1992, 1996) contrasts with the *structured meanings* approach of Krifka (1991), where operators can directly access focus structure as specified in their semantics. On the presuppositional theory, the focus alternatives are computed in a separate dimension of meaning, and they do not directly enter the computation of the asserted content (the two dimensional theory for asserted and presupposed meaning originates with Karttunen and Peters 1979).

The semantic role of focus is to introduce alternatives into the context, and Rooth's (1985, 1992) ALTERNATIVE SEMANTICS for focus involves parallel computation of the ordinary semantic value for α , $\llbracket \alpha \rrbracket^o$ that is, its denotation, and the focus semantic value for α , $\llbracket \alpha \rrbracket^f$, which is the set of focus alternatives to α of the same semantic type as α . The focus semantic value is generated in the presence of the focus operator, \sim (the 'squiggle') at LF. The squiggle is a two-place operator that takes as its arguments the denotation of its sister node and a covert domain variable C . The variable C denotes a subset of focus alternatives and its value is constrained by the focal presupposition, (232), but it also depends on the context.

(232) Where φ is a syntactic phrase and C is a syntactically covert semantic variable, $\varphi \sim C$ introduces the presupposition that C is a subset of $\llbracket \varphi \rrbracket^f$ containing $\llbracket \varphi \rrbracket^o$ and at least one other element.

(Rooth 1996, (20))

Being a free variable, C is anaphoric in nature (anaphors can be analyzed as presuppositions about the salience of certain antecedents, Wagner 2012, a.o.) and either requires a licensing antecedent or its value is construed pragmatically (Rooth 1992, von Stechow 1994). Thus, while the ordinary semantic value is the result of the computation of the asserted content of the sentence, the computation of the focus semantic value involves the pragmatics and discourse context (topics, contrast, old-new information) which license the occurrence of \sim . Although the choice of the antecedent for C is free, it has to match the presuppositional constraints imposed by \sim , (as stated in (232)). Any β , whose semantic value satisfies the condition in (233) can serve as the antecedent for \sim 's restrictor C . Namely, the ordinary semantic value of β must be a subset of the focus semantic value of α , the \sim 's sister, that is φ in (232). Accordingly, the semantic types of α and β must match).

(233) $\llbracket \beta \rrbracket^o \subseteq \llbracket \alpha \rrbracket^f$ (Rooth 1992, p. 89)
(condition on anaphoric licensing of \sim 's restrictor C , where α is the sister of \sim)

The anaphoric licensing of $[\sim C]$ in discourse is illustrated in the example in (234a-b) showing question-answer congruence (Rooth 1996, p. 279). The focus feature on *Bill* in (234b) is interpreted by \sim adjoined at the sentential level at LF, (236c), whose restrictor C finds a suitable

antecedent in the preceding question, (234a). The denotation of a question on the Hamblin (1973)/Karttunen (1977) semantics is the set of answers to that question, which for (234a) is characterized as the set of propositions in (235b). The \sim triggers the computation of the focus alternative value of the sentence in (234b), which is computed recursively from the level of the F-marked constituent to the level of \sim (Rooth 1985, 1992, 1996)⁴⁴, (236b-e). The variable C introduced by \sim at the sentential level in (236a) is the subset of the set of propositions in (236e) as required by the focal presupposition in (232), (236f). In accordance with the licensing condition in (233), the ordinary semantic value of the question (235b) (type $\langle\langle s,t \rangle, t \rangle$) is a suitable antecedent for C , as it is a subset of the focus value in (236e) (type also $\langle\langle s,t \rangle, t \rangle$), which is shown in (236g).

(234) a. Who did John meet?

b. John met [Bill]_F.

(235) a. LF for (234a): [_{TP} Who_i did John meet t_i]

b. $\llbracket (234a) \rrbracket^o = \{p: \exists x [p = \lambda w. \text{John met } x \text{ in } w]\}$

(236) a. LF for (234b): $\llbracket [\text{John met [Bill]}_F] \sim C \rrbracket$

b. $\llbracket \text{John} \rrbracket^f = \{\llbracket \text{John} \rrbracket^o\}$

c. $\llbracket [\text{Bill}]_F \rrbracket^f = D_e = \{\text{Bill, John, Mary, ...}\}$

⁴⁴ According to Rooth (1985, 1992, 1996) the focus value of a complex constituent is derived compositionally by taking the focus values of its subconstituents and applying the usual semantic rules to them. The following definition comes from Rooth (1996: 28) (with the caveat that a more formal definition in Rooth 1985 is needed to work with intensions). Note that if the expression has no F-marked constituent in it, then it is a singleton set, with just the ordinary value of the expression as a member.

a. The focus semantic value of a focused phrase of semantic type τ is the set of possible denotations of type τ .

b. The focus semantic value of a non-focused lexical item is the unit set of its ordinary semantic value.

c. Let α be a non-focused complex phrase with component phrases $\alpha_1, \dots, \alpha_k$ and let φ be the semantic rule for α , e.g. function application. The focus semantic value of α : is the set of things obtainable as $\varphi(x_1, \dots, x_k)$, where $x_1 \in \llbracket [\alpha_1] \rrbracket^f \wedge \dots \wedge x_k \in \llbracket [\alpha_k] \rrbracket^f$

- d. $\llbracket \text{met} \rrbracket^f = \{ \llbracket \text{met} \rrbracket^o \}$
 e. $\llbracket (234b) \rrbracket^f = \llbracket \text{John met } [\text{Bill}]_F \rrbracket^f = \{ p: \exists x [p = \lambda w. \text{John met } x \text{ in } w] \}$
 f. $C \subseteq \llbracket (234b) \rrbracket^f$ (focal presupposition, (232))
 g. $\llbracket (234a) \rrbracket^o \subseteq \llbracket (234b) \rrbracket^f$ (condition on anaphoric licensing of \sim 's restrictor C , (233))

The \sim -operator can be adjoined at any syntactic level, as long as its restrictor variable has a suitable antecedent. For example, in a case where a focus sensitive item such as the exclusive particle *only* is interpreted at the VP-level at LF⁴⁵, (237b), \sim can adjoin at the VP level in order to find an antecedent in *only*'s own domain restriction variable. The restrictor of *only*, the variable C in (237b), is required to be a set of properties because *only* in (237c) quantifies over properties. (From now on I label the restrictor of \sim as C' and the restrictors of quantificational operators, *only*, *-est* as C in order to remain consistent with using C for *-est*'s comparison class variable in the previous chapters). The variable C' introduced by the \sim operator is of a matching type – by \sim 's presupposition given in (232) C' is also of the type of a set of properties, (237d). The condition on the anaphoric licensing of \sim in (233) is satisfied, (237e), hence the restrictor of *only*, C , is a suitable antecedent for C' . In my discussion of *-est*'s association with focus, I will consider how adjoining \sim at different syntactic levels will allow *-est*'s restrictor C to serve as a suitable antecedent for \sim ' C' .

- (237) a. John *only* met $[\text{Bill}]_F$.
 b. LF for (237a):
 John $[\text{only } C] \llbracket [\text{VP met } [\text{Bill}]_F \sim C'] \rrbracket$
 c. $\llbracket (237a) \rrbracket^o = \forall P [P \in C \wedge P(\text{John}) \rightarrow P = \lambda x. x \text{ met Bill}]$
 d. $C' \subseteq \llbracket [\text{VP met } [\text{Bill}]_F] \rrbracket^f = \{ P: \exists y [P = \lambda x. x \text{ met } y] \}$ (focal presupposition, (232))
 e. $C \subseteq \llbracket [\text{VP met } [\text{Bill}]_F] \rrbracket^f$ (condition on anaphoric licensing of \sim 's restrictor C' , (233))

⁴⁵ This is done in Rooth (1992). Typically *only* is taken to operate at the sentential level (as in Rooth 1996), which is shown next in (241)-(242).

In (238) I restate the licensing condition given in (233) with particular reference to the anaphoric relation between the restrictor of \sim and the restrictor of a quantificational element such as *only*. This will make it easier for me to discuss focus association in superlatives in the coming sections. However, it should be clear that (238) simply follows from (233) as Rooth's alternative semantics for focus mediated by the presence of \sim has the benefit of removing the need for any construction specific rules for focus.

(238) *Condition on focus association* (Rooth 1992, von Stechow 1994)

$C \subseteq \llbracket \alpha \rrbracket^f$, or $C \subseteq \cup \llbracket \alpha \rrbracket^f$, where C is the restrictor of a quantificational adverb and α the sister to \sim ⁴⁶

Note that the focus association condition (238) is in principle compatible with cases where there is no F-marked element in the scope of \sim (in this case $\llbracket \alpha \rrbracket^f = \llbracket \alpha \rrbracket^o$). If focus effects on quantifier domains are a result of the anaphoric dependence on the same background context as \sim 's C , we have an explanation why phonologically reduced material can still play a role in the specification of the domain (i.e. clitics do not bear F-marking but the context that licenses the phonological reduction also restricts the domain of a quantifier). For cases where operators require phonological focus, focus association needs to be lexically encoded, otherwise, irrespective of the presence of \sim , the domain variable can be contextually resolved (Rooth 1992, Beaver and Clark 2008). For example, *only* could have the condition in (239) in its lexical entry stating that when it attaches at the VP level, it operates not only on the ordinary semantic value of the VP, but also on its focus alternative value ((239) is modeled after (4.6) in Beaver and Clark 2008:83). (In section 4.4, in (245) I formalize the lexical focus requirement of *-est*.)

⁴⁶ The use of the union operator in the definition in (16) is a stipulation, but it has been shown to be necessary for focus association with some quantificational expressions, e.g. the adverb *always*, (Rooth 1992, von Stechow 1994, Heim 1999), however, there is nothing in the system that explains what makes it available (Rooth 1999). Note that in the lexical entry for *-est*_{3-place} in (47) C is of type $\langle et \rangle$, therefore, the focus alternative value of α should either also be of type $\langle et \rangle$, or it could be $\langle et, t \rangle$ in which case, according to (238), a union operator can apply to $\llbracket \alpha \rrbracket^f$ to compute the union of all elements in $\llbracket \alpha \rrbracket^f$, that is, a set of properties.

(239) $\llbracket \text{only VP} \rrbracket^o = \lambda w[\text{only}(w, \llbracket \text{VP} \rrbracket^o, \llbracket \text{VP} \rrbracket^f)]$

In the remainder of this section I review how the truth-conditional contribution of the exclusive adverbial *only* is determined by association with focus (Rooth (1985), (1992), 1996, von Stechow (1994), Beaver & Clark (2008)).⁴⁷ It is illustrated how context is necessary to license focus which in turn specifies the domain of quantification of *only*. Readers who are familiar with this mechanism can skip this section and proceed to section 4.4 where I show how relative readings are derived with DP-external *-est* obligatorily associating with focus.

The sentences in (240a-b) differ only in the location of focus. Focus determines the interpretation of the whole sentence. While in (237) *only* operates on the VP, in the examples (241)-(242) below, *only* applies to the whole proposition (the different choices, VP in (237) and CP in (241)-(242), have no theoretical significance, they are for illustration purposes only). In (237), $[\sim C']$ also adjoins at the sentential level and the condition on focus association, (238), is satisfied, (241c), (242c). The restrictor of *only*, *C*, is a subset of the focus semantic value of the sister to $[\sim C']$ (241c), (242c), and hence *C'* determines the set of propositions which *only* quantifies over, and which in the truth conditions of the sentence are excluded from being true, (241d), (242d).

- (240) a. John *only* gave [Mary]_F a cheap gift.
 ‘John gave no one else but Mary a cheap gift.’
 b. John *only* gave Mary a [cheap]_F gift.

⁴⁷ There are some differences between in the way the different operators interact with focus. *Only* typically requires a phonologically realized focus, but *always* does not. *Always* but not *only* can associate with null elements and weak pronouns (Beaver and Clark 2008, a.o.). Like *always*, the superlative expression can itself be accented and the relative readings can still be derived as I showed in section 1.2, example (i) repeated below. In section 4.6 I show how Relative-1 readings are derived when *-est* is in focus.

(i) Jan jest najszcześniejszy ze wszystkich, bo Maria mu dała [najDORzsze]_F ciastko.
 Jan is happiest of all because Maria him gave most-expensive cake
 ‘Jan is the happiest of all, because Maria gave him the most expensive cake’.

‘John gave Mary no other kind of gift but a cheap gift.’

- (241) a. LF for (240a):
 $[\textit{Only } C][[\sim C'] [\textit{TP} \text{John gave [Mary]}_F \text{a cheap gift}]]$
- b. $C' \subseteq \llbracket \textit{TP} \rrbracket^f \subseteq \{p: \exists x[\text{John gave } x \text{ a cheap gift}]\}$ (*focal presupposition*, (232))
- c. $C \subseteq \llbracket \textit{TP} \rrbracket^f$ (*focus association possible*, (238))
- d. $\llbracket (241a) \rrbracket = \lambda w. \forall p[(p \in C \wedge p \neq \llbracket \text{John gave Mary a cheap gift} \rrbracket) \rightarrow \neg p(w)]$
- (242) a. LF for (240b):
 $[\textit{Only } C][[\sim C'] [\textit{TP} \text{John gave Mary a [cheap]}_F \text{gift}]]$
- b. $C' \subseteq \llbracket \textit{TP} \rrbracket^f \subseteq \{p: \exists f \exists x [\text{John gave Mary a gift} \wedge \text{gift}(x) \wedge f(x)]\}$
(focal presupposition, (232))
- c. $C \subseteq \llbracket \textit{TP} \rrbracket^f$ (*focus association possible*, (238))
- d. $\llbracket (242b) \rrbracket = \lambda w. \forall p[(p \in C \wedge p \neq \llbracket \text{John gave Mary a cheap gift} \rrbracket) \rightarrow \neg p(w)]$

The fact that \sim can adjoin at any level (such that it contains an F-marked constituent in its scope) is considered an advantage of the system, because it separates focus interpretation done by \sim from the identification of the antecedent of \sim 's restrictor variable. In fact, von Stechow (1994) proposes that the relation between focus structure and the restriction of the domain of quantification is mediated by anaphoric dependence on the same discourse context, that is, in (237a) both C and C' are licensed by the (implicit) presence of the question (234a) in the discourse. The empirical observation is that (237a), indeed, cannot be felicitously uttered out of the blue. To illustrate, in (243), in order for the sentence (243A) containing *only* associating with the focus on *Bill* to be a felicitous reply to (243Q), the sub-question in (243SQ) has to be accommodated as part of the conversation (von Stechow 1994, Roberts 1996, Büring 2003, Beaver and Clark 2008, Saeboe 2009, a.o.).

(243) Q: What happened?

[SQ: Who did John meet?]

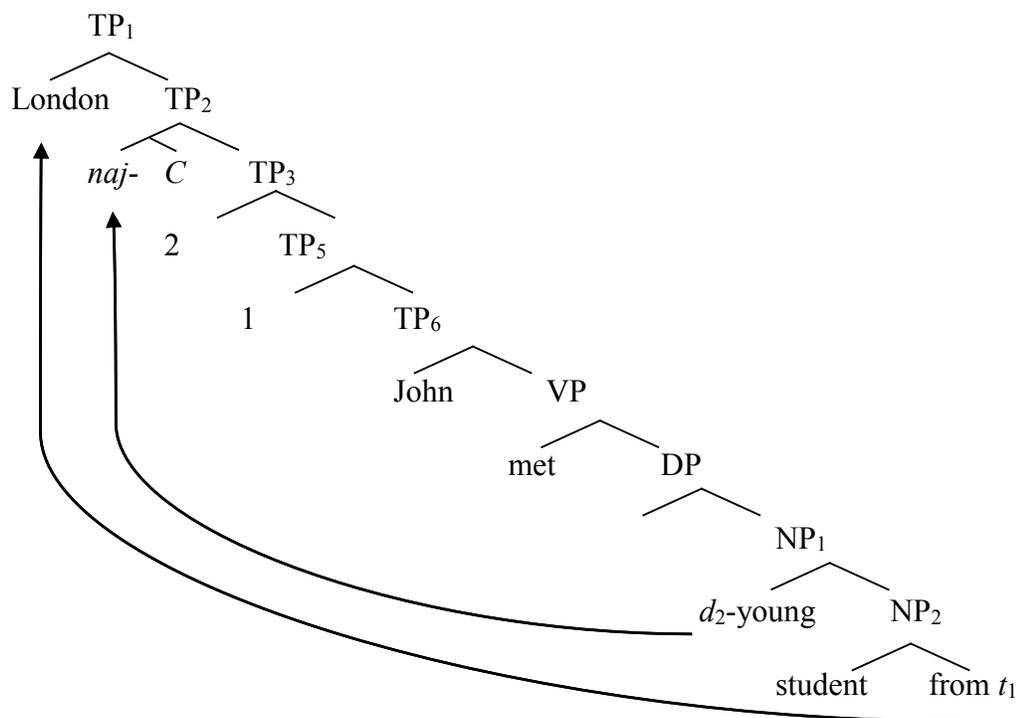
A: John *only* met [Bill]_F.

I assume an anaphoric link between \sim 's restrictor C' and $-est$'s restrictor, the comparison class variable C , as is done on Rooth's (1992) approach, rather than on von Stechow's where both restrictors are dependent on the licensing context. The results are equivalent (e.g. by (238) [*only C*] depends on the scope of [$\sim C$] and by (233) [$\sim C$] depends on context, thus by transitivity [*only C*] depends on context), but Rooth's approach is easier to present.

4.4 DP-external $-est$ in the absence of 'the'

In (244), in the absence of the definite determiner, $-est$ is able to scope outside of the DP (Fact 2 in (16) (introduced in (17) in Chapter 1)). (This LF is not available in English.) The DP-internal constituent *London* QRs to the clausal level and $-est$ tucks in right below it, so that *London* can saturate its individual argument. The Relative-2 reading 'Ivan met a younger student from London than from any other city' is derived, ((226c) in section 4.2).

(244) Relative-2: DP-external $-est$, no focus association



b) $\llbracket TP_3 \rrbracket = \lambda d \lambda x$ [John met a d -young student from x]

$$\text{c) } \llbracket \text{TP}_1 \rrbracket = \exists d [\text{John met a } d\text{-young student from London} \wedge \forall y [y \in C \wedge y \neq \text{London} \\ \rightarrow \neg \text{John met a } d\text{-young student from } y]]$$

Even without the effect of focus, in the configuration in (244) only Relative-2 can be derived, that is, we are comparing cities, as discussed in detail in Chapter 2 (section 2.4). On my proposal, however, this LF is not available even in a language like Polish, because it lacks F-marking. I showed in Chapter 3 that focus is optional only when *-est* takes DP-internal scope. Therefore, with DP-external *-est*, the constituent that moves and saturates its third argument, *London* in (244), must be F-marked, so that its focus alternative value is congruent with the set *C*, (245). This is a lexical requirement of *-est*. The constraint is void with DP-internal *-est* as there is no constituent in the sentence that serves as *-est*'s third argument and that can be F-marked (the individual argument of *-est* is bound by the determiner).

(245) **Focus requirement of *-est*:**

$$\llbracket \text{-est} \rrbracket (C)(D)(\llbracket \alpha \rrbracket) = 1 \text{ iff } C \subseteq \llbracket \alpha \rrbracket^f$$

In the coming section I show that the presuppositions of *-est* restrict the possible adjunction levels for \sim and the placement of the F-feature (this is done indirectly: the presuppositions of *-est* and the focal presupposition must match, it is not that *-est* dictates where \sim can attach). I now show that with DP-external *-est* the squiggle cannot adjoin at the TP level, but must scope only over the moved third argument of *-est*. This result explains why relative readings derived by DP-external *-est* require narrow focus, no larger than the constituent that saturates *-est*'s third argument. I look at the different configurations of the \sim with respect to DP-external *-est* for the Relative-2 reading.

4.4.1 Relative-2

Let us first discuss the matching case: the individual argument of *-est* is marked as focus. We have two options to consider for the attachment of \sim , the focus interpretation operator. Its attachment site should allow for the satisfaction of both the focal presupposition in (232) and the anaphoric licensing condition of \sim 's restrictor in (238).

In (247), just like in (244), *-est* takes DP-external scope and *London* saturates its individual argument. *Est*'s presuppositions in (47) are satisfied and the comparison class *C* is determined as in (248). In order for *-est* to have *C* specified both by *-est*'s presuppositions and by focus structure, we adjoin [$\sim C$] at the TP-level so that *C*' contains cities from which Ivan met students of some age. Because \sim must scope over the F-marked constituent, when [$\sim C$] adjoins to TP₄ after the abstraction over the degree and the individual argument has taken place, (249a), we must assume that the trace of the focused constituent *London* is F-marked. The trace has an assignment-dependent denotation that ranges over individuals (it is of type *e*), so its focus value is a set of individuals, (249b). The focus value of TP₄ is the set of sets of degrees (type $\langle dt, t \rangle$) in (249c). The condition in (232) requires that $\llbracket \varphi \rrbracket^f$ contains $\llbracket \varphi \rrbracket^o$ and at least one other element, and (249d) shows that it is not satisfied, because the ordinary value of TP₄ is a predicate of degrees and individuals (type $\langle d, et \rangle$), (249a), instead it should be of type $\langle d, t \rangle$ to be an element of the set that is the focus value of TP₄ (type $\langle dt, t \rangle$) – hence the ordinary value of TP₄ is not an element of the focus value of TP₄. Even if we assume a different treatment of the focused trace, so that the condition $\llbracket \text{TP}_4 \rrbracket^o \in \llbracket \text{TP}_4 \rrbracket^f$ is somehow satisfied, a bigger problem is that *C*' being a subset of $\llbracket \text{TP}_4 \rrbracket^f$ (type $\langle dt \rangle$), as required by (232), is not of the right type to be anaphorically linked with *C* (type $\langle et \rangle$), (249e).

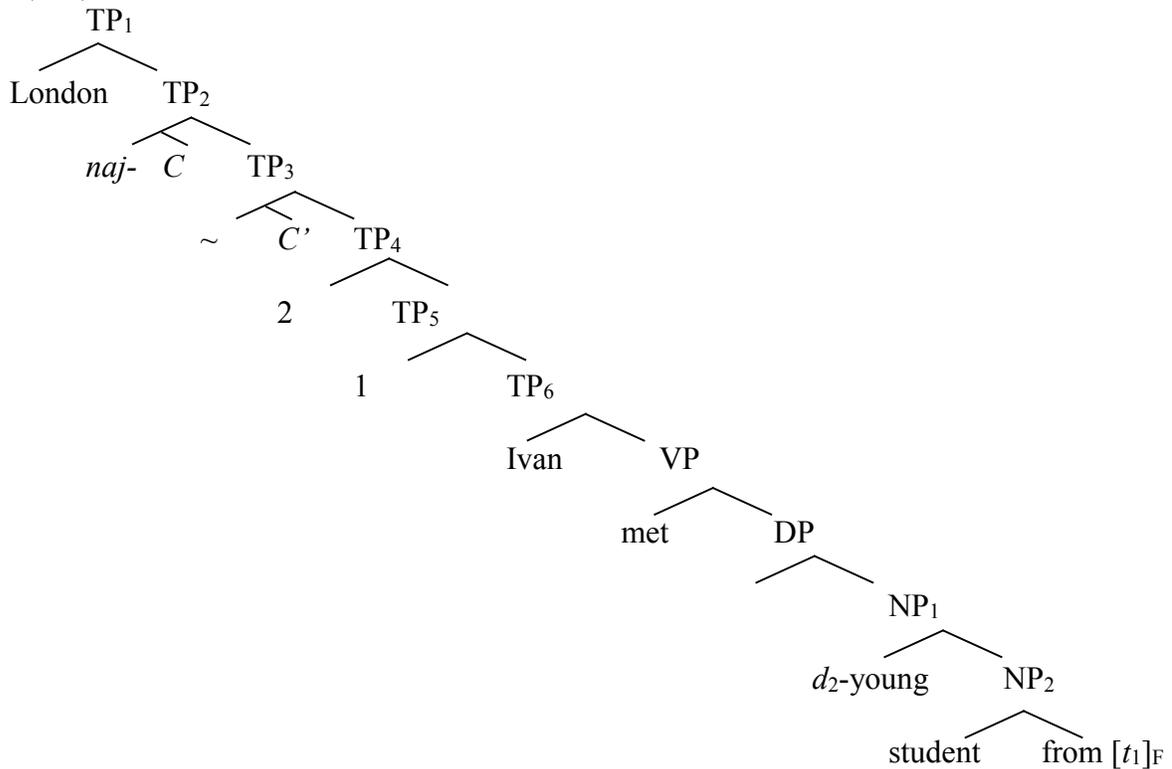
(246) Ivan se zapozna s naj-mlad student ot [London]_F. (Bulgarian)

Ivan refl met with youngest student from London

Relative-2 Reading: 'Ivan met a younger student from London than from any other city.'

(247) Relative-2: DP-external *-est*, DP-internal focus, TP-adjoined ~

LF for (246):



- (248) a. $London \in C$ (presupposition of *-est*, (47a))
 b. $\forall x[x \in C \rightarrow \exists d [Ivan \text{ met a } d\text{-young student from } x]]$ (presupposition of *-est*, (47b))
 c. $C_{\langle e,t \rangle} \subseteq \{x: \exists d [x \text{ is a city} \wedge Ivan \text{ met a } d\text{-young student from } x]\}$
(combined presuppositions of *-est*, (47))

- (249) a. $\llbracket TP_4 \rrbracket^o = \lambda d \lambda x [Ivan \text{ met a } d\text{-young student from } x]$
 b. $\llbracket [t]_F \rrbracket^f = D_e$
 c. $C'_{\langle dt,t \rangle} \subseteq \llbracket TP_4 \rrbracket^f \subseteq \{D_{\langle d,t \rangle}: \exists x [D = \lambda d [Ivan \text{ met a } d\text{-young student from } x]]\}$
 d. $\llbracket TP_4 \rrbracket^o \notin \llbracket TP_4 \rrbracket^f$ (focal presupposition, (232), not satisfied)
 e. $C \not\subseteq \llbracket TP_4 \rrbracket^f$ (focus association not possible, (238))

In the Appendix in Section 4.4.4 I show that adjoining \sim at the TP-level but below the index 2 or index 1 will also not work.

We will now see that once the DP that saturates *-est*'s third argument has moved, \sim can only be attached directly to it. The prediction of this result is that DP-external *-est* should be felicitous only with narrow focus, as in (250a). F-marking cannot exceed the size of the constituent that is the third argument, that is, focus projection as in (250b) is blocked (i.e. the F-marking on *London* cannot project before *London* moves).

(250) a. [London]_F [-*est* C] $\lambda d \lambda x$ [Ivan met [_{DP} *d*-young student from *x*]] Relative-2

$C \subseteq \{x: \exists d [x \text{ is a city} \wedge \text{Ivan met a } d\text{-young student from } x$
 $\wedge x \in \{\text{London, Paris, Berlin, ...}\}]\}$

b. [London]_F [-*est* C] $\lambda d \lambda x$ [Ivan met [_{DP} *d*-young [student from *x*]_F]] Relative-2

$C \subseteq \{x: \exists d [x \text{ is a city} \wedge \text{Ivan met a } d\text{-young student from } x$
 $\wedge x \in \{\text{student from London, student from Paris, student from Berlin, ...}\}]\}$

Before I show the addition of \sim to the derivation in (250a), I will provide direct empirical evidence for this outcome. As I discussed at the beginning of Chapter 1 in section 1.2.2, and in Chapter 2, section 2.6.2, in the split superlative construction in Polish, focus can only be contained within the remnant of the DP from which the topicalization of the superlative expression took place. That focus is identified by prosody in cases like (251) where the remnant is sufficiently large. On neutral prosody the rightmost constituent bears the nuclear pitch accent and ends up interpreted as narrow focus. In (252), on the other hand, a rising pitch accent is on *students*, by which it is marked as narrow focus and which changes the interpretation – now the comparison is between different people from London that Jan met (e.g. a student, a professor, ...). I now add the observation that it is not possible to use the prosody in (251) (with a nuclear pitch on *London*) to interpret the NP ‘student from London’ as the focus, (253). Focus projection that is normally found as a discourse coherence effect, as in (254), is not possible in (253). This is because once the pitch accent is located on *London* it is automatically interpreted as the constituent with respect to which the comparison class is set, that is, *-est*'s third argument. Thus, in (253) an implicit sub-question is automatically accommodated, so that students from different cities are salient in the context. The

unavailable interpretation for (253) is not precluded because the NP ‘student from London’ cannot become the third argument, but because the location of the pitch accent biases narrow focus on *London*. This indicates that in the presence of *-est*, the hearer is biased to expect a narrow focus. The superlative contrasts with *only*, (255), which in Polish likes to associate with the material directly following it, and thus the whole NP is preferably interpreted as focused.⁴⁸

(251) [NajmłodSZEGo]_{1-Topic} Jan spotkał [DP t₁ studenta z [LonDYnu]-Focus](Polish)
 youngest_{Acc} Jan met student_{Acc} from London
 LH* HL*
 ‘Jan met a younger student from London than from any other city.’

(252) [NajmłodSZEGo]_{1-Topic} Jan spotkał [DP t₁ [stuDENta]-Focus z Londynu]
 youngest_{Acc} Jan met student_{Acc} from London
 LH* L+H*
 ‘Jan met a younger student from London than any person from London that he met.’

(253) *Jan spotkał wiele młodych osób na zebraniu. ...*

Jan met many young people at the meeting. ...

Implicit SQ: Among the students from different cities, where was the youngest one from?

[NajmłodSZEGo]_{1-Topic} *pro* spotkał [DP t₁ [studenta z LonDYnu]-Focus]
 youngest_{Acc} *pro* met student_{Acc} from London
 LH* HL*

‘Jan met a younger student from London than from any other city.’

Unavailable reading: ‘Jan met a younger student from London than any other person he met.’

(254)Q: Kogo spotkał Jan?
 whom met Jan

⁴⁸ *Only* is typically assumed to operate at the sentential level (cf. section 4.3), thus the set of focus alternatives for (255) is the set $\{p: \exists x [p = \lambda w. \text{John met a young } x \text{ in } w]\}$.

‘Who did Jan meet?’

A: Jan spotkał [studenta z LonDYnu]_F.

Jan met student from London

(255) *Jan spotkał głównie starsze osoby na zebraniu. ...*

Jan met mostly older people at the meeting. ...

[Młodego]_{1-Topic} *pro* spotkał tylko [DP t₁ [studenta z LonDYnu]_{-Focus}]

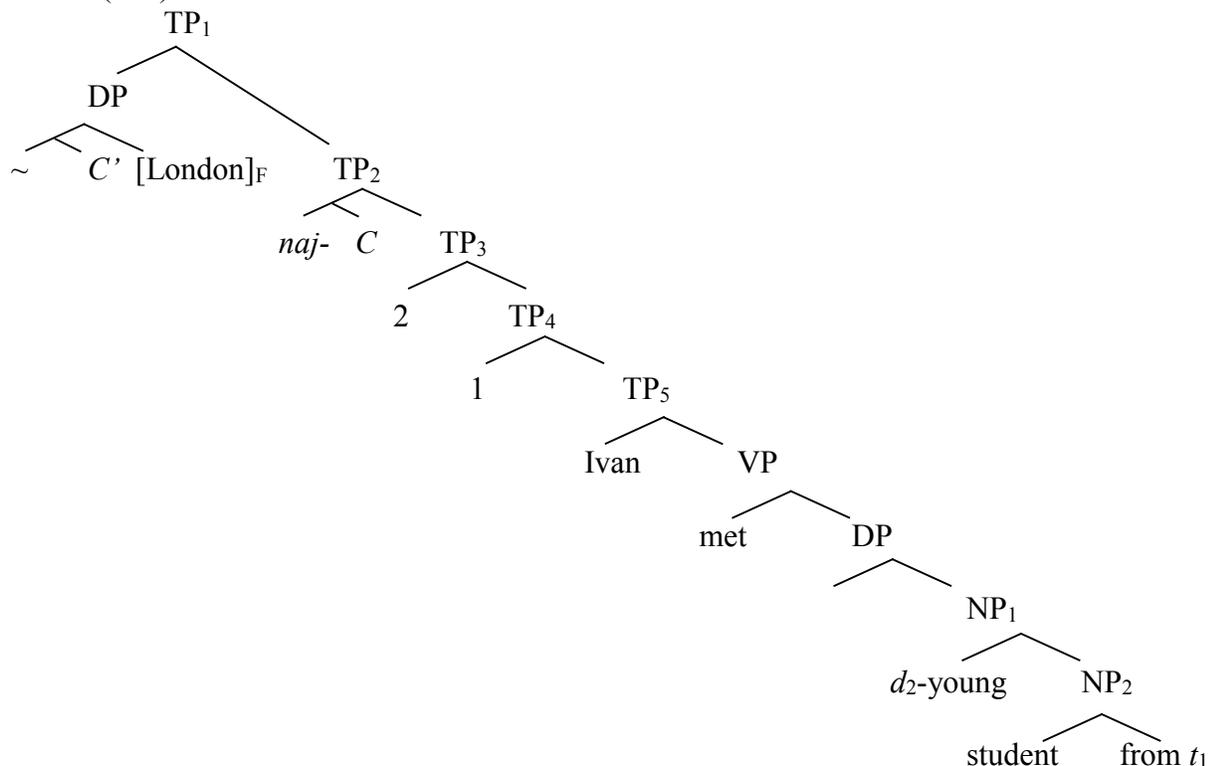
young_{Acc} *pro* met only student_{Acc} from London

‘Jan only met a student from London who was young (nobody else was young).’

The mechanism for focus association when *-est* is DP-external is thus the following. What we need is *C'* of type $\langle e, t \rangle$ to specify a set compatible with the Relative-2 reading, that is, a set of cities. Accordingly, $[\sim C']$ needs to attach to the moved constituent *London*, (or to its trace, see Appendix in section 4.4.4). In (256) the squiggle adjoins to *London* generating the set in (257a). The conditions on *C* from the presuppositions of *-est*, (257b), and from focus association, (257b), do not clash. Accordingly, the lexical focus requirement of *-est* as defined in (245) is satisfied, (258).

(256) Relative-2: DP-external -est, DP-internal focus, DP-adjoined ~

LF for (246):



(257) a. $C' \subseteq \llbracket \text{London}_F \rrbracket^f \subseteq \{\text{London, Paris, Berlin, ...}\}$

b. $C \subseteq \{x: \exists d [x \text{ is a city} \wedge \text{Ivan met a } d\text{-young student from } x]\}$

(presuppositions of -est, (47))

c. $C \subseteq \llbracket \text{London}_F \rrbracket^f$

(focus association possible, (238))

(258) $\llbracket \text{-est} \rrbracket(C)(\llbracket \text{TP}_3 \rrbracket)(\llbracket \text{London} \rrbracket) = 1 \Leftrightarrow C \subseteq \llbracket \text{London}_F \rrbracket^f$ (focus requirement of -est, (245))

Importantly, the set of focus alternatives, (257a), and the set resulting from -est's presuppositions, (257b) match, which allows for focus association, (257c), and the satisfaction of the focus requirement of -est, (258).

The truth conditions for (246)/(256) do not change by adding the requirement on C from focus association (underlined in (259)), but if we chose a different location for focus (different constituent, or a different level of attachment for ~), even though types could match and the

condition on focus association in (238) could be satisfied, the resulting truth conditions would not correspond to the desired Relative-2 reading. We'll see this in (260) and later on.

(259) The meaning of (256):

$$\begin{aligned} \llbracket \text{TP}_1 \rrbracket &= \exists d [\text{Ivan met a } d\text{-young student from London} \wedge \forall y [y \in C \wedge y \neq \text{London} \\ &\quad \rightarrow \neg \text{Ivan met a } d\text{-young student from } y]] \\ C &\subseteq \{x: \exists d [x \text{ is a city} \wedge \text{Ivan met a } d\text{-young student from } x \wedge \\ &\quad x \in \{\text{London, Paris, Berlin, ...}\}]\} \end{aligned}$$

Summing up, the Relative-2 reading is derived when *-est* takes DP-external scope and a DP-internal constituent marked as focus saturates its third argument. If a different constituent is F-marked, as in (260), the focus association requirements on *C* conflict with the presuppositions of *-est*, and the resulting truth conditions are anomalous. Instead of the focus on *London* as in (256), here *Ivan* is focused. The types match, (260a), but *C'* contains a set of people, (260b), which is incompatible with *C* containing cities as required by *-est*'s presuppositions, (260c-d).

(260) a. $[_{\text{TP}_1} [\text{London}] [_{\text{TP}_2} [-est\ C] [_{\text{TP}_3} [\llbracket \text{Ivan}_F \rrbracket^f [\sim C']]] \text{met } d\text{-young students from } x]]]$

b. $C' \subseteq \llbracket \text{Ivan}_F \rrbracket^f \subseteq \{\text{Ivan, Bill, Maria, ...}\}$

c. $C \subseteq \{x: \exists d [x \text{ is a city} \wedge \text{Ivan met } d\text{-young students from } x]\}$

(presuppositions of *-est*, (47))

d. $C \not\subseteq \llbracket \text{Ivan}_F \rrbracket^f$

(focus association not possible, (238))

4.4.2 Relative-1

Narrow focus on the subject *Ivan* triggers the Relative-1 reading, which means that *Ivan* must merge as *-est*'s third argument or else a semantic anomaly will result. In (261a), *Ivan* is focused and QRs to the edge of the clause leaving a trace, while *-est* tucks in right below it (261b). The focus operator attaches to the NP *Ivan* evoking the alternative set of individuals of which *C'* is a subset (261c). Focus association requires *C* to be the set of individuals alternative to *Ivan*, (261f),

which coincides with the independently imposed requirements from the two presuppositions of *-est* (261d-e). (Analogously to (247), clausal attachment for \sim results in mismatching types for C' and C which won't allow anaphoric linking of the two.) The lexical requirement for focus is satisfied, (262).

(261) a. [Ivan]_F se zapozna s naj-mlad student *ot* London. (Bulgarian)
 Ivan refl met with youngest student *from* London
 Reading: 'Ivan met a younger student from London than anyone else did.'

b. [_{TP1} [[Ivan_F] [\sim C']]] [_{TP2} [*-est* C][_{TP3} x met *d*-young students from London]]]

c. $C' \subseteq \llbracket \text{Ivan}_F \rrbracket^f \subseteq \{\text{Ivan, Bill, Mary, ...}\}$

d. $C \subseteq \{x: \exists d [x \text{ is a person} \wedge x \text{ met } d\text{-young students from London}]\}$

(presuppositions of *-est*, (47))

e. $C \subseteq \llbracket \text{Ivan}_F \rrbracket^f$ (focus association possible, (238))

(262) $\llbracket \text{-est} \rrbracket(C)(\llbracket \text{TP}_2 \rrbracket)(\llbracket \text{Ivan} \rrbracket) = 1 \Leftrightarrow C \subseteq \llbracket \text{Ivan}_F \rrbracket^f$ (focus requirement of *-est*, (245))

The focus association mechanism with DP-external *-est* also correctly predicts that the Relative-1 reading is not available when focus is present on the DP-internal constituent *London* of the relative clause in (263), although at the same time the *wh*-operator provides alternatives that can be used to restrict C for Relative-1. The focal presupposition and the presuppositions of *-est* clash, (264c), (265c).

(263) Musimy pocieszyć chłopca, który poznał najmłodszego studenta z [Londynu]_F.
 we-must console boy who met youngest student from London
 'We must console the boy who met a younger student from London than from any other city'. \rightarrow *Relative-2*
 Unavailable reading: 'We must console the boy who met a younger student from London than any other boy'. \rightarrow *Relative-1*

(264) [DP the [NP boy [CP who 1[TP t_1 [-est C] 2[TP met[DP a[NP d_2 -young student from
 [[London]_F[~ C']]]]]]]]]]

- a. $C \subseteq \{x: \exists d [x \text{ met a } d\text{-young student from London}]\}$
 (*presuppositions of -est*, (47))
- b. $C' \subseteq \llbracket \text{London}_F \rrbracket^f \subseteq \{\text{London, Paris, Berlin, ...}\}$
- c. $C \not\subseteq \llbracket \text{London}_F \rrbracket^f$ (*focus association not possible*, (238))

(265) [DP the [NP boy [CP who 3[TP [[London]_F[~ C'] [-est C] 2 1[TP t_3 met[DP a[NP d_2 -young
 student from t_1]]]]]]]]

- a. $C^g \subseteq \{x: \exists d [g(1) \text{ met a } d\text{-young student from } x]\}$ (*presuppositions of -est*, (47))
- b. $C \subseteq \{y: \exists x \exists d [y \text{ met a } d\text{-young student from } x \wedge y \text{ is a boy}]\}$
- c. $C' \subseteq \llbracket \text{London}_F \rrbracket^f \subseteq \{\text{London, Paris, Berlin, ...}\}$
- d. $C \not\subseteq \llbracket \text{London}_F \rrbracket^f$ (*focus association not possible*, (238))

The unavailability of the Relative-1 reading for (263) follows if with DP-external *-est* the F-marked constituent must become *-est*'s third argument. Moreover, just the presence of the *wh*-operator is not enough to trigger the Relative-1 reading: with neutral intonation, where the nuclear stress falls on the right-most constituent *London*, (266a), the Relative-1 reading is not available (the nuclear stress in the presence of *-est* is perceptually equivalent to narrow focus, hence the Relative-2 reading is available in addition to the absolute, cf. (263) above). The Relative-1 reading requires focus on the superlative adjective, (266b), so that the pitch accent is shifted away from *London* (this is not a requirement for the Relative-1 reading per se).⁴⁹

- (266) a. Musimy pocieszyć chłopca, który poznał najmłodszego studenta z Londynu.
 we-must console boy who met youngest student from London
Available readings: Absolute, Relative-2
Unavailable reading: Relative-1

⁴⁹ This data is mentioned in footnote 34 in section 3.1.5.

- b. Musimy pocieszyć chłopca, który poznał [najmłodSZEgo]_F studenta z Londynu.
 we-must console boy who met youngest student from London

Available readings: Absolute, Relative-1

Unavailable reading: Relative-2

The contrast between (266a) and (266b) in the availability of the Relative-1 reading is unexplained if the mere presence of a *wh*-expression provided a licensing context for relative readings. As mentioned in section 3.1.2, since Polish is a determinerless language, the superlative DP in (266b) may be interpreted as definite, that is, with *-est* remaining DP-internally. My analysis predicts the optionality of focus when *-est* can be interpreted DP-internally (as it always is with morphologically definite superlative DPs). In section 3.2.1, I showed that the focusing of the superlative adjective in Polish is felicitous in the contexts where a set of alternative properties is relevant (e.g. the youngest, the oldest, the smartest, the tallest students for (266b)), which means that *-est* is interpreted DP-internally. In section 4.6, I show how Relative-1 readings are derived when the superlative expression itself is focused.

4.4.3 Conclusion for section 4.4

We have now seen that while the *-est* scoping mechanism alone allows for the derivation of the Relative-2 reading, adding the focus association requirement for DP-external *-est* (in the absence of the definite determiner) in (245), we obtain the result that *-est*'s third argument must be a (narrow) focus, otherwise *-est*'s presuppositions and the focal presupposition clash. When it is impossible to interpret *-est*'s third argument as F-marked, scope alone should be sufficient to derive the relative readings. However, the empirical data from Polish and Bulgarian (Facts 4-5 ((23), (28)) and sections 3.1.4, 3.2) shows that in such cases relative readings are not available. The focus association requirement as defined in (245) accounts for this.

Crucially, assuming focus association for relative readings, we are also able to account for the unavailability of the Relative-2 reading in English and in Bulgarian in the presence of the definite article, in the following way: *-est* is not able to QR out of the DP when the definite determiner is

present, therefore Relative-2 cannot be derived. DP-external *-est* is only necessary for the Relative-2 reading. The Relative-1 reading, on the other hand, can be derived when *-est* stays DP-internally via contextual specification and/or focus association. DP-internal *-est* may only associate with DP-external foci so that Relative-1 readings are derived, but not with DP-internal foci for Relative-2 readings. I demonstrate this in the next section, 4.5., where I will consider all the different options in which *-est* remains DP-internal and *London* is F-marked, while [$\sim C'$] attaches at different levels.

4.4.4 Appendix to section 4.4

The LFs in (267a) and (268a) cannot yield the Relative-2 reading. The trace is focused, and thus the union of the focus value TP_5 that contains it, and to which [$\sim C'$] is adjoined, is specified as the set of cities from which Ivan met students of the age selected by the assignment function g^{50} , (267f), (268f). The set C is not a subset of this set, (267h), (268h) as it contains students of any age, (267b), (268b). The LF in (269a) derives Relative-2. It the counterpart of the LF in (256) where \sim adjoins to the moved DP *London*, except that here it \sim attaches to the trace of *London*.

(267) *Attempt at Relative-2:*

DP-external -est, DP-internal focus (trace), TP-adjoined \sim (below 2-abstract over degrees)

- a. $[TP_1 \text{ London } [TP_2 [-est \ C] [TP_3 \ 2 [TP_4 [\sim \ C'] [TP_5 \ 1 \text{ Ivan met } [DP \ d_2\text{-young student from } [t_1]_F]]]]]]]]$
- b. $C_{\langle e, t \rangle} \subseteq \{x: \exists d [x \text{ is a city} \wedge \text{Ivan met a } d\text{-young student from } x]\}$ (*presuppositions of -est*, (47))
- c. $\llbracket TP_5 \rrbracket^{g,0} = \lambda x [\text{Ivan met a } g(2)\text{-young student from } x]$
- d. $\llbracket [t]_F \rrbracket^f = D_e$
- e. $C'_{\langle s, t \rangle} \subseteq \llbracket TP_5 \rrbracket^{g,f} \subseteq \{p: \exists x [p = \text{Ivan met a } g(2)\text{-young student from } x]\}$

⁵⁰ So far I have been omitting the superscript g in the notation of the interpretation function $\llbracket . \rrbracket$ as I have not been dealing with unbound traces. The denotation of each node of the phrase structure is always relativized to a variable assignment g , where a variable assignment is a partial function from \mathbb{N} into the domain D . For any α , $\llbracket \alpha \rrbracket^g$ is the denotation of α . For any assignment g , if α is a pronoun or a trace $\llbracket \alpha \rrbracket^g = g$ (Heim and Kratzer 1998, p. 94).

- f. $\cup[[TP_5]]^{g,f} \subseteq \{x: [\text{Ivan met a } g(2)\text{-young student from } x]]\}$
 g. $[[TP_5]]^o \notin [[TP_5]]^f$ (focal presupposition, (232), not satisfied)
 h. $C \not\subseteq \cup[[TP_5]]^f$ (focus association not possible, (238))

(268) *Attempt at Relative-2:*

DP-external -est, DP-internal focus (trace), TP-adjoined ~ (below 1-abstract over individuals)

- a. $[_{TP1} \text{London}[_{TP2} \text{-est } C] [_{TP3} 2 [_{TP4} 1 [_{TP5} [\sim C'] [_{TP6} \text{Ivan met}[_{DP} d_2\text{-young student from } [t_1]_F]]]]]]]]]]$
 b. $C_{\langle e,t \rangle} \subseteq \{x: \exists d [x \text{ is a city} \wedge \text{Ivan met a } d\text{-young student from } x]\}$ (presuppositions of -est, (47))
 c. $[[TP_6]]^{g,o} = \text{Ivan met a } g(2)\text{-young student from } g(1)$
 d. $[[[t]_F]^f = D_e$
 e. $C'_{\langle s,t \rangle} \subseteq [[TP_6]]^{g,f} \subseteq \{p: \exists x [p = \text{Ivan met a } g(2)\text{-young student from } x]\}$
 f. $\cup[[TP_6]]^{g,f} \subseteq \{x: [\text{Ivan met a } g(2)\text{-young student from } x]]\}$
 g. $[[TP_6]]^o \in [[TP_6]]^f$ (focal presupposition, (232), satisfied)
 h. $C \not\subseteq \cup[[TP_6]]^f$ (focus association not possible, (238))

(269) *Relative-2:*

DP-external -est, DP-internal focus (trace), DP-adjoined ~ (above the trace)

- a. $[_{TP1} \text{London}[_{TP2} \text{-est } C] [_{TP3} 2 1 \text{Ivan met}[_{DP} d_2\text{-young}[_{NP} \text{student from}[_{DP2} [\sim C'][_{DP3} [t_1]_F]]]]]]]]]]$
 b. $C \subseteq \{x: \exists d [x \text{ is a city} \wedge \text{Ivan met a } d\text{-young student from } x]\}$ (presuppositions of -est, (47))
 c. $C' \subseteq [[[t]_F]^f = D_e$
 d. $C \subseteq [[[t]_F]^f$ (focus association possible, (238))

4.5 DP-internal *-est* in the presence of *'the'*

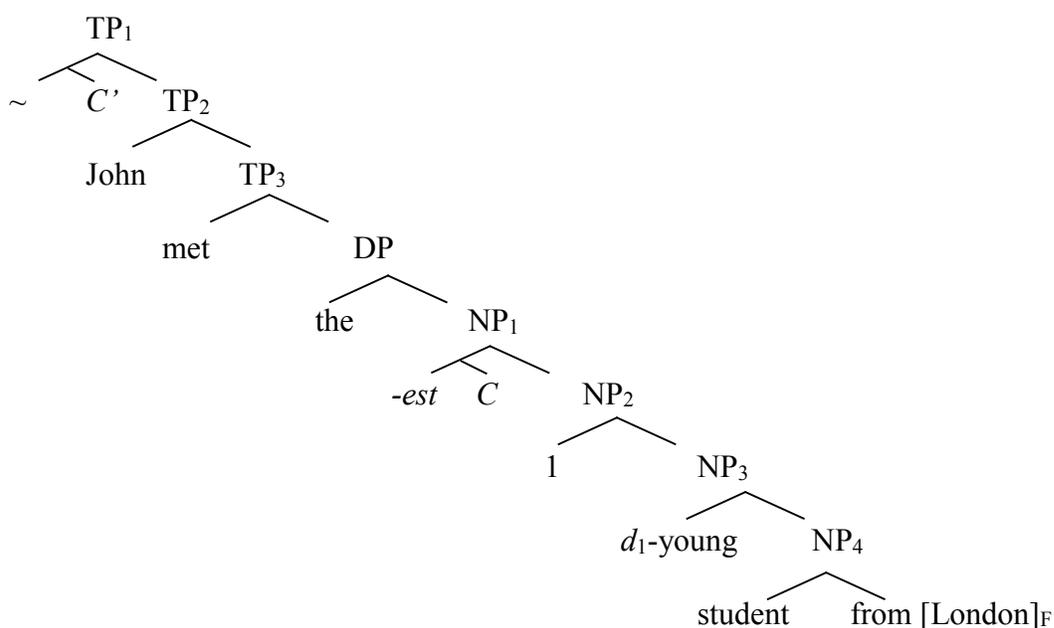
4.5.1 DP-internal *-est* cannot associate with DP-internal focus

In this section I demonstrate that when *-est* is DP-internal, focus association may not give rise to Relative-2 no matter which configuration of \sim with respect to the DP-internal focus is attempted. In section 4.5.2 I show that when *-est* is DP-internal, association with DP-external focus is possible, which yields the Relative-1 reading.

I will consider here four different attachment sites for \sim , TP, DP, two different NP levels, to see which ones allow for the correct type for the anaphoric linking between *-est*'s and \sim 's restrictors (as stated in the condition on focus association in (238)).

The first try involves leaving both *-est* and the F-marked *London* in-situ and attaching the \sim -operator at the sentential level, (270). The restrictor of \sim is the subset of the focus value of TP₂, the set of propositions in (271a), as required by the focal presupposition in (232). The restrictor of *-est* is the set in (271b) as required by *-est*'s presuppositions (47). Recall that we can add a union operator to *C'* so that both *C'* and *C* are of type $\langle e,t \rangle$ to make an anaphoric link between them possible. However, after the union operation, *C'* contains cities, (271b), while *C* contains students, (271c). The focus presupposition and *-est*'s presuppositions clash, (271d).

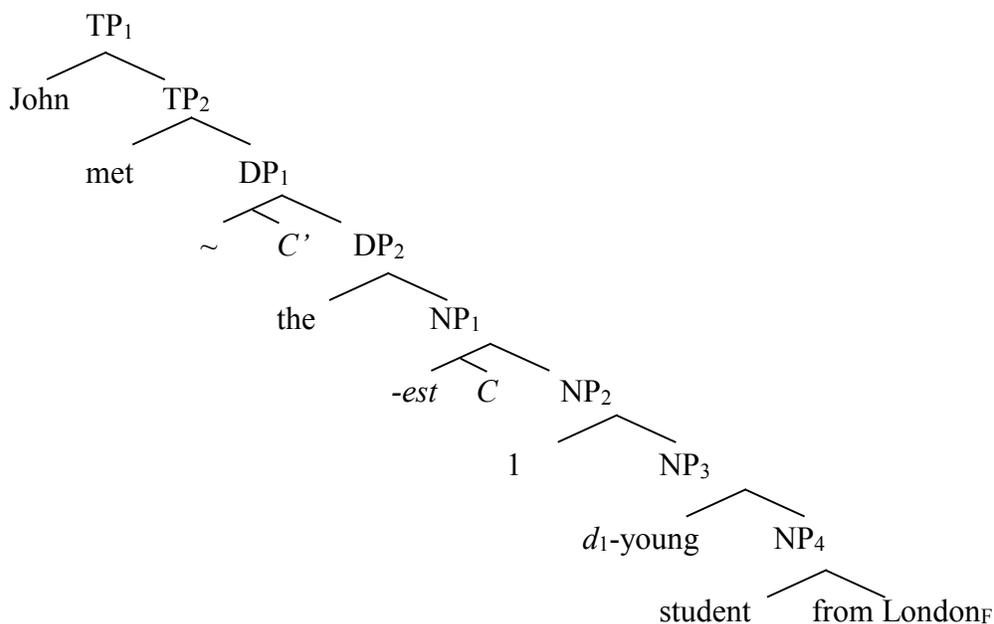
(270) Relative-2 impossible: DP-internal *-est*, DP-internal focus, TP-adjoined \sim



- (271) a. $C' \subseteq \llbracket \text{TP}_2 \rrbracket^f \subseteq \{p: \exists x [p = \text{John met the youngest students from } x]\}$
 b. $\cup \llbracket \text{TP}_2 \rrbracket^f \subseteq \{x: \text{John met the youngest students from } x\}$
 c. $C \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from London}]$ (*presuppositions of -est*, (47))
 d. $C \not\subseteq \cup \llbracket \text{TP}_2 \rrbracket^f$ (*focus association not possible*, (238))

The next try involves keeping everything as before, (270) above, except for adjoining \sim at the DP level. In the LF in (272), where \sim attaches to the superlative DP, C' is the subset of the focus value of DP_2 , a set of the youngest students from some city, (273a). C is the set of students of some age from London, (273b). The condition for focus association cannot be fulfilled, (273b).

(272) Relative-2 impossible: DP-internal -est, DP-internal focus, DP-adjoined \sim

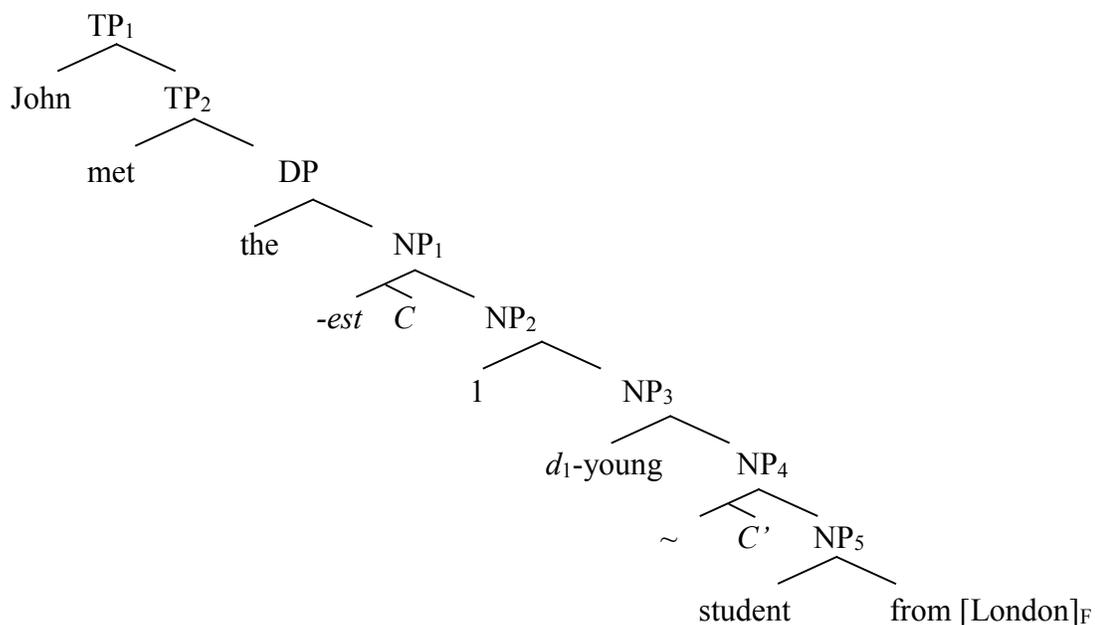


- (273) a. $C' \subseteq \llbracket \text{DP}_2 \rrbracket^f \subseteq \{x: \exists y [x \text{ is the youngest student from } y]\}$
 b. $C \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from London}]$ (*presuppositions of -est*, (47))
 c. $C \not\subseteq \llbracket \text{DP}_2 \rrbracket^f$ (*focus association not possible*, (238))

On the third attempt, we are still keeping *-est* and focus inside the DP, but we now try to adjoin \sim a little lower, to NP₅, (274). This time the condition on focus association will not be violated like in the derivations above, (270) and (272), but the truth conditions will come out anomalous.

The focus alternative value of NP₅ is a set of properties of being a student from some place, and C' is a subset of this set, (275a). We can apply the union operation to obtain a set of students from some place, (275b), which allows C' to find its antecedent in C , which by the presuppositions of *-est* contains students from London of a certain age, (275c). The condition on focus association in (238) is satisfied, (275d). This, however, turns out not to be enough for focus association to have an effect on the meaning.

(274) Relative-2 impossible: DP-internal *-est*, DP-internal focus, NP₄-adjoined \sim



- (275) a. $C' \subseteq \llbracket \text{NP}_5 \rrbracket^f \subseteq \{P: \exists y [P = \lambda x [x \text{ is a student from } y]]\}$
 b. $\cup \llbracket \text{NP}_5 \rrbracket^f \subseteq \{x: \exists y [x \text{ is a student from } y]\}$
 c. $C \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from London}]\}$ (presuppositions of *-est*, (47))
 d. $C \subseteq \cup \llbracket \text{NP}_5 \rrbracket^f$ (focus association possible, (238))

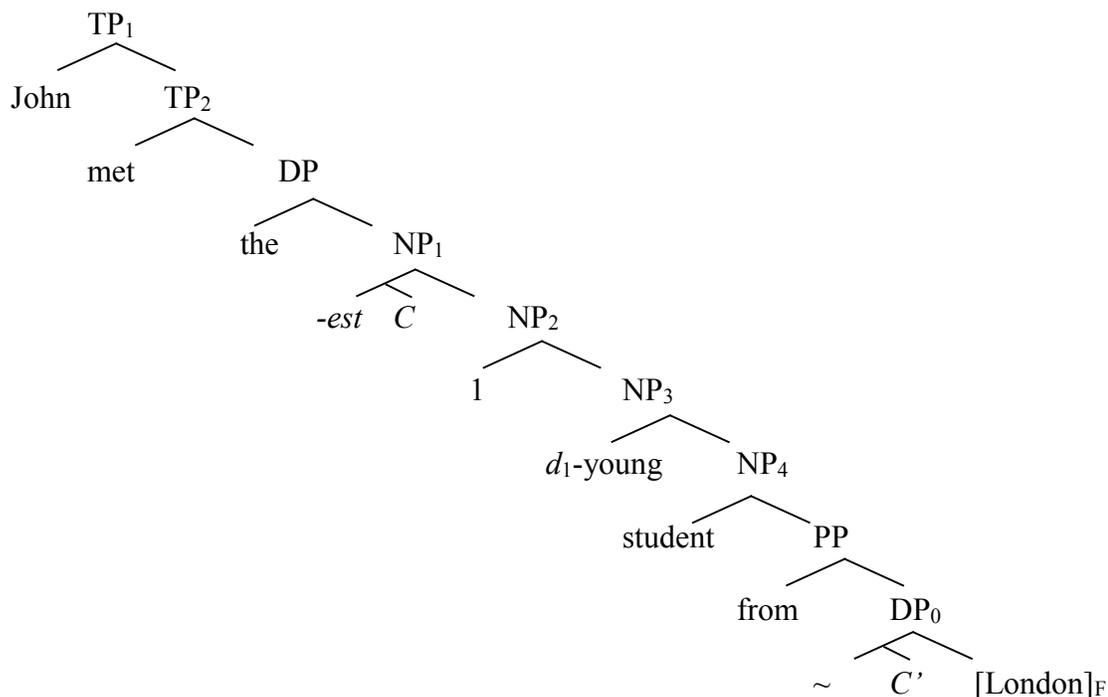
The derivation in (274) allows DP-internal *-est* to associate with DP-internal focus because the condition in (238) is not violated, (275d). However, the meaning contribution of the focus ‘student from some city’ is weaker than the presupposition of the superlative DP that sets the comparison class to ‘students from London of some age’, therefore the effect of focus on the meaning is vacuous. The truth conditions in (276) still require the comparison to be between students from London and not between students from different cities as on the Relative-2 reading.

(276) The meaning of (274):

- a. $\llbracket \text{DP} \rrbracket = \lambda x \exists d [x \text{ is a } d\text{-young student from London} \wedge \forall y \exists z [y \in C \wedge y \neq x \rightarrow \neg y \text{ is a } d\text{-young student from London}]]$
- b. $C \subseteq \{x: \exists d \exists z [x \text{ is a } d\text{-young student from London} \wedge \underline{x \text{ is a student from } z}]\}$
- c. $\llbracket \text{TP}_1 \rrbracket = 1$ iff John met the unique student from London of a certain age such that no other student in the comparison class of students from London of a certain age is younger than that student

In the discussion of DP-external *-est* in the absence of the definite determiner, we saw in section 4.4.1 that DP-external *-est* can associate with the focused constituent *London* only when \sim takes scope just over the QRed *London* saturating *-est*’s third argument. Now, we can also try attaching \sim to *London*, while keeping *-est* and focus in situ as above. Association between C' and C is not possible, (278c). The squiggle’s restrictor C' contains cities, (278a), while the comparison class C contains students from London of a certain age, (278b).

(277) Relative-2 impossible: DP-internal *-est*, DP-internal focus, DP₀-adjoined ~



(278) a. $C' \subseteq \llbracket [London]_F \rrbracket^f = \{London, Paris, Berlin, \dots\}$

b. $C \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from London}]\}$ (*presuppositions of -est*, (47))

c. $C \not\subseteq \llbracket [London]_F \rrbracket^f$ (*focus association not possible*, (238))

In the above four attempts at focus association of DP-internal *-est* with DP-internal focus, we varied the level of attachment for the focus interpretation operator, while keeping the focus *London* in situ. One might wonder, if allowing an additional QR of *London* would change things, so that a variable ranging over cities is created with the DP, on the basis of which the comparison class is set when *-est* is DP-internal. With the added QR, the comparison set will contain students from some city.

In the following four LFs, (279)-(282), *London* QRs to the clause and its trace is F-marked so that the squiggle contains the focus in its scope. We attempt to attach ~ at four different levels: TP, (279a), DP, (280a), the head NP, (281a), and the DP within the modifier PP, (282a). Focus association is not possible when ~ is adjoined to the TP (279), the DP (280), or the DP modifier (282). In (279) and (282) *C* contains students but *C'* contains cities. In (280) *C* contains students of some age, but *C'* contains the youngest students. Focus association is possible in (281), but its

effect is semantically vacuous. In (281) the comparison is between students from a place picked by the assignment function g , and not between cities as required for the Relative-2 reading, (281i).

(279) a.

[London] 1 [TP₁ [\sim C'] [TP₂ John met [DP the [[-est C] 2 [NP d_2 -young student from [t₁]_F]]]]

b. $\llbracket [t]_F \rrbracket^{g,f} = D_e$

c. $C' \subseteq \llbracket \text{TP}_2 \rrbracket^f \subseteq \{p: \exists x [\text{Ivan met the youngest student from } x]\}$

d. $\cup \llbracket \text{TP}_3 \rrbracket^f \subseteq \{x: \text{Ivan met the youngest student from } x\}$

e. $\llbracket [2 \text{ [NP } d_2\text{-young student from [t}_1\text{]}_F]] \rrbracket^g = \lambda d \lambda x [x \text{ is a } d\text{-young student from } g(1)]$

f. $C^g \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from } g(1)]\}$ (*presuppositions of -est*, (47), (279e))

g. $C^g \not\subseteq \cup \llbracket \text{TP}_3 \rrbracket^f$ (*focus association not possible*, (238))

(280) a. [London] 1 John met [DP₁ [\sim C'] [DP₂ the [[-est C] 2 [NP d_2 -young student from [t₁]_F]]]]

b. $\llbracket [t]_F \rrbracket^f = D_e$

c. $C' \subseteq \llbracket \text{DP}_2 \rrbracket^f \subseteq \{x: \exists y [x \text{ is the youngest student from } y]\}$

d. $\llbracket [2 \text{ [NP } d_2\text{-young student from [t}_1\text{]}_F]] \rrbracket^g = \lambda d \lambda x [x \text{ is a } d\text{-young student from } g(1)]$

e. $C^g \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from } g(1)]\}$ (*presuppositions of -est*, (47), (280e))

d. $C^g \not\subseteq \llbracket \text{DP}_2 \rrbracket^f$ (*focus association not possible*, (238))

(281) a.

[London] 1 John met [DP the [[-est C] 2 [NP₁ d_2 -young [NP₂ [\sim C'] [NP₃ student from [t₁]_F]]]]

b. $\llbracket [t]_F \rrbracket^f = D_e$

c. $C' \subseteq \llbracket \text{NP}_3 \rrbracket^f \subseteq \{P: \exists y [P = \lambda x [x \text{ is a student from } y]]\}$

d. $\cup \llbracket \text{NP}_3 \rrbracket^f \subseteq \{x: \exists y [x \text{ is a student from } y]\}$

e. $\llbracket [2 \text{ [NP } d_2\text{-young student from [t}_1\text{]}_F]] \rrbracket^g = \lambda d \lambda x [x \text{ is a } d\text{-young students from } g(1)]$

f. $C^g \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from } g(1)]\}$ (*presuppositions of -est*, (47), (281e))

h. $C^g \subseteq \cup \llbracket \text{NP}_3 \rrbracket^f$ (*focus association possible*, (238))

i. $\llbracket \text{DP} \rrbracket^g = \lambda x \exists d [x \text{ is a } d\text{-young student from } g(1) \wedge \forall y \exists z [y \in C \wedge y \neq x$

$\wedge \underline{y \text{ are students from } z} \rightarrow \neg y \text{ is a } d\text{-young student from } g(1)]]$

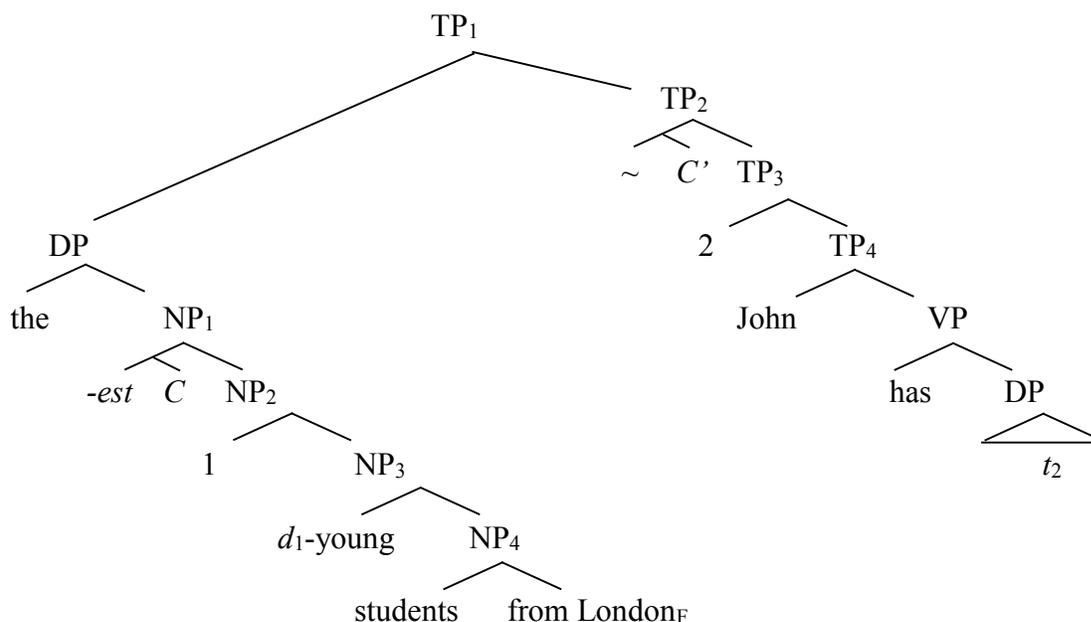
(282) a.

[London] 1 John met [DP the [[-est C] 2 [NP₁ d_2 -young student from [NP₂ [\sim C'] [NP₃ [t₁]_F]]]]

- b. $C' \subseteq \llbracket [t]_F \rrbracket^f \subseteq \{x: x \text{ is a city}\}$
- c. $\llbracket [2 \text{ [}_{NP} d_2\text{-young student from } [t_1]_F]] \rrbracket^g = \lambda d \lambda x [x \text{ is a } d\text{-young students from } g(1)]$
- d. $C^g \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from London}]\}$ (*presuppositions of -est*, (47),(282e))
- e. $C^g \not\subseteq \llbracket [t]_F \rrbracket^f$ (*focus association not possible*, (238))

One more option to consider is when the whole superlative DP is QRred to the clausal level. As an instance of optional QR (in contrast to obligatory QR that resolves type mismatch, as discussed in section 2.5.2 in Chapter 2), this should allow for yet another change in the scopal relations between the two operators: \sim and *-est*. One immediate result of the QR of the whole superlative DP is that no constituent with this DP can bear F-marking as it is outside the scope of \sim . For example, in (283), unlike in the cases where the trace of the moved focus was left in the scope of \sim (as in (279)-(282) above), there is no F-marked element at all in the scope of \sim . This LF is uninterpretable.

(283) Relative-2 impossible: DP-internal *-est*, focus outside the scope of \sim



4.5.2 DP-internal *-est* can associate with DP-external focus

When the focus interpretation operator \sim is located at the TP level and the superlative DP undergoes QR and is outside of the scope of \sim , any of the DP-external constituents can bear the F-feature. This correctly accounts for the fact that when *-est* remains DP-internal, only Relative-1 readings can be derived via *-est*'s association with focus.

For the DP-external relative reading in the presence of the definite article in English and Bulgarian, as in (284), the subject is focus marked and the definite superlative DP QRs to Spec, TP, (285). The \sim -operator is attached to the clause so that C' is the set of sets of individuals that someone met, (286a). The presuppositions of *-est* require C to be the set of students from London of a certain age, (286c). Focus association delimits C to the set of individuals that someone met, (286b). The requirements imposed on C by focus association and by the presuppositions of *-est* do not clash, (286d). Focus association contributes to the derivation of the Relative-1 reading in a meaningful way, (287) (this contrasts with the vacuous contribution of focus that we have previously seen in (274) and (280)).

(284) a. [John]_F met the youngest student from London.

Reading: ‘John met a younger student from London than anyone else did.’

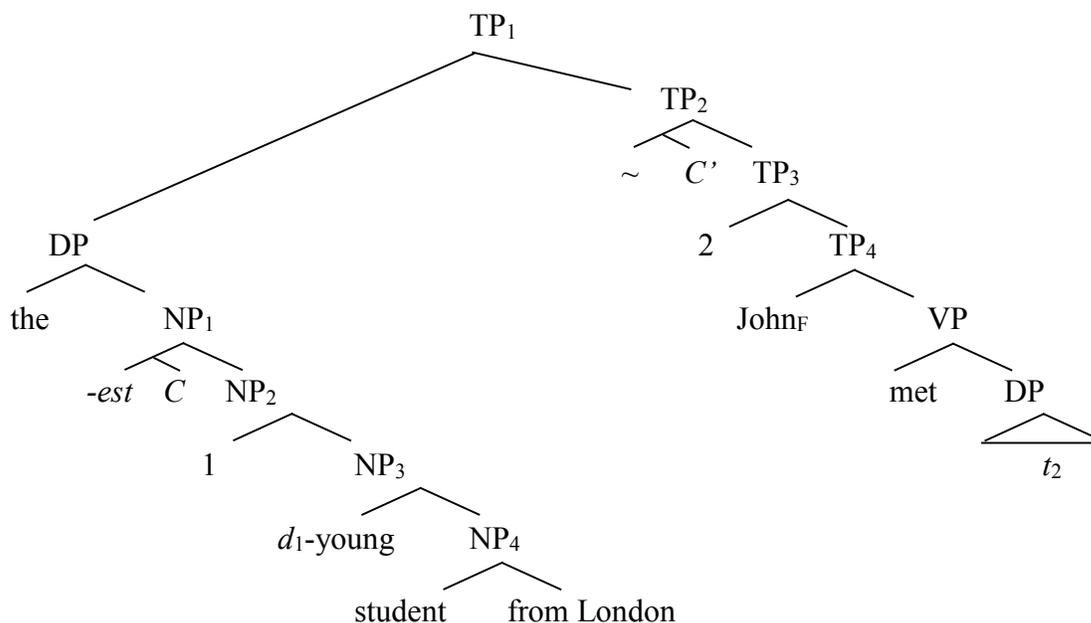
b. [Ivan]_F se zapozna s najmladi-*ja* student ot London. (Bulgarian)

Ivan refl met with youngest-*the* student from London

Reading: ‘Ivan met a younger student from London than anyone else did.’

(285) Relative-1: DP-internal *-est*, DP-external focus, QR of the superlative DP

LF for (284):



(286) a. $C' \subseteq \llbracket \text{TP}_3 \rrbracket^f \subseteq \{P: \exists y [P = \lambda x [y \text{ met } x]]\}$

b. $\cup \llbracket \text{TP}_3 \rrbracket^f \subseteq \{x: \exists y [y \text{ met } x]\}$

c. $C \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from London}]\}$ (*presuppositions of -est*, (47))

d. $C \subseteq \cup \llbracket \text{TP}_3 \rrbracket^f$ (*focus association possible*, (238))

(287) The meaning of (285):

a. $\llbracket \text{DP} \rrbracket = \lambda x \exists d [x \text{ is a } d\text{-young student from London} \wedge \forall y [y \in C \wedge y \neq x \rightarrow \neg y \text{ is a } d\text{-young student from London}]]$

b. $C \subseteq \{x: \exists d \exists z [x \text{ is a } d\text{-young student from London} \wedge \underline{z \text{ met } x}]\}$

- c. $\llbracket \text{TP}_1 \rrbracket = 1$ iff John met the unique student from London of a certain age such that no other student in the comparison class of students of a certain age that someone met is younger than that student

What happens if the trace of the moved superlative DP is focused? This is shown in (288). The condition on focus association is satisfied, (288f), but adding this condition to the specification of C , (289b), results in a tautology: ‘John met a younger student from London than every other student from London that he met’, (289c). Since such a tautologous interpretation for the sentence *John met the youngest student from London* is not detectable, it may not be the case that F-marking on the trace of the QRed DP is ever licensed.

(288) a.

$[\text{DP the } \llbracket [-est C] 2[\text{NP } d_2\text{-young student from London}]] \llbracket \text{TP}_1[\sim C']\llbracket \text{TP}_2 1[\text{TP}_3\text{John met } [t_1]_F]]]$

b. $\llbracket \text{TP}_2 \rrbracket^o = \lambda x [\text{John met } x]$

c. $C' \subseteq \llbracket \text{TP}_2 \rrbracket^f \subseteq \{P = \lambda x [\text{John met } x]\}$

d. $\cup \llbracket \text{TP}_2 \rrbracket^f \subseteq \{x: \text{John met } x\}$

e. $C \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from London}]\}$ (presuppositions of *-est*, (47))

f. $C \subseteq \cup \llbracket \text{TP}_2 \rrbracket^f$ (focus association possible, (238))

(289) The meaning of (288):

a. $\llbracket \text{DP} \rrbracket = \lambda x \exists d [x \text{ is a } d\text{-young student from London} \wedge \forall y [y \in C \wedge y \neq x \rightarrow \neg y \text{ is a } d\text{-young student from London}]]$

b. $C \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from London} \wedge \text{John met } x]\}$

c. $\llbracket \text{TP}_1 \rrbracket = 1$ iff John met the unique student from London of a certain age such that no other student in the comparison class of students of a certain age that John met is younger than that student

Summing up, in this subsection it was demonstrated that the focus association mechanism when *-est* is DP-internal can derive Relative-1 readings when focus is DP-external. This completes the results from section 4.5.1 where it was shown that DP-internal *-est* can never associate with DP-internal focus for the Relative-2 reading.

The QR of the superlative DP and association with DP-external focus can account for the island effects observed in Szabolcsi (1986). As discussed in section 2.7, Szabolcsi argued that evidence for the possibility of DP-external scope of *-est* comes from the fact with subjunctive complements, as in (290a), the relative reading induced by the focus on the higher subject *John* is available, but with indicative complements, (291a), this reading is unavailable.

(290) a. [John]_F demanded that you meet the youngest student.

Reading: ‘John demanded that you meet a younger student than anyone else demanded that you meet.’

b. John demanded that [you]_F meet the youngest student.

Reading: ‘John demanded that you meet a younger student than anyone else does.’

(291) a. [John]_F said that you met the youngest student.

Unavailable reading: ‘John said that you met a younger student than anyone else said that you met.’

b. John said that [you]_F met the youngest student.

Reading: ‘John said that you met a younger student than anyone else did.’

Whether *-est* scopes out of the DP or the DP containing it undergoes QR, either movement is subject to blocking by a tensed clause boundary. On my analysis, the superlative DP is able to QR to the edge of the clause for *-est* to associate with a focus within that clause, which derives the two readings in (290a-b) as in (292) and (293). In (292) the superlative DP undergoes QR to the higher clause and focus association with its subject *John* is possible. In (293) the superlative DP moves only to the edge of the embedded clause and *-est* associates with the focus on the subject of the embedded clause.

(292) a. [DP the [[-est C] 2[_{NP} *d*-young student]]] [TP₁[~ C'] [TP₂ 1[TP₃ [John]_F demanded [CP that
you meet *t*₁]]]]]

b. $C' \subseteq \llbracket \text{TP}_2 \rrbracket^f \subseteq \{P: \exists y [P = \lambda x [y \text{ demanded that you meet } x]]\}$

c. $\cup \llbracket \text{TP}_2 \rrbracket^f \subseteq \{x: \exists y [y \text{ demanded that you meet } x]\}$

d. $C \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from London}]\}$ (*presuppositions of -est*, (47))

e. $C \subseteq \cup[[TP_2]]^f$ (focus association possible, (238))

(293) a. John demanded [_{CP} that [_{DP} the [[-est C] 2[_{NP} *d*₂-young student]]] [_{TP1}[~ C'] [_{TP2} 1
[_{TP3} [you]_F meet *t*₁]]]]

b. $C' \subseteq [[TP_2]]^f \subseteq \{P: \exists y [P = \lambda x [y \text{ meets } x]]\}$

c. $\cup[[TP_2]]^f \subseteq \{x: \exists y [y \text{ meets } x]\}$

d. $C \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from London}]\}$ (presuppositions of -est, (47))

e. $C \subseteq \cup[[TP_3]]^f$ (focus association possible, (238))

When the superlative DP is unable to cross the clausal boundary, and QRs only to the edge of the complement clause, as in (294), -est is unable to associate with the focus in the higher clause.

(294) a. [_{TP1}[~ C'] [_{TP2} [John]_F said [_{CP} that [_{DP} the [[-est C] 2[_{NP} *d*₂-young student]]] [_{TP3} 1
[_{TP4} you meet *t*₁]]]]]]

b. $C' \subseteq [[TP_2]]^f \subseteq \{p: \exists x [p = \lambda w. x \text{ demanded that you meet the youngest student in } w]\}$

c. $\cup[[TP_3]]^f \subseteq \{x: x \text{ demanded that you meet the youngest student}\}$

d. $C \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from London}]\}$ (presuppositions of -est, (47))

e. $C \not\subseteq \cup[[TP_3]]^f$ (focus association possible, (238))

The above shows that the island effects noticed in Szabolcsi (1986) are also compatible with a DP-internal account for -est.

At this point I will return to the puzzle observed in section 2.5.1: the overt movement of a focused DP-internal constituent out of a definite superlative DP in *it*-clefts and *wh*-questions in English facilitates the Relative-2 reading for some native speakers. In the next subsection I show that the availability of the Relative-2 reading with *it*-clefts and *wh*-questions can be accounted without positing DP-external scope for -est.

4.5.3 Relative-2 in *it*-clefts and *wh*-questions

We have now seen that when both *-est* and the focus *London* stay DP-internally (at the different adjunction levels for \sim in section 4.5.1) focus association is not possible – either the semantic types of *C'* and *C* do not match, (270), (272), (277), or the contribution of focus is too weak to have any effect on *C*, (274), and the variability needed for a relative reading cannot arise. Neither is focus association possible, when the F-marked constituent is covertly QRed to the clause but *-est* remains inside the superlative DP, (279)-(282). These results correlate with the fact that the English sentence in (226) cannot allow the Relative-2 reading even when there is prosodic focus on *London*. In the preceding section, 4.5.2, I have shown that when *-est* stays DP-internally and the focus is DP-external, that is, it is on the subject *John*, focus association is possible. The conclusion is that in English, *-est*, trapped DP-internally in the presence of *the*, cannot associate with DP-internal focus for Relative-2 (even when the focus is covertly QRed outside the DP) but it can associate with DP-external focus for Relative-1. What is then the derivation of the Relative-2 reading that some speakers of English accept when the DP-internal focus is moved overtly in *it*-clefts and *wh*-questions as I discussed in section 2.5.1?

To recap the facts from section 2.5.1: the overt movement of the DP-internal constituent in *it*-clefts facilitates the Relative-2 reading for some native speakers. This is notable because parallel covert movement does not make Relative-2 available, which is in line with the focus association analysis, section 4.5.1.

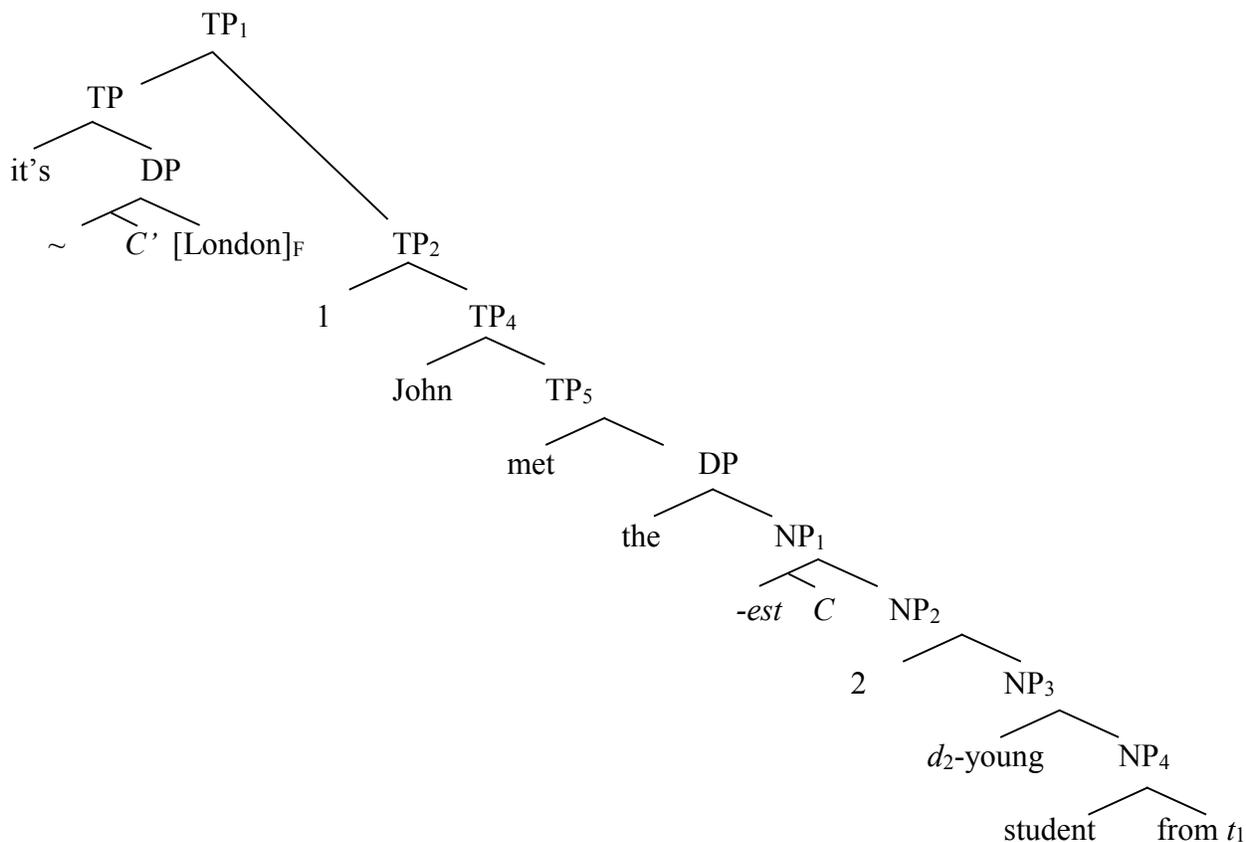
The cleft construction in (295i-ii) involves A'-movement of the focused constituent (pied-piping as in (295ii) is preferred by some speakers). Native speakers who accept (295i-ii) as (borderline) grammatical allow both the absolute reading (295a) and the relative reading established with respect to the focus, that is, *Relative-2*, (295b).

- (295) (i) It was London_i that John met [_{DP} the youngest [_{NP} student from t_i]].
 (= (89))(ii) It was from London_i that John met [_{DP} the youngest [_{NP} student t_i]].
- a. 'John met that student from London who was the youngest among the *Absolute* students from London.'
 - b. 'John met a younger student from London than from any other city.' *Relative-2*

Since I showed in (279)-(282) that the DP-internal *-est* cannot associate with the focus *London* when it is covertly QRred to the clause and when \sim attaches at the different levels within the clause, the same holds for overt QR of *London*. But overt movement of *London* also allows for another possibility – we can attach \sim to the moved *London* while *-est* stays DP-internally.

In (296) *-est* is DP-internal and \sim adjoins to the focus *London*, generating a set of cities as focus alternatives, (297a). The adjunction level of \sim corresponds to the fact that the semantics of the cleft operates only on the F-marked constituent inside the pivot (Jackendoff 1972, Velleman et al. 2012, Kotek and Erlewine 2013). As a result, though, we are faced with the same problem we have seen before: the conditions resulting from the focus interpretation, (297a), and from the presuppositions of *-est* (297c) do not match, which precludes focus association, (297d).

(296) LF for (89):



(297) a. $C' \subseteq \llbracket [London]_F \rrbracket^f \subseteq \{London, Paris, Berlin, \dots\}$

- b. $[[NP_2]]^g = \lambda d \lambda x [x \text{ is a } d\text{-young student from } g(1)]$
- c. $C^g \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from } g(1)]\}$
(presuppositions of -est, (47), (297b))
- d. $C^g \not\subseteq [[London_F]]^f$
(focus association not possible, (238))

Focus association, however, is only one of the contextual effects on the restrictions on domains of quantification. According to Rooth (1992), von Stechow (1994) (a.o.) the contextual restriction of quantifier domains, as well as the licensing conditions on \sim are instances of anaphoric dependence on the same discourse context. Now, the *it*-cleft construction itself does not merely contribute focus interpretation (as it is assumed in (297)). The *it*-cleft construction ‘it is α that P ’ has two meaning components: the assertion that $P(\alpha)$ and the existence presupposition $\exists x.P(x)$ (Rooth 1985, Abrusán 2014). It has been observed that the existence presupposition is difficult to accommodate, because clefts have an anaphoric character, that is, $\exists x.P(x)$ is typically entailed by prior context (Prince 1978, Delin 1992). *-Est*’s restrictor C is by definition specified both by LF-syntax and by the context, hence we expect that the licensing context for the *it*-cleft will affect the value of C .

The example in (298) shows that the licensing context for the cleft sentences in (295) needs to introduce a set of cities in order for the Relative-2 reading to be available, (298a). If the context does not make any reference to a set of cities, as in (298b-c), the Relative-2 reading is not available.

- (298) a. John met young students from different cities. It was London that he met the youngest student from.
 \rightarrow *available reading: Relative-2 in (295b)*
- b. John met young students from some city. It was London that he met the youngest student from.
 \rightarrow *unavailable reading: Relative-2 in (295b)*
- c. John met the youngest student from some city. It was London that he met the youngest student from.
 \rightarrow *unavailable reading: Relative-2 in (295b)*

In (298a)/(299a) the antecedent of the *it*-cleft introduces into the context the set of people K1, (299b), as well as the set of cities, K2, (299c). K2 allows for (i) the satisfaction of the existence presupposition of (295) given in (300a-b), and for (ii) the licensing of \sim 's restrictor C' , by satisfying the condition in (233), (301b). K1 is a suitable restrictor for *-est*'s C , (301a). The specification of K1 is used to modify the contents of the comparison class obtained just from the LF structure, (300c). In the meaning of the DP, (302a-b), the comparison is not just among students from a city selected by g , but among students from the set of cities from which John met students (the underlined information is given by K1).

(299) a. John met young students from different cities. [_{TP1} It was London [_{TP2} that he met the youngest student from.]]

b. $K1 \subseteq \{x: \exists d \exists y [x \text{ is a } d\text{-young student from } y \wedge \text{John met } x]\}$

c. $K2 \subseteq \{y: \exists d \exists x [x \text{ is a } d\text{-young student from } y \wedge \text{John met } x]\}$

(300) a. $\exists x. \llbracket TP_2 \rrbracket (x)$ (*presupposition of it-cleft construction*)

b. $\llbracket TP_2 \rrbracket = 1$ iff $\exists y$ [John met the youngest student from y]

c. $C^g \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from } g(1)]\}$ (*presuppositions of -est, (47), (297b)*)

(301) a. $K1 \subseteq C$ (*condition on anaphoric licensing of -est's restrictor C, (233)*)

b. $K2 \subseteq C'$ (*condition on anaphoric licensing of \sim 's restrictor C', (233)*)

(302) a. $\llbracket DP \rrbracket^g = \lambda x \exists d [x \text{ is a } d\text{-young student from } g(1) \wedge \forall y \exists z [y \in C \wedge y \neq x$
 $\rightarrow \neg y \text{ is a } d\text{-young student from } g(1)]]$

b. $C^g \subseteq \{x: \exists d \exists z [x \text{ is a } d\text{-young student from } g(1) \wedge \underline{x \text{ is a } d\text{-young student from } z}$
 $\wedge \underline{\text{John met } x}]\}$

c. $\llbracket TP_1 \rrbracket^g = 1$ iff John met the unique student of a certain age London such that no other student in the comparison class of students from some city whom John met is younger than that student.

We thus end up with accounting for the Relative-2 reading of the cleft sentences in (89) as a contextual effect on the restrictor of DP-internal *-est*. This contextual effect is, of course, different from focus association in all the earlier cases, in that with focus association, \sim 's restrictor C' is licensed by *-est*'s C , as stated in the condition in (238). The focus association condition in (238) is a particular instantiation of the condition on the anaphoric licensing of \sim 's C' by any suitable antecedent given in (233). In the case of the *it*-cleft, the context that licenses the cleft's existential presupposition, also provides a specification for *-est*'s C . The context specifies that for every student in the comparison set C there is a city, which results in the Relative-2 reading. Since, as I mentioned above, the existence presupposition of *it*-clefts is difficult to accommodate out of the blue, it is not surprising that only some native speakers accept the Relative-2 reading for (89).

Some support for this account of the Relative-2 reading based on the presupposition of the *it*-cleft comes from the following data from Bulgarian. In the presence of the definite determiner, Relative-2 is not available with overt focus fronting, (303).

- (303) Ot London se zapozna Ivan s [DP naj-mladi-te [NP studenti ___]]. (Bulgarian)
 from London refl met Ivan with youngest-the students
 'It is London that John met the youngest students from.'
 Readings: *Absolute*, *Relative-1*, **Relative-2*

The focused constituent in (303) moves just like in English clefts, but this construction is not associated with an existential presupposition that requires contextual licensing. My account predicts that if a suitable antecedent is present with (303), nothing should prevent the contextual specification of C as in the *it*-cleft, (302b). But because Bulgarian has a dedicated construction for expressing the Relative-2 reading, that is, the indefinite superlative, we expect that one to win over any other way of expressing Relative-2.

Note now that the availability of the Relative-2 reading with the *it*-clefts is also crucially linked to the presence of the assignment dependent variable in the specification of the comparison class C . This is the reason why the specification of C in (300c) and the specification of K1 in (299b) do not clash. If the set C , without the movement of *London*, was specified as '*students from London of some age*' the addition of the information from K1 '*students from some city that John met*' would not result in the reading where students come from different cities. The presence of the

variable resulting from the movement of *London* allows for students to co-vary with cities, and the value for the variable is recovered from the existence presupposition of the cleft, (300b).

I also propose that the unbound variable within the DP is what allows for the Relative-2 reading with *wh*-questions. The questions in (304)(=(84) in Chapter 2) can have the Relative-2 reading for some speakers. I also cited the example in (305) from Szabolcsi (1986) in section 2.3 as (52c).

(304) a. From which city did John meet [_{DP} the youngest [_{NP} students __]]?

b. Which city did John meet [_{DP} the youngest [_{NP} students from __]]?

(305) (=52c) Who did you take the best picture of?

(306) a. You took the best picture of John.

b. John.

Szabolcsi points out that the question in (305) does not have the absolute interpretation. On the absolute reading of the declarative sentence in (306a) John has several good photos of which one is the best, and you are the author of that photo (in this context, you can just as well be the author of all of John's photos and of nobody's else's photos). However, the interpretation of the question in (52) clearly requires that you are the author of photos of more people than just John, such that one of these people has a better picture than others do. This is the Relative-2 reading – the comparison class is established with respect to a constituent originating DP-internally. Prior to Pancheva and Tomaszewicz (2012) the difference in acceptability between DP-external (Relative-1) and DP-internal (Relative-2) readings had not been observed. Szabolcsi (1986) takes the lack of the absolute reading in (52) as evidence for DP-external scope of *-est*. She does not discuss whether the sentence in (306a) can have the same relative reading, that is, Relative-2. Shen (2013), whose account I discussed in section 3.2.3, observes that while (306a) cannot have the Relative-2 reading, the fragment answer in (306b) can.⁵¹ If the question in (52) was indeed derived by DP-

⁵¹ On Shen's (2013) analysis, which I reviewed in section 3.2.3, Relative-2 in (306a) is prevented by the inability of *John* in (306a) to move out of the DP (while *-est* is free to scope out). In (306b) Relative-2 the movement of *John* becomes fine due to a PF deletion mechanism such as the one assumed for the amelioration of islands effects in sluicing in Bošković (2013). In section 3.2.3 I discussed the incompatibility of Shen's account with several pieces of data.

external scope *-est*, it is puzzling what prevents DP-external scope in (306a), and Relative-2 in English in general, as I discussed in section 2.5.1.

I now argue that the Relative-2 reading in *wh*-questions is also the result of the resolution of the variable in the scope of *-est* resulting from the *wh*-movement of a DP-internal constituent (on Karttunen's (1997) approach to question denotation). I show that both Karttunen's (1997) and Hamblin's (1973) approach to question semantics yields Relative-2.

For both Hamblin (1973) and Karttunen (1977) the denotation of a question is a set of possible answers to that question.^{52,53} On Karttunen's approach, a question operator Q turns the denotation of a declarative sentence (a proposition) into that of a question (a set of propositions), (307e). *Wh*-expressions are similar to indefinites, they contribute existential quantification over individuals and denote relations between individuals and propositions, (307h). A *wh*-expression needs to move out of the scope of Q to be interpreted, (307a). After the movement of the *wh*-element, the sister to $[-est C]$ NP₂ contains an unbound individual variable, (307b), and the comparison set established on the basis of NP₂ has an assignment dependent denotation, (307c). C is thus compatible with the denotation of the question in (307i) – the set of propositions of the form *that John met the youngest student from London, that John met the youngest student from Paris, etc.* Each of those propositions could be the answer to the question, so in a situation where John meets students from different cities, the comparison set contains students from any city and we pick the youngest student from that set, which results in the Relative-2 reading.

(307) a. [which city] [TP₁ 1 [TP₂ Q [TP₃ John met [DP the [[-est C] [NP₂ 2 [NP₁ d_2 -young student
from t_1]]]]]]]]]

b. $[[NP_2]]^{g,w} = \lambda d \lambda x [x \text{ is a } d\text{-young student from } g(1) \text{ in } w]$

c. $C^{g,w} \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from } g(1) \text{ in } w]\}$

(presuppositions of *-est*, (47), (307b))

⁵² A *wh*-question of the structure [wh_1 [TP t_1]] also carries the presupposition that the set of possible answers has a maximally informative member (Dayal 1996). It is similar to an existential presupposition, $\exists x. [[TP_1]](x)$, (Horn 1972, Karttunen 1977).

⁵³ For Karttunen (1977) that the set of answers has to contain only true answers as he is mainly concerned with embedded questions. This is irrelevant here.

- d. $\llbracket \text{DP} \rrbracket^{g,w} = \lambda x \exists d [x \text{ is a } d\text{-young student from } g(1) \text{ in } w \wedge \forall y [y \in C \wedge y \neq x \rightarrow \neg y \text{ is a } d\text{-young student from } g(1) \text{ in } w]]$
- e. $\llbracket Q \rrbracket^g = \lambda q_{\langle s,t \rangle} \lambda p_{\langle s,t \rangle} \lambda w [p = q]$
- f. $\llbracket \text{TP}_2 \rrbracket^g = \lambda p_{\langle s,t \rangle} \lambda w [p = \lambda w'. \text{ John met in } w' \text{ the unique } x \text{ s.t. } \exists d [x \text{ is a } d\text{-young student from } g(1) \text{ in } w' \wedge \forall y [y \in C \wedge y \neq x \rightarrow \neg y \text{ is a } d\text{-young student from } g(1) \text{ in } w']]$
- g. $\llbracket \text{TP}_1 \rrbracket^g = \lambda x \lambda p_{\langle s,t \rangle} \lambda w [p = \lambda w'. \text{ John met in } w' \text{ the unique } y \text{ s.t. } \exists d [y \text{ is a } d\text{-young student from } x \text{ in } w' \wedge \forall z [z \in C \wedge z \neq y \rightarrow \neg z \text{ is a } d\text{-young student from } x \text{ in } w']]$
- h. $\llbracket \text{which city} \rrbracket^g = \lambda f_{\langle e, \langle \langle s,t \rangle, \langle s,t \rangle \rangle} \lambda w. \{p: \exists x [x \text{ is a city in } w \wedge f(x)(p)]\}$
- i. $\llbracket \text{which city} \rrbracket^g(\llbracket \text{TP}_1 \rrbracket^{g,w}) = \lambda w. \{p: \exists x [x \text{ is a city in } w \wedge p = \lambda w'. \text{ John met in } w' \text{ the unique } y \text{ s.t. } \exists d [y \text{ is a } d\text{-young student from } x \text{ in } w' \wedge \forall z [z \in C \wedge z \neq y \rightarrow \neg z \text{ is a } d\text{-young student from } x \text{ in } w']]\}$

On Hamblin's (1973) semantics for questions, the denotation of a *wh*-expression is just like Rooth's focus semantic value – it is a set of alternatives of the same type as the corresponding constituent in the answer sentence. *Wh*-expressions are interpreted in-situ; they compose with predicates via point-wise function application: in a step-by-step fashion all the individuals in the denotation of the *wh*-expression compose with the predicate which thus derives the set of answer propositions. 'Which city' in (308a) does not move, it denotes a set of individuals, (308b). Since we have three individuals in the domain of the *wh*-expression, we get a set of three functions as the denotation of the NP, (308c-d). *-Est* must then also be able to compose point-wise, and for each function application the set *C* will be established on the basis of *-est*'s argument, NP₂. The denotation of TP₁ is the set of three possible answers to the question 'Which city did John meet the youngest student from?'. Since three cities are such that John met students from them, we pick that city from which came the youngest of the students – this gives the Relative-2 reading.

- (308) a. $[\text{TP}_1 \text{ John met } [\text{DP the } [\text{-est } C] [\text{NP}_2 2 [\text{NP}_1 d_2\text{-young student from which city}]]]]]$
- b. $\llbracket \text{which city} \rrbracket = \{\text{London, Paris, Berlin}\}$
- c. $\llbracket \text{student from which city} \rrbracket = \{\lambda x [x \text{ is a student from London}], \lambda x [x \text{ is a student from London Paris}], \lambda x [x \text{ is a student from London Berlin}]\}$

- d. $\llbracket \text{NP}_2 \rrbracket = \{\lambda d \lambda x [x \text{ is a } d\text{-young student from London}], \lambda d \lambda x [x \text{ is a } d\text{-young student from Paris}], \lambda d \lambda x [x \text{ is a } d\text{-young student from Berlin}]\}$
- e. $C_1 \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from London}]\}$,
 $C_2 \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from Paris}]\}$,
 $C_2 \subseteq \{x: \exists d [x \text{ is a } d\text{-young student from Berlin}]\}$
(presuppositions of -est, (47), (308d))
- f. $\llbracket \text{TP}_1 \rrbracket = \{\text{that John met the unique student from London of a certain age such that no other student in } C_1 \text{ is younger than that student, that John met the unique student from Paris of a certain age such that no other student in } C_2 \text{ is younger than that student, that John met the unique student from Berlin of a certain age such that no other student in } C_2 \text{ is younger than that student}\}$

It is thus the semantics of the *wh*-expression that is responsible for the fact that, as Szabolcsi's observed, a relative interpretation seems to be obligatory in *wh*-questions. We predict that we should get the absolute reading in situations where there is one individual in the denotation of the *wh*-expression. Consider the scenario in (309).

(309) *Scenario*

I see the photographer, but I don't see the person he is taking pictures of.

The photographer says: I've been taking pictures of this guy the whole day.

Now I finally took his best picture.

I ask: Who is that? Who did you (just) take the best picture of?

The last sentence uttered by the photographer clearly has the absolute interpretation. The following question, however, sounds odd, for some reason it is difficult to imagine that the comparison class contains pictures of the same person with the pictures differing in quality. I have no explanation for this puzzling effect. I observe, however, that just like with *it*-clefts, (298a-b), different contexts license the absolute and Relative-2 readings for the question in (310B). The expected answer for (310B) in (310a) has the absolute interpretation, and in (310b) Relative-2.

(310) a. A: John met the youngest student from some city.

B: Which city did John meet the youngest student from?

b. A: John met young students from different cities.

B: Which city did John meet the youngest student from?

Notably, in Polish the form of the *wh*-expression itself encodes whether the domain contains one or more individuals. One *which* is used in contexts where one individual is under discussion and we are trying to find out its identity, (311a); another *which* is used when there are more individuals to choose from, (311b). The contexts A in (311a-b) mandate the use of each *which*. Each *which*, in turn, allows only one reading (even when prior context is absent): absolute in (311aB), Relative-2 in (311bB).

(311) a. A: Jan spotkał najmłodszego studenta z pewnego miasta. (Polish)

Jan met youngest student from certain city

‘Jan met the youngest student from some city.’

B: Z jakiego/(#którego) miasta Jan spotkał najmłodszego studenta?

From which1/which2 city Jan met youngest student

‘Which city did John meet the youngest student from?’

b. A: Jan spotkał młodych studentów z różnych miast.

Jan met young students from different cities

‘Jan met young students from different cities.’

B: Z którego/(#jakiego) miasta Jan spotkał najmłodszego studenta?

From which2/which1 city Jan met youngest student

‘Which city did John meet the youngest student from?’

To conclude this section, let me recall the initial puzzle: if the derivation of the Relative-2 reading requires DP-external scope for *-est*, and if the presence of *the* in the superlative DP blocks *-est* from DP-external scope, how is possible that we find the Relative-2 reading with *it*-clefts and *wh*-questions in English? I proposed above that the derivation of the Relative-2 reading available with *it*-clefts in English for some native speakers is not the same as the derivation of the Relative-2

reading in the absence of the definite article in Polish and Bulgarian. Crucially, the same English speakers who accept Relative-2 for clefts, (312), and *wh*-questions, (313), do not accept it for the sentence in (314).

(312)=(89a) It was [London]₁ that John met [_{DP} the youngest [_{NP} student from t_1]].

Relative-2 possible (for some speakers)

(313)=(84b) [Which city]₁ did John meet [_{DP} the youngest [_{NP} students from t_1]]?

Relative-2 possible (for some speakers)

(314)=(226) John met [_{DP} the youngest [_{NP} student from [London]_F]].

Relative-2 not possible

In section 4.5.1 I showed that the focus association mechanism does not allow the derivation of the Relative-2 reading when both *-est* and the focus *London* stay DP-internally or if the focus is covertly QRed to the clause, no matter which configuration for \sim is attempted. This correlates with the fact that the sentence in (314) cannot allow the Relative-2 reading even with prosodic focus on *London*. In this section I showed that while *it*-clefts allow another possibility for the attachment of \sim , when *-est* is DP-internal, Relative-2 is still not derivable using only the focus association mechanism (296)-(297). I proposed that what affects the setting of the value of *C* is the existence presupposition of the *it*-cleft construction. Since *it*-clefts require a licensing context, that same context ends up being used for the setting of *C* which by definition is specified both by LF-syntax and by the context. In (299)-(302), I showed how the Relative-2 reading in cleft sentences is derived as a contextual effect on the restrictor of *-est*. The movement of the pivot of the cleft creates a variable in the specification of *C* which is left open for further specifications imposed by the context. *Wh*-movement has the same effect on *C* allowing for the Relative-2 reading when the denotation of the *wh*-expression is a set of individuals, as I showed using Karttunen's (1977) approach to questions in (307), and Hamblin's (1973) approach in (308). Summing up, DP-internal *-est* may not associate with DP-internal focus, but if the specification of the comparison class *C* is based on a DP that contains a variable, it allows for further specifications imposed by the context resulting in the Relative-2 reading.

4.5.4 Conclusion for section 4.5

As pointed out in section 2.2, a theory that derives relative readings by keeping *-est* DP-internally does not allow for the derivation of the Relative-2 readings because the comparison set *C* necessarily contains the individual *x* denoted by the superlative DP (e.g. a unique student from London) and all other relevant individuals of the same kind that possess the same gradable property to some degree (e.g. students from London of some age). Further contextual restriction on *C* can only add to the specification derived by the presupposition of *-est*, hence, the set can only be narrowed down, but not switched to contain alternatives to *London* for the Relative-2 reading. In section 4.5 I showed that when *-est* remains DP-internally, it cannot associate with DP-internal focus, by which the focal presupposition would add a restriction on *C*. I analyzed different configurations of the focus operator \sim with respect to DP-internal focus, and either the focal presupposition introduced by DP-internal focus clashed with the presupposition of *-est*, or its effect on *C* was vacuous. I then showed that the focal presupposition due to a DP-external focus can contribute to the specification of *C* in a meaningful way. The impossibility of association of DP-internal focus and the availability of association with DP-external focus was entirely expected given the DP-internal theory of relative readings. What was not expected was the impossibility of association with a DP-external constituent moved from a DP-internal position in *it*-clefts, in cases where Relative-2 readings are available in English, (296). I argued that adopting the view that relative readings require a licensing context that provides a suitable specification for *C* we predict that not only focus but other contextual effects may impose a restriction on *C*. I showed that the presupposition introduced by the *it*-cleft construction interacts with the presuppositions of *-est* when the syntax results in an assignment dependent variable in the specification of *C*. I also proposed that it is the presence of an unbound variable within the DP that allows for the derivation of Relative-2 readings with *wh*-questions in English.

To conclude, relative readings in the presence of the definite determiner obtain in the following way: *-est* scopes DP-internally, and the context licensing DP-external focus restricts *C* for Relative-1 readings. The context licensing DP-internal focus has no effect on relative readings, and the Relative-2 reading can be derived only if the LF contains an assignment dependent variable inside the DP and the context imposes specific restrictions on *C* compatible with this LF (as happens in clefts).

4.6 Focus association when the superlative is focused

Sharvit and Stateva (2002) observe that when the superlative expression itself is focused, both the absolute and the relative readings are available. In this section I show that this observation is fully compatible with the present account. First, let us see how the focus on [-*est* C] affects the setting of the comparison class. The example in (315) is parallel to the one given by Sharvit and Stateva to illustrate the relative reading when the primary focus is on the superlative:⁵⁴

- (315) Bill bought a \$30 cake, Ann bought a \$50 cake and
John bought the [MOST]_F expensive cake.

Intuitively, the comparison in (315) is of the different prices of cakes that different people bought. However, while the first clauses specify the prices of cakes, that is, the degrees that are members of the set in (316b) (which is the meaning of the question in (316a)), the superlative is a quantifier over degrees and so the superlative sentence does not specify a member of this set. Instead, as Sharvit and Stateva propose, we have to assume that \$30, \$50 are of the same type as [-*est* C] and denote functions such as $\lambda P \lambda x [\$30(P)(x)]$, where P is of type $\langle d, \langle e, t \rangle \rangle$. The question in (316a) thus denotes the set in (316c) and the sentences in (315) are suitable answers.

- (316) a. How expensive a cake did each person buy?
b. $\{d: \exists x [x \text{ is a } d\text{-expensive cake} \wedge y \text{ bought } x]: y \in \{\text{Bill, Ann, John}\}\}$
c. $\{D: \exists x [D = D(\lambda d \lambda z [z \text{ is } d\text{-expensive}])(x) \wedge x \text{ is a cake} \wedge y \text{ bought } x]: y \in \{\text{Bill, Ann, John}\}\}$

⁵⁴ Sharvit and Stateva (2002) provide the following example ((78b), p.485):

- (i) Bill climbed a 2000 ft mountain and Mary climbed a 3000 ft mountain.
John climbed the high-EST mountain.

They note that in (i) the first syllable of *highest* is the most prominent phonetically, but in examples with *most/least* those elements bear the main stress. They propose that this is the default focus pattern for superlative sentences in English, but, as my discussion will show, this pattern is appropriate only with a suitable licensing antecedent.

The assumption that \$30 and \$50 are of the same type as [-est C] is unnecessary if we consider that the licensing context for the placement of focus on the superlative expression involves the implicit subquestion in (317SQ). A subquestion provides a partial answer to the explicit higher question Q and answering all of the subquestion entailed by Q provides a complete answer to Q (Roberts 1998, 2004, a.o.).⁵⁵

(317) Q: How expensive a cake did each person buy?

SQ: Did anyone buy the most/least expensive cake? (implicit)

A: (315).

Recall that on Rooth's semantics of focus, there has to be an anaphoric relationship between the restrictor of the focus interpretation operator \sim and its antecedent, a discourse object β , (318) ((233) in section 4.3). The ordinary semantic value of β must be a subset of the focus semantic value of α (they must have matching types). The set denoted by a question must be a subset of the alternative set provided by the answer.

(318)=(233) $[[\beta]]^o \subseteq [[\alpha]]^f$ (Rooth 1992:89)

(condition on anaphoric licensing of \sim 's restrictor C, where α is the sister of \sim)

Declarative sentences in ordinary discourse typically do not follow explicit questions, but an implicit (sub)question can be made salient either by prior discourse or by the answer itself (Stalnaker 1978, Roberts 1996, Büring 2003, Beaver and Clark 2008, a.o.). Note how the superlative sentence in (319A) is not felicitous as a direct answer to the question (319Q) uttered

⁵⁵ In section 2.6.1.1. I provided Büring's (2003) example now repeated in (i) where the answers A1 and A2 are both appropriate as answers to the question Q, but what they are direct answers to are the implicit subquestions SQ1 and SQ2.

(i) Q: How many (of the 74) abstracts got accepted? (Büring 2003)

SQ1: Did any abstracts get accepted?

A1: (Yes,) SOME_{CT} abstracts DID_F get accepted.

SQ2: Did most abstracts get accepted?

A2: (Yes,) MOST_{CT} abstracts DID_F get accepted.

without prior context. What makes (319A) felicitous in the discourse is the accommodation of the subquestion (319SQ) by the interlocutors upon hearing the answer (319A). The context in (319SQ) provides a suitable antecedent for the focus on [-est C], (319d).

(319) Q: How expensive a cake did John buy?

SQ: Did John buy the most expensive cake? (implicit)

a. $\beta = \llbracket [-est C] \rrbracket^o$

A: John bought the [MOST]_F expensive cake.

b. LF for (319A): John bought the $\llbracket [-est C]_F [\sim C'] \rrbracket$ *d*-expensive cake.

c. $\llbracket [-est C]_F \rrbracket^f = \{[-est C], [least C]\}$

d. $\llbracket [-est C] \rrbracket^o \subseteq \llbracket [-est C]_F \rrbracket^f$ (condition on the licensing of \sim 's C' , (318)=(233))

So the question now is: when [-est C] itself is focused is it still plausible to assume that Relative-1 is derived via association with focus? The answer is: yes, insofar as it is possible for a sentence to contain more than one focus. Question answer congruence is a standard way of identifying foci – the new information is F-marked and the question provides an antecedent for \sim 's restrictor C' .⁵⁶ The response to the multiple *wh*-question in (320Q) needs to provide new information on the identity of cake buyers and on the characteristics of cakes.⁵⁷ (320Q) licenses focus on *Bill, Ann, John* and *\$30, \$50* in (320A); (320SQ) licenses focus on *most* in (320A).

⁵⁶ In section 4.3, examples (234)-(236), I introduced the account of question-answer congruence in Rooth (1996, p. 279).

⁵⁷ A multiple *wh*-question such as '*Who ate what?*' on its pair-list interpretation can be answered in two ways, (i) for each person, list what they ate, (ii) for each food, list who ate it. As identified by Jackendoff (1972) the answer '*Fred ate the beans*' will have a different intonation pattern with each strategy. With (i) there is fall-rise pitch accent is on *Fred* and a fall on *beans*. With (ii) the fall rise is on *beans* and the fall on *Fred*. The fall-rise pitch accent in English is seen as a grammatical realization of a contrastive topic and the falling accent as marking focus (Kadmon 2001, Buring 2003, Wagner 2012, Constant 2012). The prosodic realization of a contrastive topic is what indicates the presence of a subquestion identifying each strategy: (i) '*What about FRED? What did HE eat?*'; (ii) '*What about the BEANS? Who ate THEM?*' (Roberts 1996, Buring 2003). Buring analyzes contrastive topics as marked by a CT-feature and computed in a third

(320) Q: Who bought which cake?

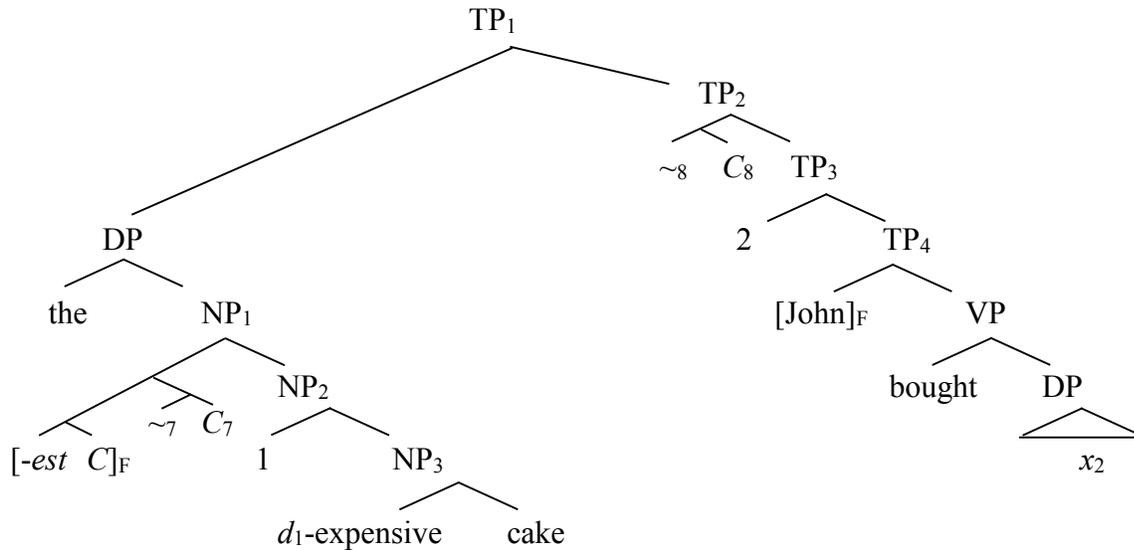
SQ: Did anyone buy the most expensive cake? (implicit)

A: [Bill]_F bought the [\$30]_F cake, [Ann]_F bought the [\$50]_F cake and [John]_F bought the [most]_F expensive cake.

It follows from the recursive definition of focus in Rooth (1992, 1996) that all foci are bound by the first \sim in whose scope they appear. But when a phrase is scoped to a level where it escapes one focus operator, it can be bound by the next one. The LF that on my account is responsible for the derivation of the Relative-1 reading in English (and in the presence of the definite article cross-linguistically) involves the QR of the definite DP out of the scope of \sim interpreting the F-feature on the subject (section 4.5.2). This configuration allows for the presence of another \sim -operator to interpret the focus on [-*est* C], \sim 7 in (321) below.

semantic dimension, that is, in addition to the ordinary and focus semantic values. For him CT marking indicates that a sentence relates to two contextually given questions (the sub-question strategy), but both CT- and F-marked constituents introduce new information. For Wagner (2012) and Constant (2012) contrastive topics are F-marked and interpreted by a focus operator. In Wagner (2012) when two focus operators are present and one outscopes another, the constituent that associates with the operator taking wider scope is the contrastive topic, and the one associating with the operator taking narrow scope is the focus. In my example (320A)/(321) the F-marked *John* is the contrastive topic, and *-est* associates with it – a possibility predicted on Wagner’s (2012) and Constant’s (2012) accounts.

(321) LF for: [John]_F bought the [most]_F expensive cake.



- (322) a. $C_8 \subseteq \llbracket \text{TP}_3 \rrbracket^f \subseteq \{P: \exists y [P = \lambda x [y \text{ bought } x]]\}$
 b. $\cup \llbracket \text{TP}_3 \rrbracket^f \subseteq \{x: \exists y [y \text{ bought } x]\}$
 c. $C \subseteq \{x: \exists d [x \text{ is a } d\text{-expensive cake}]\}$ (presupposition of *-est*, (47a))
 d. $C \subseteq \cup \llbracket \text{TP}_3 \rrbracket^f$ (focus association possible, (238))
 e. $\llbracket [-est C] \rrbracket^o \subseteq \llbracket [-est C]_F \rrbracket^f$ (licensing of \sim_7 's C_7 by (320SQ), cf. (318)=(233))

(323) The meaning of (321):

- a. $\llbracket \text{DP} \rrbracket = \lambda x \exists d [x \text{ is a } d\text{-expensive cake} \wedge \forall y \exists z [y \in C \wedge y \neq x \rightarrow \neg y \text{ is a } d\text{-expensive cake}]]$
 b. $C \subseteq \{x: \exists d \exists y [x \text{ is a } d\text{-expensive cake} \wedge y \text{ bought } x]\}$
 c. $\llbracket \text{TP}_1 \rrbracket = 1$ iff John bought the unique cake of a certain price such that no other cake in the comparison class of cakes of a certain price that someone bought is more expensive than that cake

In (321)-(323) the comparison class is determined by the LF and focus association with *John*, (322a-d). The focus on *[-est C]* does not affect the interpretation of the superlative, but indicates the congruence with the implicit question (320SQ), (322e).

Of course, the above analysis raises the issue of the phonological realization of both foci in (321). If the context licenses the presence of the focus operator that interprets the feature F, is F realized prosodically? The issue of focus at the syntax-semantics-phonology interface has been discussed extensively in the literature. The basic question concerns the nature of the relationship between the F-marking at the syntactic level, and the acoustic correlates of focus (pitch accent, intensity, duration and others contributing to intonational prominence) (Chomsky 1972, Selkirk 1996, Ladd 1996, Gussenhoven 1999, a.o.). A more specific issue is whether the semantic effects of focus, such as the effects on the interpretation of focus sensitive operators (*only*, *-est*, as discussed in section 4.3), require the phonological realization of focus. It appears that although the presence of focus prosody cannot be ignored in the interpretation of those operators, their syntactic associates need not always be marked by easily perceptible prosodic prominence (Rooth 1996, Bartels 1997, 2004, Partee 1999, Ishihara and Féry 2006, Beaver et al. 2007, Féry and Ishihara 2009).

In answers to multiple *wh*-questions in English, one of the F-marked constituents receives a complex pitch accent (fall-rise, L+H*) and the other a falling accent (H*). The former is taken to encode the so-called *contrastive topics*, the latter narrow focus (Jackendoff 1972, Kadmon 2001, Büring 2003, Hedberg 2006, Wagner 2012, Constant 2012). Contrastive topics introduce new information just like regular foci, but additionally they encode the sortal strategy for the pair-list answer to the multiple *wh*-question (see footnote 57 above for details).

What is crucial to the present discussion is showing that once there is prosodic focus on [-*est* C], the focus association account of relative readings does not overgenerate by allowing prosodically unrealized F-marking whenever a suitable antecedent for ~'s restrictor is present (in satisfaction of the condition in (318)=(233)). In other words, I need to show that when the syntax-semantics-phonology interface prevents the F-marking of another constituent when [-*est* C] is the focus, relative readings will not be available.

The Polish split-superlative data introduced in Chapter 2, section 2.6.1.1, shows us that this is indeed the case. The splitting of a constituent via Left-Branch Extraction is driven by the need to assign different information status (topic, focus, given, new), and thus accents, to the split parts. The sub-extraction of the superlative adjective can result in one of the two prosodic patterns, (324) or (325). In (324) there is only one intonation phrase (as marked by the *i*-subscript). The fronted focus bears a rising pitch accent and the remainder of the sentence is de-accented, which means

that no new information may be contained in the de-accented part. In (325) the fronted adjective is accented as a contrastive topic (see section 2.6.1.1 for details) and is contained in its own intonation phrase, while the right-most constituent is accented as a focus. In (326) the whole superlative DP is fronted, while the extraposed subject is focused. In (327) all constituents are in-situ, but the superlative adjective is focused and the subject accented as a contrastive topic. I will discuss next how the availability of each reading corresponds to the availability of focus/contrastive topic accents and interpretation.

- (324) [[NajDROższe]_{1-F} [Jan kupił *t*₁ ciastko]-Given]_i (Polish)
 most-expensive_{Acc} Jan bought cake_{Acc}
 H*L
Readings: Absolute (328a)

- (325)(= (25)) [[NajDROższe]_{1-F/CT}]_i [Jan kupił *t*₁ [CIAstko]-F]_i
 most-expensive_{Acc} Jan bought cake_{Acc}
 LH* HL*
Readings: Relative-2 (328c)

- (326) [[Najdroższe CIAstko]_{1-F/CT}]_i [*t*₂ kupił *t*₁ [JAN]_{2-F}]_i
 most-expensive_{Acc} cake_{Acc} bought Jan
 LH* HL*
Readings: Absolute (328a), Relative-1 (328b)

- (327) [[Jan]_{F/CT}]_i [kupił [najDROższe]_F ciastko]_i
 Jan bought most-expensive_{Acc} cake_{Acc}
 LH* H*L
Readings: Absolute (328a), Relative-1 (328b)

- (328) a. *Absolute:*
 ‘Jan bought the cake that was more expensive than any other (relevant) cake.’
 b. *Relative-1:*

‘Jan bought a more expensive cake than any other (relevant) person did.’

c. *Relative-2*:

‘Jan bought a more expensive cake than anything else he bought.’

As reported in section 2.6.1.1, the prosodic pattern in (324) can only receive the absolute interpretation, (328a). The deaccented part of the intonation phrase cannot contain an F-marked constituent visible to the phonological component, hence there is no focus for *-est* to associate with for relative readings. As expected, the sentence in (324) is infelicitous as an answer that requires new information other than that given by the focused adjective, such as the multiple *wh*-question in (329b) ((324) is only good as the answer to (329a) a single *wh*-question with LBE).

- (329) a. Q: [Które]₁ Jan kupił t₁ ciastko? (Polish)
 which Jan bought cake
 ‘Which cake did Jan buy?’
 A (=324): [[NajDROższe]_{1-F} [Jan kupił t₁ ciastko]-Given]_i
 most-expensive_{Acc} Jan bought cake_{Acc}
- b. Q: [Kto]₂ [które]₁ t₂ kupił t₁ ciastko?
 who which bought cake
 ‘Who bought which cake?’
 A (=324): # [[NajDROższe]_{1-F} [Jan kupił t₁ ciastko]-Given]_i
 most-expensive_{Acc} Jan bought cake_{Acc}

Thus, the example in (324) and the question-answer paradigm in (329) show that when (i) [-*est* C] is focused, and (ii) no other constituent in the sentence is allowed to be F-marked because of the constraints of the syntax-prosody interface, relative readings are not available. The availability of relative readings is dependent upon the availability of F-marking.

In the next case, (325), only the Relative-2 reading is available. As discussed in section 2.6.1.1 the fact *-est* raises overtly and *cake* is obligatorily interpreted as focused due to assignment of accents in the split construction is what forces Relative-2 (and prevents the reconstruction of *-est*

for the absolute reading). F-marking on *Jan* is impossible (example (112) in section 2.6.1.2) and so Relative-1 is not available.

In (326), where the whole superlative DP is fronted (and accented as a contrastive topic) and the right-peripheral focus is *Jan*, both absolute and Relative-1 are available. The example (326) does not contain focus on the superlative itself, but it is presented as comparison to (327), where focus is on the superlative in-situ. Just like (326), (327) also allows both absolute and Relative-1, but not Relative-2. The in-situ subject *Jan* is accented as a contrastive topic and thus is available for focus association, which is similar to what we found for English – with focus on [-*est C*] Relative-1 is derived via *-est*'s association with *John* in (321). Crucially, both (326) and (327) are suitable as answers to the multiple *wh*-question in (329b), (330). The F-marked constituents correspond to the *wh*-phrases, and the availability of F-marking at the syntax-phonology interface correlates with the availability of relative readings.

(330) Q (=329b): [Kto]₂ [które]₁ t₂ kupił t₁ ciastko? (Polish)
 who which bought cake
 ‘Who bought which cake?’

A (=326): [[Najdroższe CIAstko]_{1-F/CT}]_i [t₂ kupił t₁ [JAN]_{2-F}]_i
 most-expensive_{Acc} cake_{Acc} bought Jan

A (=327): [[Jan]_{F/CT}]_i [kupił [najDROższe]_F ciastko]_i
 Jan bought most-expensive_{Acc} cake_{Acc}

The reason why Relative-2 is not available for (327) is that once the superlative adjective is marked as narrow focus, without splitting *cake* cannot be accented as a focus as in (325). Similarly, in (324) and (325) Relative-1 is not available because the syntax and prosody prevent F-marking on *Jan*.

Summing up, the Polish data, where focus is marked both syntactically (via dislocation) and prosodically showed us that when the discourse licenses the presence of focus on [-*est C*] itself, relative readings are available as long as another constituent in the sentence can be F-marked (with various degrees/kinds of phonological visibility). The configurations where the syntax-prosody

interface allows F-marking on more than one constituent can be used as answers to multiple *wh*-questions and one of the foci is available for focus association in relative readings. The configurations where focus on the superlative expression is the only possible focus cannot be used as answers to multiple *wh*-questions and do not allow relative readings.

Chapter 5: Alternative semantics for *-est* based on focus?

In this chapter I discuss whether two lexical entries for the superlative morpheme *-est* are needed in the grammar of a single language: 3-place *-est* on which individuals are compared and 2-place *-est* comparing sets of degrees (Heim 1999, Romero 2010). In Section 2.1, I introduced Heim's (1999) 3-place semantics for *-est* which I then used to show that focus association with 3-place *-est* accounts for the range of relative readings found cross-linguistically, Relative-1 and Relative-2 (sections 4.4–4.5). However, Heim (1999) also proposes that the comparison expressed by *-est* can be modeled in two ways, as comparison between individuals or as comparison between degrees, and for the latter she introduces the 2-place semantics for *-est*, which I will discuss in the present section.

Theoretically, the two issues, focus sensitivity and the two “modes of comparison”, to use Kennedy's (1999) term, can be treated independently. I argue, however, that the empirical observations about Relative-1 and Relative-2 presented in Chapters 1–3 reveal not only that association with focus is necessary to account for cross-linguistic differences in the interpretation of superlatives, but also that the semantics of the superlative involves comparison of individuals and comparison of degrees in different, mutually exclusive contexts. In this chapter, I argue that 2-place *-est* does not associate with focus, but is used in cases of explicit comparison between degrees, for example, in the presence of a degree relative clause in Polish (Tomaszewicz 2013). I show that the focus association mechanism employed in Chapter 4 can derive the restrictions on the availability of the Relative-2 reading only with the 3-place semantics for *-est*, on which individuals are compared. The 2-place *-est*, on which degrees are compared, does not allow us to constrain the availability of the Relative-2 reading as a result of the presence of the definite determiner (Fact 2 in (16) in Chapter 1). I further show, however, that the 2-place *-est* can be used in contexts where focus association does not take place, but where comparison of degrees is required by the presence of a degree relative clause. This suggests that the grammar may be using the two modes comparison for superlative in different, mutually exclusive contexts.

5.1 The 2-place semantics for *-est*

Heim (1999) introduces two lexical entries for the *-est* morpheme with truth-conditionally equivalent meaning. The semantics in (331) (the same as (47) in section 4.3) involves a comparison between individuals (the comparison class C is of type $\langle e,t \rangle$)⁵⁸, while (332) calls for a comparison between sets of degrees (C is of type $\langle dt,t \rangle$).⁵⁹

$$(331) (=47) \quad \llbracket -est_{3\text{-place}} \rrbracket = \lambda C_{\langle e,t \rangle} \lambda D_{\langle d,et \rangle} \lambda x_e. \exists d[D(d)(x) \wedge \forall y \in C [y \neq x \rightarrow \neg(D(d)(y))]]$$

Presuppositions: $x \in C, \forall y [y \in C \rightarrow \exists d [P(d)(y)]]$

$$(332) \quad \llbracket -est_{2\text{-place}} \rrbracket = \lambda C_{\langle dt,t \rangle} \lambda D_{\langle d,t \rangle} . \exists d[D(d) \wedge \forall Q \in C [Q \neq D \rightarrow \neg(Q(d))]]$$

Presuppositions: $D \in C, \forall Q [[Q \in C \wedge Q \neq D] \rightarrow \exists d [Q(d)]]$

Both entries, (331)-(332), can derive the absolute and relative readings. Assuming that *-est* can take scope inside or outside of the superlative DP (Szabolcsi 1986, 2012, Heim 1999), comparison of individuals (using *-est*_{3-place}, (47)) gives us the comparison between cakes on the absolute reading, (46a), and between people who bought cakes for Mary on one of the Relative-1 readings of the sentence, (46b) (see chapter 2, section 2.1 for details). Degree comparison (using *-est*_{2-place}, (332)) involves comparison between different sets of degrees, depending on the scope of *-est*, (334a-b).⁶⁰ We cannot judge by introspection whether the comparison is between individuals (cakes or cake buyers), or between degrees: prices of cakes (Heim 1999, Farkas and Kiss 2000, Sharvit and Stateva 2002).

⁵⁸ Technically, the variable C in (331) is the characteristic function of a set of individuals, and in (332) C is the characteristic function of the set of sets of degrees. I refer to them as sets for convenience.

⁵⁹ Both lexical entries require the assumption that gradable predicates are *downward monotonic*, see footnote 2 in section 2.1 for the definition.

⁶⁰ In the appendix in section 5.6 I provide the derivation of the absolute reading as proposed by Romero (2010, 2012). It involves the movement of the definite determiner not shown in (334a).

- (333) a. Jan bought Mary [DP the [[-*est*_{3-place} C_(e,t)] λd [d-expensive cake]]]
 $C_{(e,t)} \subseteq \{x: \exists d [x \text{ is a } d\text{-expensive cake}]\}$ *Absolute* (335a)
- b. Jan [[-*est*_{3-place} C_(e,t)] λd λx [x bought Mary [DP d-expensive cake]]]
 $C_{(e,t)} \subseteq \{x: \exists d [x \text{ bought Mary a } d\text{-expensive cake}]\}$ *Relative-1* (335b)
- (334) a. Jan bought Mary [DP the [[-*est*_{2-place} C_(dt,t)] λd [d-expensive cake]]]
 $C_{(dt,t)} \subseteq \{D: \exists x [D = \lambda d [x \text{ is a } d\text{-expensive cake}]]\}$ *Absolute* (335a)
- b. [-*est*_{2-place} C_(dt,t)] λd [Jan λx [x bought Mary [DP d-expensive cake]]]
 $C_{(dt,t)} \subseteq \{D: \exists x [D = \lambda d [x \text{ bought Mary a } d\text{-expensive cake}]]\}$ *Relative-1*
 (335b)
- (335) a. *Absolute*:
 ‘Jan bought Mary the cake that was more expensive than any other (relevant) cake.’
- b. *Relative-1*:
 ‘Jan bought Mary a more expensive cake than any other (relevant) person bought her.’

Heim (1999) introduced the 2-place semantics for *-est* specifically to allow focus to obligatorily determine what enters the comparison class via the mechanism of Rooth’s (1985, 1992) theory of focus interpretation. As discussed in section 4.3, the crucial ingredient of this account is Rooth’s (1992) focus operator \sim which comes with its own restrictor variable, C' . The \sim -operator introduces the presupposition that C' is a subset of the focus-value of the constituent to which [$\sim C'$] attaches (the focal presupposition in (232)). When a quantificational element associates with focus, its covert restrictor variable is set to be the subset of the focus value of [$\sim C'$]’s sister (condition on focus association in (238)). Heim (1999) suggests that the truth-conditional effects of focus on the relative readings should be modeled as a contextual effect on the restrictor C , entirely parallel to the focus effects with *only*, which I presented in section 4.3.

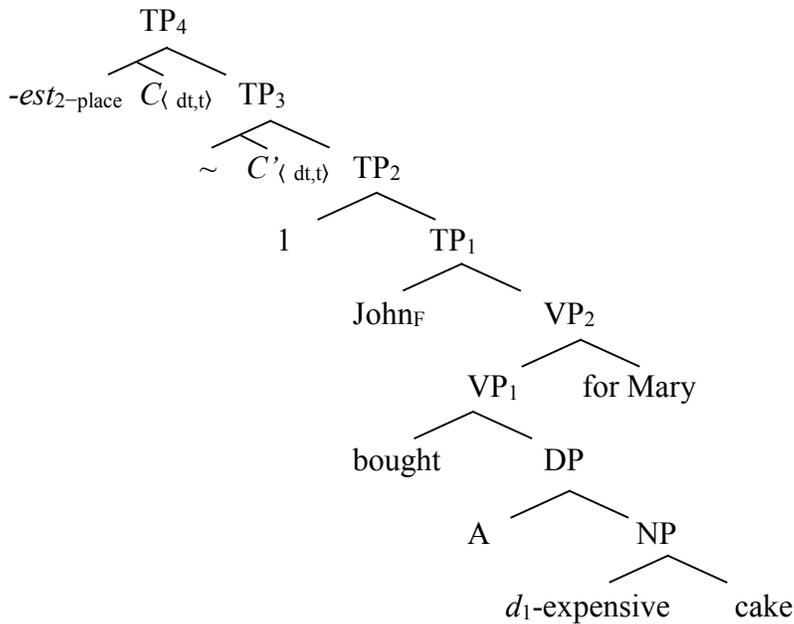
Like *only*, Heim’s *est*_{2-place} takes scope over the entire sentence, as in (336b). In (336a) the focus value of the sister of [$\sim C'$], TP₂, is a set of sets of degrees, hence C' is of type $\langle dt, t \rangle$, (337a) – the right type for C to serve as its antecedent, (337b). The F-marking on *John* specifies the focus

value of TP₂ as in (337a) and thus the contents of *C* as in (337c), that is, a set of sets of prices ('degrees of expensiveness') of cakes that someone bought for Mary. The sentence is true when the price of the cake that John bought for Mary exceeds all other prices of cakes that someone bought for Mary, (336f).

(336) a. [John]_F bought the most expensive cake for Mary.

Reading: *Relative-1* (335b)

b. LF for (336a):



- c. $[[DP]]^g = \exists x [x \text{ is a } g(1)\text{-expensive cake}]$
 d. $[[TP_2]] = \lambda d \exists x [x \text{ bought a } d\text{-expensive cake for Mary}]$
 e. $[[TP_3]] = [[TP_2]]$
 f. $[[TP_4]] = \exists d \exists x [x \text{ bought a } d\text{-expensive cake for Mary}]$
 $\wedge \forall Q \in C [Q \neq [[TP_3]] \rightarrow \neg (Q(d))]$

(337) a. $C' \subseteq [[TP_2]]^f \subseteq \{D: \exists x [D = \lambda d [x \text{ bought a } d\text{-expensive cake for Mary}]]\}$

(focal presupposition, (232))

b. $C \subseteq [[TP_2]]^f$

(focus association possible, (238))

c. $C_{\langle dt,t \rangle} \subseteq \{D: \exists x [D = \lambda d [x \text{ bought a } d\text{-expensive cake for Mary}]]\}$

When there is focus on *Mary*, (338a), focus association specifies C as the set of prices of cakes that John bought for someone, (338c).

(338) a. John bought the most expensive cake for [Mary]_F.

Reading: *Relative-1*

‘John bought Mary a more expensive cake than he bought for any other (relevant) person.’

b. LF for (338a):

$[-est\ C_{\langle dt,t \rangle}] [TP_3 [\sim C'_{\langle dt,t \rangle}]] [TP_2\ \text{John bought a } d\text{-expensive cake for [Mary]_F}]$

c. $C_{\langle dt,t \rangle} \subseteq \{D: \exists x [D = \lambda d [\text{John bought a } d\text{-expensive cake for } x]]\}$

5.2 Wrong predictions of *-est*_{2-place} for DP-internal relative readings

The 2-place semantics for *-est* makes the prediction that DP-internal focus, (339), can trigger the Relative-2 reading in (339b) with the comparison set in (339f). Since Relative-2 is never available in English, but the same DP-internal focus does have a truth-conditional effect with *only*, (340), *est*_{2-place} should not be allowed to associate with focus in an entirely parallel way to *only*.

(339) a. John bought [DP the most expensive [cake]_F] for Mary.

b. Reading: *Relative-2*

‘John bought Mary a more expensive cake than anything else he bought her.’

c. LF for (339a):

$[-est\ C_{\langle dt,t \rangle}] [TP_3 [\sim C'_{\langle dt,t \rangle}]] [TP_2\ \text{John bought a } d\text{-expensive [cake]_F for Mary}]$

d. $C' \subseteq [[TP_2]]' \subseteq \{D: \exists f_{\langle e,t \rangle} \exists x [D = \lambda d [f(x) \wedge x \text{ is } d\text{-expensive} \wedge \text{John bought } x \text{ for Mary}]]\}$ (focal presupposition, (232))

e. $C \subseteq [[TP_2]]'$ (focus association possible, (238))

f. $C_{\langle dt,t \rangle} \subseteq \{D: \exists f_{\langle e,t \rangle} \exists x [D = \lambda d [f(x) \wedge x \text{ is } d\text{-expensive} \wedge \text{John bought } x \text{ for Mary}]]\}$

(340) John *only* gave [DP a cheap [cake]_F] to Mary.

‘John gave Mary nothing else that was cheap except the cake.’

In section 2.5 in Chapter 2 I presented the data from languages where the definite determiner is absent from the superlative DP and the Relative-2 reading is allowed. It now needs to be shown that the contrast between those languages and English, where the definite is obligatory with superlatives, cannot be attributed to the presence vs. absence of *-est*_{2-place} in a language. This is because, as I show next, using *-est*_{2-place} and focus association we cannot account for Fact 2 in (16) in Chapter 1, that in the presence of the definite determiner, only Relative-1 readings are available, both in English and in Bulgarian. Fact 2 is illustrated below with Bulgarian examples (341) and (342). The presence of the definite article determines whether or not Relative-2 is available, so rather than positing that the readings of (342) are derived by *-est*_{2-place} and those of (341) by *-est*_{3-place}, the goal is to (i) assume that the same lexical entry is used to derive all the readings in both (341) and (342), and (ii) account for the blocking effect of the definite determiner on association with DP-internal focus.

(341) Ivan kupi [_{DP} naj-skupa-ta torta] za Meri. (Bulgarian)
 Ivan bought *est*-expensive-the cake for Mary
 Readings: *Absolute* (335a), *Relative-1* (335b), *Relative-1* (335c), **Relative-2* (335d)

(342) Ivan kupi [_{DP} naj-skupa torta] za Meri.
 Ivan bought *est*-expensive cake for Mary
 Readings: *Relative-1* (335b), *Relative-1* (335c), *Relative-2* (335d), **Absolute* (335a)

In sections 4.4 and 4.5 I achieved this using the 3-place semantics for *-est* and the focus association mechanism. On my account, the presence of the definite determiner constrains the scope possibilities of *-est* and thus the possible values for the comparison class variable *C*. The LF determines the contents of *C*, which may be further modified by focus association for relative readings. Crucially, as shown in section 4.5, when *-est*_{3-place} is trapped DP-internally in the presence of the definite determiner, it may not associate with a DP-internal focus preventing the derivation of the Relative-2 reading. I now show that a parallel account is not possible with the 2-place semantics (section 5.3). I then offer some empirical evidence from Polish that *-est*_{2-place} does

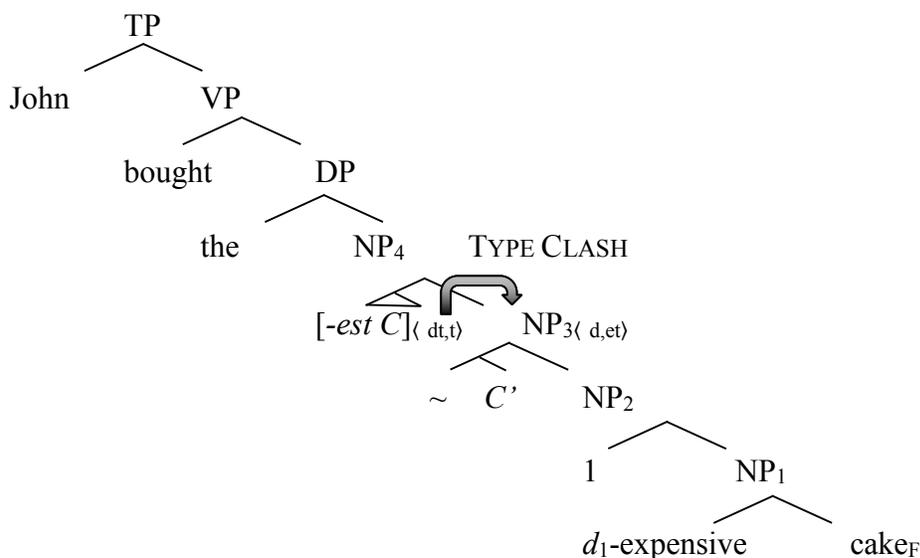
not associate with focus, whether DP-internal or external, on relative readings (section 5.4). The upshot is that cross-linguistically relative readings are derived by $-est_{3-place}$ and focus association, and even though $-est_{2-place}$ may be present in the grammar of a language, it is not used for relative readings derived through contextual effects such as focus association.

5.3 Attempting to constrain focus association of $-est_{2-place}$

There are three possible configurations where $est_{2-place}$ takes scope within the DP (its QR being blocked by the presence of the definite article) and attempts to associate with the DP-internal focus, *cake*, for the Relative-2 reading. It turns out that the blocking effect of the definite determiner on the Relative-2 reading cannot be modeled using $est_{2-place}$. Forcing DP-internal scope for $est_{2-place}$ never results in an LF where only association with DP-external focus is possible. And allowing $est_{2-place}$ to take sentential scope cannot handle the cross-linguistic facts either.

The first option is for $[-est_{2-place} C]$ to simply raise below the definite article, (343), but then its second argument NP_3 is not of the right type. NP_3 has the type $\langle d, et \rangle$, and not $\langle dt \rangle$ as required.

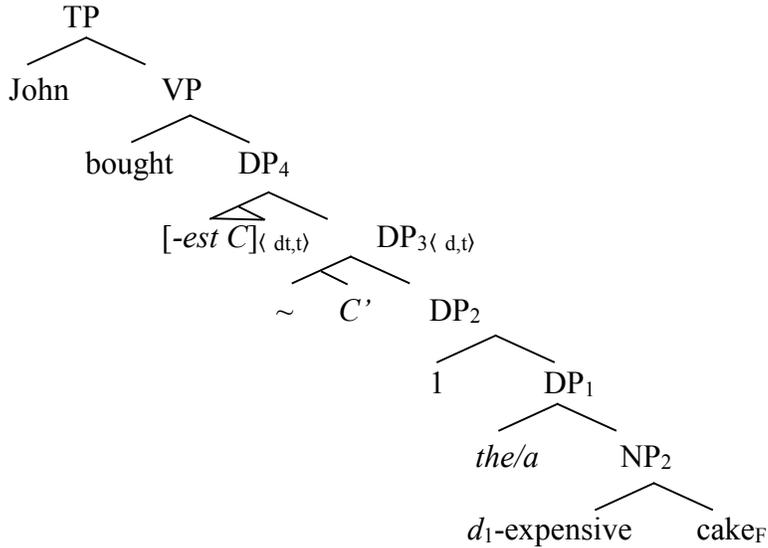
(343)



One way to avoid the type clash in (343) is to move $[-est_{2-place} C]$ to the edge of the DP, (344), and to assume that the determiner contributes existential quantification. This second option, however,

does not block the Relative-2 reading. It results in an interpretation unattested in the presence of the definite, namely, that John bought a cake that was more expensive than anything relevant in the context, (344b-e). If $[\sim C']$ here has sentential scope, we get the Relative-2 relative reading.

(344) a.



b. $\llbracket DP_4 \rrbracket = \exists d \exists x [x \text{ is a } d\text{-expensive cake} \wedge \forall Q \in C [Q \neq \llbracket DP_3 \rrbracket \rightarrow \neg (Q(d))]]$

c. $\llbracket DP_3 \rrbracket = \lambda d \exists x [x \text{ is a } d\text{-expensive cake}]$

d. $C' \subseteq \llbracket DP_2 \rrbracket^f \subseteq \{D: \exists f_{\langle e,t \rangle} \exists x [D = \lambda d [f(x) \wedge x \text{ is } d\text{-expensive}]]\}$

(focal presupposition, (232))

e. $C \subseteq \llbracket DP_2 \rrbracket^f$

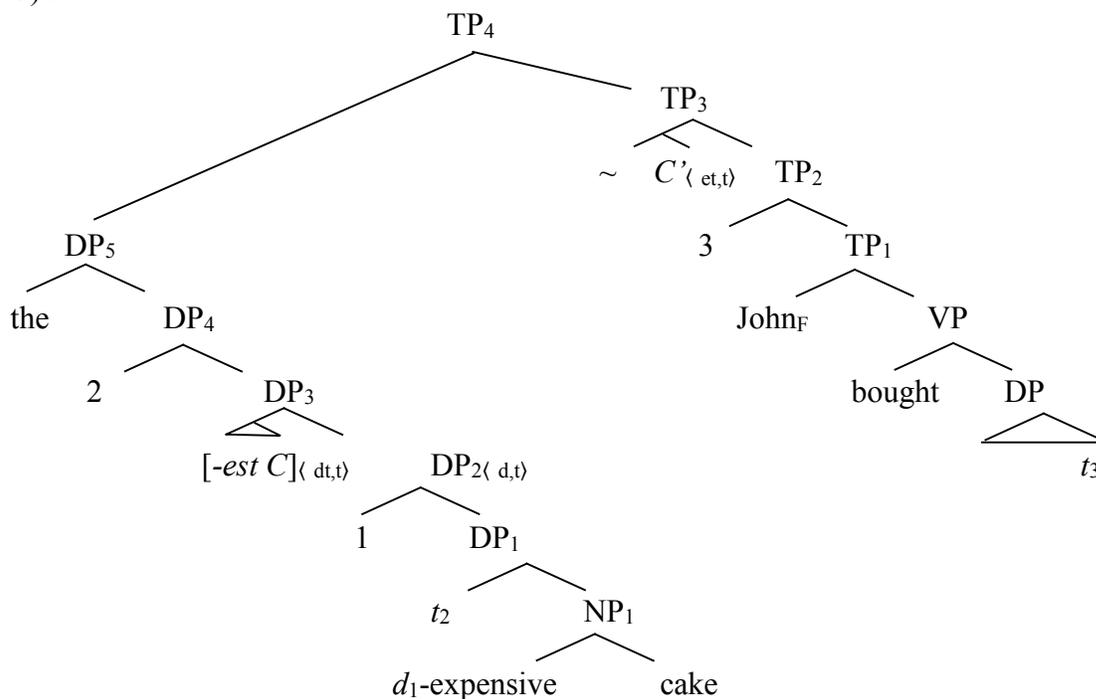
(focus association possible, (238))

f. $C_{\langle dt,t \rangle} \subseteq \{D: \exists f_{\langle e,t \rangle} \exists x [D = \lambda d [f(x) \wedge x \text{ is } d\text{-expensive}]]\}$

The third option is to remove the superlative DP from the scope of the focus operator \sim , (345). This way we mandate DP-external focus, but we face further problems. We again need to avoid the type clash within the DP, for example, by allowing the definite determiner to move leaving a variable of type e (as proposed by Romero (2010) for the derivation of the absolute reading with $-est_{2\text{-place}}$, see Appendix in section 5.3). This variable saturates the individual argument of NP_1 , (345b-c). The serious problem is that the focus association condition cannot be satisfied given that the adjunction of \sim at the TP level generates a set of sets of individuals (type $\langle et,t \rangle$) as the focus alternative value for TP_3 , (345e). C is of type $\langle dt,t \rangle$ and thus it cannot be the subset of this set,

(345f), as required by the condition on focus association in (238). Furthermore, the specification of C is incorrect. DP_2 , which by *-est*'s presuppositions, (332), is a member of C , (345g), has an assignment dependent denotation, (345b), by which C ends up specified as a set of sets of degrees that a cake selected by the assignment function g has.

(345) a.



- b. $\llbracket NP_1 \rrbracket^g = \lambda x [x \text{ is a } g(1)\text{-expensive cake}]$
 c. $\llbracket DP_2 \rrbracket^g = \lambda d [g(2) \text{ is a } d\text{-expensive cake}]$
 d. $\llbracket DP_3 \rrbracket^g = \exists d \exists x [x \text{ is a } d\text{-expensive cake} \wedge \forall Q \in C [Q \neq \llbracket DP_2 \rrbracket \rightarrow \neg (Q(d))]]$
 e. $C_{(et,t)}' \subseteq \llbracket TP_2 \rrbracket^f \subseteq \{P: \exists y [P = \lambda x [y \text{ bought } x]]\}$ (*focal presupposition*, (232))
 f. $C_{(dt,t)} \not\subseteq \llbracket TP_2 \rrbracket^f$ (*focus association not possible*, (238))
 g. $\llbracket DP_2 \rrbracket^g \in C_{(dt,t)}$ (*presupposition of -est*, (332))
 h. $C_{(dt,t)} \subseteq \{\lambda d [g(2) \text{ is a } d\text{-expensive cake}]\}$ (*presupposition of -est*, (332))

We have seen that no configuration where the scope of *-est*_{2-place} is constrained by the presence of the definite article derives the Relative-1 reading while simultaneously blocking the Relative-2 reading. Trapping *-est* DP-internally prevents the derivation of the Relative-2 reading when the

focus is on the DP-internal constituent *cake*, (343)-(344), but fails to derive the Relative-1 reading when focus is on a DP-external constituent, *John* in (345).

This suggests that only *-est_{3-place}* together with focus and independent facts about the structure of the DP (definiteness) can determine compositionally which superlative readings are (un)available in English and Bulgarian. But could *-est_{2-place}* be assumed for relative readings in a language like Polish that lacks the definite article, which has the blocking effect in Bulgarian and English?

5.4 Degree comparison (*-est_{2-place}*) and degree relative clauses

Polish has a dedicated degree *wh*-operator, so the compatibility of degree relative clauses and superlatives provides a diagnostic for the type of comparison: between individuals or degrees. Modification by a degree relative clause, (346), does not allow for the relative reading on which individuals are compared, (346b). Consequently, prosodic focus in (347) results in the unacceptability of the degree relative, in contrast to (348) where the superlative quantifier is focused.

- (346) Jan kupił najwięcej ciastek, ile było dozwolone.
 Jan bought most cakes how-much was allowed
 a. ‘Jan bought the largest amount of cakes that was allowed.’
 b. *‘Jan bought a larger allowed amount of cakes than anyone else did.’

- (347) [JAN]_F kupił najwięcej ciastek, (*ile ktokolwiek kupił).
 Jan bought most cakes how-much anyone bought
 ‘Jan bought the most cakes that anyone bought.’

- (348) Jan kupił [najWIEcej]_F ciastek, ile ktokolwiek widział.
 Jan bought most cakes how-much anyone saw
 ‘Jan bought the most cakes that anyone saw.’

Since prosodic focus on *Jan* in (347) triggers the Relative-1 reading, but that reading is incompatible with the degree relative, I conclude that the relative interpretation is derived with $-est_{3-place}$. With $-est_{2-place}$ the comparison would be between different amounts of cakes, just like in (346), and the degree relative clause should be able to further specify this set of sets of degrees. Because (346) and (348) show that degree relative clauses can modify superlatives, we have evidence that $-est_{2-place}$ can be used in Polish, since the degree relative can be taken to express the comparison set $C_{\langle dt,t \rangle}$, as proposed for English by Howard (2013) and for English modal superlatives by Romero (2010).

5.5 Conclusion for Chapter 5

I have shown that unlike what is suggested in Heim (1999), $-est_{2-place}$ does not associate with focus to derive the focus affected relative readings. Focus association with $-est_{2-place}$ makes the wrong predictions for the range of superlative interpretations available cross-linguistically – it predicts that Relative-2 should be as freely available as Relative-1. I demonstrated that the effect of the presence of the definite determiner on the availability of the Relative-2 reading cannot be modeled using $-est_{2-place}$. I conclude that the grammar uses $-est_{3-place}$ for the relative readings derived by contextual effects like focus association. And that this is due to the fact that $-est$ carries a lexical requirement for focus as specified in (245), and repeated below in (350). $-Est$ requires that when relative readings are derived by scoping, there is a constituent in the sentence that is F-marked and that denotes an individual (or a property, cf. the cross-categorial version of the 3-place entry for $-est$ in (60)).

(349)(=(245)) **Focus requirement of $-est$:**

$$\llbracket -est_{3-place} \rrbracket (C)(D)(\llbracket \alpha \rrbracket) = 1 \text{ iff } C \subseteq \llbracket \alpha \rrbracket^f$$

However, the two lexical entries for the superlative morpheme may be found in the grammar of a single language: in Polish $-est_{2-place}$ can be used in cases of explicit comparison between degrees, such as in the presence of a degree relative clause. This suggests that the two morphemes are in

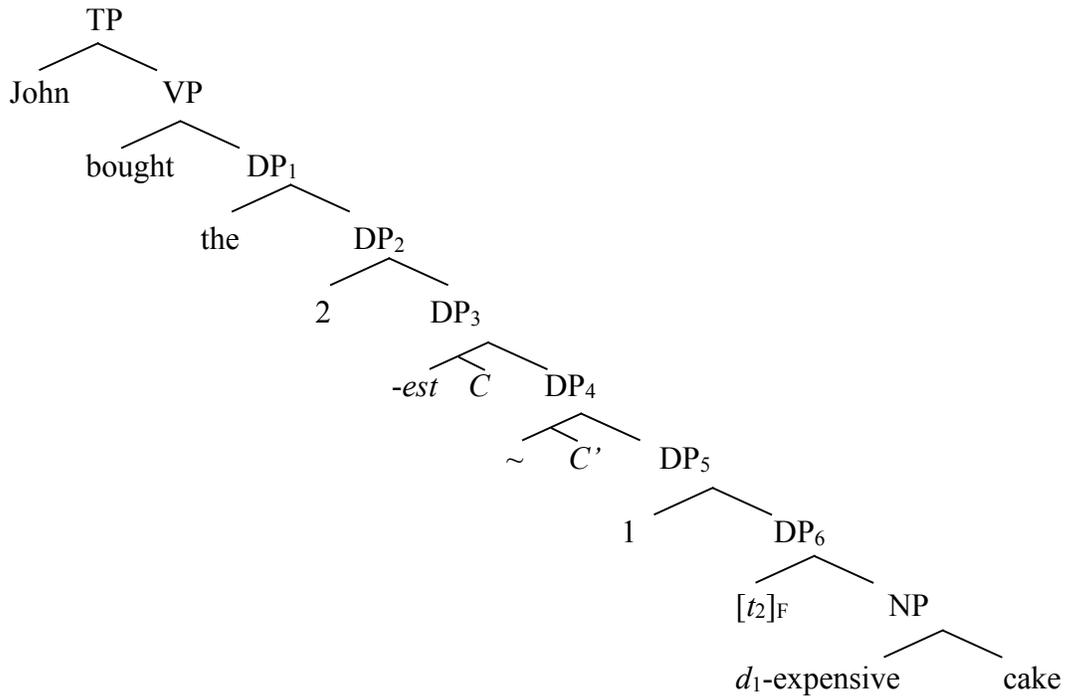
complementary distribution in Polish and cross-linguistically. This result is in line with Szabolcsi's suggestion that different ways for building superlatives "may coexist in (varieties of) the same language" (Szabolcsi 2012:11).

5.6 Appendix to Chapter 5

Romero's (2010, 2012) derivation of the absolute reading using the 2-place *-est*

Heim (1999) only uses the 2-place semantics for the cases of sentential scope of *-est* in relative readings, but Romero (2010, 2012) extends the 2-place analysis to the absolute reading as well. She proposed the LF in (350) and derivation in (351) for the DP-internal scope, where the definite article moves leaving a trace of type *e*. The value of *C* is set by focus association, so in order to compute the focus semantic value of the sister of [*-est C*], the assumption is that traces can be focused is necessary. The trace of *the* in (350) is focused. Using the \sim operator we obtain the focus value of DP_5 in (351f), where the individual variable is existentially bound. *C* is a subset of this set, (351g). The absolute reading obtains, (351h).

- (350) a. John bought the most expensive cake.
 b. LF for the absolute interpretation of (350a)



- (351) a. $\llbracket \text{NP} \rrbracket^g = \lambda x [x \text{ is a } g(1)\text{-expensive cake}]$
 b. $\llbracket \text{DP}_6 \rrbracket^g = [g(2) \text{ is a } g(1)\text{-expensive cake}]$
 c. $\llbracket \text{DP}_5 \rrbracket^g = \lambda d [g(2) \text{ is a } d\text{-expensive cake}]$
 d. $\llbracket \text{DP}_4 \rrbracket^g = \llbracket \text{DP}_5 \rrbracket^g$
 e. $\llbracket \text{DP}_1 \rrbracket^g = \exists d. \exists x. [x \text{ is a } d\text{-expensive cake} \wedge \forall Q \in C [Q \neq \llbracket \text{DP}_4 \rrbracket \rightarrow \neg(Q(d))]]$
 f. $C' \subseteq \llbracket \text{DP}_5 \rrbracket^f \subseteq \{D: \exists x [D = \lambda d [x \text{ is a } d\text{-expensive cake}]]\}$
(focal presupposition, (232))
 g. $C \subseteq \llbracket \text{DP}_5 \rrbracket^f$ *(focus association possible, (238))*
 h. $\llbracket \text{TP} \rrbracket = \text{John bought the unique } x: \exists d [x \text{ is a } d\text{-expensive cake} \wedge$
 $\forall Q \in C' [Q \neq (\lambda d'. x \text{ is a } d'\text{-expensive cake}) \rightarrow \neg Q(d)]$

Chapter 6: Summary and conclusions

The starting point of this dissertation were the five empirical facts from English, Bulgarian and Polish that a theory of the interpretation of sentences with superlative expressions has to be able to account for. Facts 1 and 2, ((14), (16)), concerned the availability of relative interpretations established with respect to a DP-internal constituent (the Relative-2 readings) as opposed to relative interpretations established with respect to a DP-external constituent (the Relative-1 readings). The former do not obtain when the superlative DP contains the definite determiner, (352d), while the latter are available (352b-c).

(352) John bought [_{DP} the most expensive cake] for Mary.

- a. ‘John bought Mary the cake that was more expensive than any other *Absolute* (relevant) cake.’
- b. ‘John bought Mary a more expensive cake than any other (relevant) person *Relative-1* did.’
- c. ‘John bought Mary a more expensive cake than he bought for any other *Relative-1* (relevant) person.’
- d. *‘John bought Mary a more expensive cake than anything else he bought *Relative-2* her.’

The availability of the Relative-2 readings in languages that allow morphologically indefinite superlative DPs (as do Bulgarian and Swedish, as well as, the determinerless Slavic languages such as Polish, Czech and Serbian) poses a challenge for the two approaches to relative readings that had been adopted in the literature prior to Pancheva and Tomaszewicz (2012). Those accounts were based on languages that do not allow the Relative-2 readings, hence, the debate concerned only the derivation of the Relative-1 readings.

On the Movement Theory, the superlative morpheme *-est* is allowed to take scope DP-externally for relative readings (Heim 1985, 1999, Szabolcsi 1986). The comparison set is syntactically determined depending on which of the sentence constituents becomes an argument of DP-external *-est* (e.g. *Mary* for the reading in (352c), *cake* for the reading in (352d)). To interpret *-est* DP-externally, the definite determiner needs to be treated as semantically vacuous,

hence the Movement Theory cannot account for Facts 1-2, but instead predicts that the Relative-2 readings should be available even with morphologically definite superlative DPs (Section 2.4 ‘The Movement Theory over-generates’).

The DP-internal Theory of relative readings, on the other hand, does not predict the existence of the Relative-2 readings at all (Farkas and É. Kiss 2000, Sharvit and Stateva 2002). When *-est* remains DP-internally, the comparison set is fixed with respect to the contents of the superlative DP, that is, it contains cakes of some price on both the absolute, (352a), and the relative readings (352b-c). Consequently, the comparison set cannot contain other alternatives to the cake that John bought as required for the Relative-2 reading, (352d) (Section 2.2 ‘Superlative readings as context dependency – the DP-internal Theory’).

In Pancheva and Tomaszewicz (2012) we proposed a theory for relative readings cross-linguistically that unifies the Movement and the DP-internal approaches: *-est* takes DP-external scope whenever the syntax allows it. We assumed that morphologically definite DPs constitute a syntactic island for the movement of degree operators. This proposal is compatible with Facts 1-2, ((14), (16)), as well as with Fact 3, (20), that the absolute readings require the presence of the definite determiner. In the presence of the definite determiner, the comparison class is determined on the basis of the DP both on the absolute and relative readings, hence the Relative-2 readings are not possible. We proposed that for the Relative-1 readings in the presence of the definite determiner the mechanism of focus association imposes an additional restriction on the comparison class. In the absence of the definite determiner, the comparison class is determined by DP-external scope of *-est* allowing both Relative-1 and Relative-2 readings. In Pancheva and Tomaszewicz (2012) we proposed that focus association is needed to account for the derivation of relative readings when *-est* is trapped DP-internally, so that DP-internal *-est* can associate with DP-external but not DP-internal focus. We did not claim that focus is always needed.

In this dissertation I worked out the details of our proposal in Pancheva and Tomaszewicz (2012) based on the semantics for *-est* in (353) proposed in Heim (1999), as well as introduced new data indicating that focus is obligatory for relative readings when *-est* is DP-external. The new data from Bulgarian and Polish (partially provided in Tomaszewicz 2013), on the basis of which I added the generalizations in (23), Fact 4, and in (28), Fact 5, provides the empirical motivation for postulating the requirement for focus encoded in the lexical entry for *-est*, (245) repeated below in (354). The constituent that saturates *-est*’s third argument must be a narrow focus, so that its focus

alternative value is congruent with the set C , the first argument of *-est*, (355). The constraint is void with DP-internal *-est* as there is no constituent in the sentence that merges as *-est*'s third argument (which is instead existentially closed off by the definite determiner). Accordingly, DP-internal *-est* optionally associates with focus, (356) that is, focus plays role in the contextual restriction of the comparison set C in accordance with *-est*'s presuppositions.

$$(353)=(47) \quad \llbracket -est \rrbracket = \lambda C_{\langle e,t \rangle} \lambda D_{\langle d,et \rangle} \lambda x_e \exists d [D(d)(x) \wedge \forall y \in C [y \neq x \rightarrow \neg(D(d)(y))]]$$

Presuppositions:

$$a. x \in C$$

$$b. \forall y [y \in C \rightarrow \exists d [D(d)(y)]]$$

(354)=(245) Focus requirement of *-est*:

$$\llbracket -est \rrbracket(C)(D)(\llbracket \alpha \rrbracket) = 1 \text{ iff } C \subseteq \llbracket \alpha \rrbracket^f$$

(355) Relative readings with DP-external *-est* (in the absence of *the*)

a. *Relative-1* (352b):

[JOHN]_F [*-est* C] $\lambda d \lambda x$ [x bought [_{DP} a d -expensive cake]] for Mary

$$C \subseteq \{x: \exists d [x \text{ bought a } d\text{-expensive cake for Mary} \wedge x \in \{\textit{John, Bill, Maria, \dots}\}]\}$$

\rightarrow *obligatory focus association of -est* (354)

b. *Relative-2* (352d):

[CAKE]_F [*-est* C] $\lambda d \lambda f \exists x$ [John bought [_{DP} a d -expensive $x \wedge f(x)$]] for Mary

$$C \subseteq \{f: \exists d \exists x [John \text{ bought } x \wedge x \text{ is } d\text{-expensive} \wedge f(x) \wedge f \in \{\textit{cake}(x), \textit{fruit}(x), \dots}\}]\}$$

\rightarrow *obligatory focus association of -est* (354)

(356) Relative readings with DP-internal *-est* (in the presence of *the*)

a. *Relative-1* (352b):

[JOHN]_F bought [_{DP} **the** [*-est* C] d -expensive cake]] for Mary

$$C \subseteq \{x: \exists d \exists y [x \text{ is a } d\text{-expensive cake} \wedge \underline{x \text{ was bought by } y}]\}$$

\rightarrow C is specified via focus association

b. *Relative-1* (352b):

John bought [_{DP} **the** [*-est* C] d -expensive cake]] for Mary

$$C \subseteq \{x: \exists d \exists y [x \text{ is a } d\text{-expensive cake} \wedge \underline{x \text{ was bought by } y}]\}$$

$\rightarrow C$ is specified via context

Facts 4 and 5 indicate that focus is necessary even when *-est* can scope outside of the DP. In Bulgarian, when the focus is absent, the corresponding relative reading is absent with an indefinite superlative (section 3.1.4). In Polish, when the syntactic structure of a sentence prevents the interpretation of a particular constituent as focused, the corresponding relative reading is not available (section 3.2). This presents a puzzle for the approach to the Relative-2 readings relying on the availability of the DP-external scope. With DP-external scope for *-est*, technically, no additional contextual restrictions are necessary to specify the comparison class for relative readings. While focus association appears to be a useful device to restrict the comparison class for relative readings with DP-internal *-est*, it is entirely unnecessary for relative readings with DP-external *-est*. Therefore, the requirement for the presence of focus on relative readings must be a property of the superlative morpheme itself: *-est* is focus sensitive, and so it scopes DP-externally just in case the context licenses focus on the constituent that becomes its third argument (and the definite determiner is absent).

I also extended our account in Pancheva and Tomaszewicz (2012) of the blocking effect of the definite determiner on the Relative-2 readings, by proposing a semantic explanation (sections 2.3 and 2.6.3). While previously we showed that definiteness creates an island, we didn't investigate the nature of the island effect. I have now shown that it is not the movement of *-est* across the definite determiner per se that is constrained by some syntactic factor, but rather this movement derives a reading that is anomalous. When the definite determiner is interpreted at LF as contributing a uniqueness presupposition, and when *-est* takes DP-external scope (with either a DP-internal or a DP-external constituent becoming its argument), there is a clash between the presupposition and the truth conditions. Thus, the unavailability of the Relative-2 readings with morphologically definite superlative DPs is an instance of a semantic island effect. Recently, several studies proposed semantic accounts for island effects on *wh*-movement (Rullmann (1995), Fox and Hackl (2007) and Schwarz and Shimoyama (2011) for negative degree islands, Abrusán (2011) for factive islands, Simonenko (2013) for definite DP islands, Abrusán (2014) for all weak islands showing that they lead to a contradiction). My analysis is similar in that the semantic island effect results from a specific configuration of two presupposition triggers (*-est* and *the*).

In Chapter 2, I considered alternative explanations for the blocking effect of *the* in English, Bulgarian and Swedish on the Relative-2 readings. I discussed the possibility that the Relative-2 reading is blocked not by the impossibility of DP-external scope of *-est* but by the impossibility of extraction of the DP-internal constituent for the purposes of merging it as the third argument of DP-external *-est*. I showed that both overt and covert A'-movement out of definite DPs is possible, and thus there is no principled way to explain why parallel movement is prohibited for the derivation of the Relative-2 reading once *-est* is allowed to scope freely. Moreover, I showed that with overt movement in *it*-clefts, Relative-2 readings are marginally available in English (e.g. *It was London that John met the youngest student from*, in (295)). This finding, on the one hand, supported the conclusion that what restricts the availability of the Relative-2 readings cross-linguistically is the constraint on the movement of *-est* and not of the DP-internal NP-constituent. But on the other hand, it raised the question how the Relative-2 reading with *it*-clefts is derived if *-est* is trapped DP-internally. Before I presented a solution in Chapter 4, still in Chapter 2, I provided the evidence from Polish for the crucial ingredient of the derivation of the Relative-2 reading – the QR of *-est* – which justified treating the availability of this movement as a viable parameter for cross-linguistic variation (in Pancheva and Tomaszewicz (2012) we simply relied on this as an assumption).

In Chapter 3, I discussed the evidence from English, Bulgarian, Hungarian and Polish for the role of focus in the availability of relative readings. It has been long observed in the literature that relative readings in English are facilitated by focus (Ross 1964, Jackendoff 1972), and in a language like Hungarian, where focus is syntactically expressed, either focus or *wh*-operators are necessary for relative readings (Szabolcsi 1986). Now, with the evidence that indefinite superlatives in Bulgarian (section 3.1.4) and the Relative-2 reading in Polish (section 3.2) require DP-external scope as well as focus we have empirical motivation for the adoption of a formal account of focus sensitivity of *-est*.

Focus sensitivity of a quantificational operator means that its domain argument is anaphorically dependent on an (implicit) linguistic antecedent in the current discourse context. Focus structure indicates what the linguistic antecedent is and whether it introduces a set of alternatives that can be employed for the restriction of the domain. Therefore, the adoption of the mechanism of focus association is a formal implementation of the context dependency of relative readings, aka focus sensitivity of *-est*. Crucially, the presupposition of contextually salient alternatives introduced by

focus and the presuppositions of a quantificational item need to match. Since, however, the focus association condition is in principle compatible with cases where there is no F-marked element in the sentence, with DP-external *-est* scope alone should suffice to derive relative readings, that is, focus association mechanism does not predict the obligatoriness of focus with DP-external *-est*. Therefore, the fact that DP-external *-est* does require focus in Bulgarian and Polish (Facts 4-5) indicates that the focus requirement is lexically encoded (cf. (354)). In Chapter 4, I showed that the focus association mechanism correctly predicts the range of relative readings both in languages where *-est* can scope DP-externally and in those where *-est* is DP-internal in the presence of the definite determiner. Since the focus association mechanisms amounts to the addition of a further presuppositional constraint on the contents of the comparison set, it is predicted that constructions which trigger presuppositions, such as *it*-clefts, also interact with the setting of the value for the domain variable. This way, we can account for the availability of the Relative-2 reading with *it*-clefts while keeping *-est* DP-internally.

Finally, in Chapter 5, I considered whether the focus sensitivity of *-est* should be encoded in the lexical entry for *-est* such that its domain argument cannot receive a value unless focus is present (i.e. scope alone will not derive relative readings). I reviewed an analysis introduced in Heim (1999) based on an alternative semantics for *-est*, distinct from the one in (353), which I used for my analysis in Chapters 2–4. This alternative meaning for *-est* involves comparison between degrees and not between individuals as on the semantics in (353). I showed that the adoption of such semantics cannot account for the restriction on Relative-2 readings in the presence of the definite determiner.

I conclude that a theory of superlative readings cross-linguistically should treat the superlative morpheme *-est* as a degree quantifier on which individuals are compared (i.e. (353)), and which can take scope both DP-internally and DP-externally depending on the presence of the definite determiner ((355)-(356)). Although a theory based on scope alone allows for the derivation of relative readings without any reference to focus, the data that I have presented indicates that DP-external *-est* requires focus. The obligatoriness of focus for relative readings with DP-external *-est* is thus an empirical fact. DP-internal *-est*, on the other hand, does not require focus for relative readings, which is predicted by the theory. For the derivation of the relative readings, both of the LF configurations have to allow for a matching between the presuppositions of *-est* and the

presuppositions of other elements in the context, such as the definite determiner (with DP-internal *-est*) and focused constituents (with DP-external *-est*).

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