

COMPARATIVE ALTERNATION IN Y-ADJECTIVES

BY

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ABSTRACT

There are two main ways of expressing the comparative in English adjectives. One is to precede the adjectival base with *more* and the other is to suffix *-er* to the base. For the group of adjectives ending in an orthographic *-y* and an /i/ sound, which I call the *y*-adjectives, the alternation between *more* and *-er* cannot be neatly explained by structural accounts, whether predominantly synchronic or diachronic. The idea of understanding this alternation with respect to a paradigm of comparative constructions is introduced in this thesis. This paradigm comprises a multitude of *more* and *-er* constructions (including those of *y*-adjectives) that share the grammatical function of the comparative. The goal of this thesis is to examine to what extent the comparatives of *y*-adjectives can be accounted for by the comparative constructions of other members in this paradigm, in addition to a set of syntactic, morphological and phonological considerations. Two empirical studies are reported: a study of the comparative constructions in seven corpora of British comedies spanning the 17th to the 20th centuries; and an experimental study where reading times in the context of comparative *y*-adjective constructions were observed in a series of self-paced reading tasks. In the corpus study, the morphology of *y*-adjective bases is found to be a significant predictor of their comparatives. Additionally, significant correlations are found between:

- the comparatives of *y*-adjectives and those of the disyllabic adjectives that are not *y*-adjectives (to which I have given the cover term of HANDSOME adjectives);
- the comparatives of *y*-adjectives and those of the monosyllabic adjectives; and
- the comparatives of *y*-adjectives and those of adverbs that share some formal features with *y*-adjectives.

The experimental study furthers an investigation of comparative alternation in *y*-adjectives in terms of the comparatives of HANDSOME adjectives and the morphological structure of *y*-adjective bases. In this study, pre-to-post treatment reading is found to be facilitated in *y*-adjective *more* comparatives by an exposure to multiple instances of *more* constructions from the HANDSOME adjectives. The *more* constructions from HANDSOME adjectives are also found to reduce facilitation in reading in morphologically simple *y*-adjectives paired with *-er*. On the other hand, the *-er* constructions from HANDSOME adjectives are found to reduce facilitation in reading in morphologically complex *y*-adjectives paired with *more*. The studies undertaken in this work indicate two important predictors of the comparatives of *y*-adjectives:

the comparatives of HANDSOME adjectives; and the morphological structure of y-adjective bases. The involvement of the comparatives of HANDSOME adjectives as a predictor points to the importance of a paradigm of comparatives for an understanding of the comparatives of y-adjectives. The influence of this paradigm, combined with the influence of morphology, is argued to shed light on a question motivated by the diachronic literature on what could be suppressing the susceptibility of y-adjectives to the structural motivators for particular comparatives. Additionally, the potential for interpreting some unanticipated findings in terms of theories from psychological views on language, and in ways that remain coherent with paradigmatic and morphological viewpoints, is discussed.

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CHAPTER 1

INTRODUCTION

1.1 Chapter overview

There are two main ways of expressing comparison to a higher degree in English adjectives. One is to precede the adjectival base with *more*, e.g. *more lazy*, and the other is to suffix *-er* to the base, e.g. *lazier* (Quirk et al., 1985, p. 458; Biber et al., 1999, p. 522; Palmer et al., 2002, pp. 1582–1588; González-Díaz, 2008, p. 15). *Comparative alternation* refers to the fact that there are these two main patterns, using *more* and *-er*. The goal of this work is to obtain a better understanding of comparative alternation in a group of adjectives that I call the *y*-adjectives. In 1.2, I introduce the context for the approaches taken towards achieving this understanding. The suggestion that an account of comparative alternation in *y*-adjectives has to be multi-faceted is put forward in 1.3. Section 1.4 outlines two important facets of this account indicated by my research. The structure of the thesis is presented in 1.5.

1.2 Key players in an account of comparative alternation in *y*-adjectives

In this thesis, *y*-adjectives are defined as disyllabic adjectives ending in an orthographic *-y* and an /i/ sound, e.g. *friendly*, *nasty* and *tidy*, and this includes their antonyms prefixed with *un-*, e.g. *unfriendly* and *untidy*. The adjective *eery* is considered a *y*-adjective, notwithstanding its alternative spelling *eerie*. Adjectives such as *awry* and *shy* are not *y*-adjectives because although they end in an orthographic *-y*, they do not end in an /i/. The thrust of the argument in this work is that comparative alternation in *y*-adjectives must be understood in terms of the associations from a paradigm of comparative constructions and the morphology of *y*-adjective bases.

A paradigm may be briefly defined as a set of related forms that can replace each other in a given slot within the same syntactic context without causing any grammatical ill-formedness and notwithstanding any semantic oddity (more on this in 2.7). Insofar, for example, as the comparative constructions *more beautiful* and *handsomer* can replace each other in the blank slot as follows without causing any ungrammaticality, we might think of *more beautiful* and *handsomer* as part of the same paradigm.

This model is _____ than that.

A paradigm of comparative constructions (or a paradigm of comparatives for short) refers therefore to the multitude or list of comparative *more* and *-er* constructions (both those of the *y*-adjectives and otherwise) taken together. A conceptual collection of *more beautiful*, *taller*, *lazier* and so on would, in other words, therefore constitute a paradigm of comparatives. With respect to the comparatives of *y*-adjectives, an investigation based on this paradigm is essentially an investigation of how the use of *more* and *-er* on *y*-adjectives might be influenced by the *more* and *-er* constructions of other items. The attempt to draw on a paradigm of comparatives for an investigation of this nature is new and specific to this work no doubt. This does not mean that other paradigms have not been used in existing studies. Accounts that propose relative frequency measures of different adjectival bases as predictors of comparative forms (Braun, 1982, p. 101; Quirk et al., 1985, p. 463; Hilpert, 2008, pp. 396–397), for example, would necessarily implicate a paradigmatic perspective. This is because it is only if some concept of a paradigm that draws together all adjectival bases, e.g. *beautiful*, *tall* and *lazy*, exists that it is sensible to consider the frequency of an adjectival base relative to those of other bases for further work. A goal of this thesis then is to determine whether a paradigm that has thus far not been considered in the literature can help us obtain a better understanding of comparative alternation in *y*-adjectives. This is the paradigm where members share the grammatical function of the comparative, i.e. the paradigm of comparatives referred to above. As I will show in the course of this work, associations in this paradigm can indeed inform an understanding of comparative alternation in *y*-adjectives.

One other factor found in the current work to aid this understanding is the morphological structure of *y*-adjective bases. The investigation of morphology is built upon an extensive tradition of accounting for comparative alternation in terms of structural considerations that also include: syntactic contexts of the comparative constructions; the length of adjectival bases (or their number of syllables); the orthographic, phonological and phonetic endings of these bases; and other phonological features of the bases. Works in this area stretch back to Smith (1916), Krusinga (1932) and Jespersen (1949), and by the time we get to Quirk et al. (1985), and later Palmer et al. (2002), the structural features proposed as motivators of comparative alternation have increased considerably. The subsequent advent of corpus linguistics has permitted the exploration of these features either in the form of descriptive statistics (Leech & Culpeper, 1997; Mondorf, 2003, 2009) or more complex modelling (Boyd, 2007; Hilpert, 2008). Diachronic investigations of these structural motivators have also been carried out (Kytö & Romaine, 1997), and more recent research have tended towards cognitive approaches (Mondorf, 2003; Boyd, 2007). Insofar as the morphology of *y*-adjective bases is

found to contribute to an account of comparative alternation in *y*-adjectives, this thesis adds to the tradition of a structural approach to comparative alternation. What the thesis brings to this tradition, however, is the novel view that morphology can act in tandem with associations from a paradigm of comparatives to explain the alternation. As will be shown, part of this explanation for the comparatives of *y*-adjectives is obtained precisely at points of intersection between the workings of morphology and those of the paradigm.

1.3 A multi-faceted explanation of comparative alternation in *y*-adjectives

My interest to take an understanding of comparative alternation in *y*-adjectives beyond structural perspectives stems primarily from the challenges that this alternation presents to existing structural accounts. Where we find, for instance, morphologically complex *y*-adjectives such as *lazy* in the comparative *-er* construction, this challenges the view that morphological complexity biases adjectives towards comparative *more* (Hilpert, 2008, p. 407). Likewise, where we find *y*-adjectives of three or more syllables such as *unfriendly* in the *-er* construction, the long-held claim that adjectives of three syllables or more form the comparative with *more* (Jespersen, 1949, p. 347; Schibsbye, 1965, p. 134; Zandvoort, 1977, p. 188; Quirk et al., 1985, pp. 461–462; Palmer et al., 2002, pp. 1583–1584; Carter & McCarthy, 2006, p. 439) is challenged. We could get around these challenges by adopting a diachronic viewpoint to suggest that *y*-adjectives are relatively slower, over a given time span, to align themselves with the structural conditioning for particular comparative forms. Even then, we need to explain why it is that the *y*-adjectives show this delay.

Challenges of the kind put forward are important because they suggest that an understanding of comparative alternation in *y*-adjectives has to be multi-faceted. It cannot be based solely on structural or diachronic viewpoints. This suggestion is crucial in influencing my theoretical orientation. First, it paves the way for my motivation to understand the comparatives of *y*-adjectives in ways that go beyond structural and diachronic aspects, i.e. by considering the paradigmatic associations that hold between the comparative constructions of *y*-adjectives and those of other items. Additionally, I am led to avoid any presupposition that these paradigmatic associations predict the comparatives of *y*-adjectives independently of other considerations. For the reasons given above, each of the empirical studies presented in this thesis involves a combination of at least two of the following considerations: the diachronic factor; structural considerations; and considerations of associations from a paradigm of comparatives.

1.4 Specific facets to understanding comparative alternation in y-adjectives

In the empirical studies undertaken, specific aspects of diachronic, structural and paradigmatic considerations were examined as to how they might explain comparative alternation in y-adjectives. Drawing on the notion of a paradigm of comparatives, I investigated whether the likelihood of finding y-adjectives with *more* or with *-er* might be predicted by some quantification of *more* and *-er* constructions from other sets of items. Investigations were also conducted to evaluate whether the anticipated predictions are obtainable from diachronic data, and if so, whether this has implications for the pairing of y-adjectives with particular comparatives in individual cognition. With my theoretical persuasion towards a multi-faceted understanding of the comparatives of y-adjectives, I included an evaluation of whether a prediction of these comparatives from the comparatives of other English forms is likely to be found only for y-adjectives defined by certain structural features. At least one of the following structural factors was considered in each empirical study: the syntactic contexts of comparative y-adjective constructions; the morphological structure of y-adjective bases; the presence or absence of a final /li/ in these bases; and the [\pm voiced] feature of the penultimate segment in these bases. In addition to examining them in tandem with a set of paradigmatic associations, these structural factors were examined for how they play out diachronically.

Two studies were carried out in this research: a diachronic corpus study of British English comedies; and an experimental study involving native speakers of New Zealand English. Taken together, the findings from these studies led me to a number of conclusions. One is that the pairing of y-adjectives with comparative *more* is related to the *more* constructions of the set of adjectives that are disyllabic, but do not end in an orthographic -y and an /i/ sound, e.g. *clever* and *handsome*. As a mnemonic, I refer to this set of adjectives here and throughout the thesis as the HANDSOME adjectives. A second conclusion is that morphologically complex y-adjectives have a higher likelihood of forming their comparatives with *more*, while morphologically simple ones have a higher likelihood of forming them with *-er*. Additionally, my corpus data have shown this to have held for several centuries. What is interesting, however, and this is the third conclusion drawn from my empirical work, is that these morphological effects can be suppressed by the *more* and *-er* constructions from the HANDSOME adjectives. I have empirical evidence that *more* constructions from the HANDSOME adjectives can suppress the advantage that morphologically simple y-adjectives have for *-er*, while *-er* constructions from the HANDSOME adjectives can suppress the advantage that morphologically complex y-adjectives have for *more*.

The conclusions drawn from my empirical work support the claim that an account of comparative alternation in *y*-adjectives must consider both a paradigm of comparatives and the morphological structure of *y*-adjective bases. The impact that the *more* forms of HANDSOME adjectives have on those of *y*-adjectives points to a need to understand the comparatives of *y*-adjectives in terms of their associations with the comparatives of the HANDSOME group. Given that these associations stem from a paradigm of comparatives, this paradigm is important for comparative alternation in *y*-adjectives. Although the independent effects of morphology on this alternation are found only in one of my empirical studies, they are found in a dataset covering several centuries of language use. This underlines the importance of morphology to an understanding of the comparatives of *y*-adjectives. In fact, it is only if morphology is considered that we can see how morphological predictions of *y*-adjective *more* and *-er* comparatives can be suppressed by the comparatives of the HANDSOME set. At its core, this thesis introduces the potential afforded by a paradigm of comparatives for explaining comparative alternation in *y*-adjectives. Importantly, it does this in a way that complements what we know about English comparative alternation from available morphological and diachronic viewpoints.

1.5 Structure of the thesis

Chapter 2 contains a review of the literature on comparative alternation. It outlines my reasons for choosing the comparatives of *y*-adjectives as an investigative target, and the challenges these comparatives present to existing accounts of comparative alternation. The potential afforded by a paradigm of comparatives for understanding the comparatives of *y*-adjectives is also introduced in this chapter. Since the challenges presented by comparative alternation in *y*-adjectives to available accounts stem mostly from the formal specifics of *y*-adjective bases, I discuss in Chapter 3 how a paradigm of comparatives permits an examination of this alternation without implicating the *y*-adjective base. In introducing the paradigm, the different ways in which structural factors might contribute to an understanding of the comparatives of *y*-adjectives are not side-lined. This is stressed in Chapter 3, together with the need to think of comparative alternation in *y*-adjectives in terms of an intersection of structural considerations and considerations related to a paradigm of comparatives.

As noted, my examination of comparative alternation in *y*-adjectives is performed across two studies. Chapters 4 and 5 contain, respectively, a description of the corpus study and its findings. Chapters 6 and 7 contain, respectively, a description of the experimental study and its findings. Findings from the corpus study are intended to serve as a baseline for what

gets tested in the experimental study. Chapter 5 contains therefore a discussion of the corpus findings in terms of what they suggest about effects that deserve further investigation in an experimental setting. Complementing this, Chapter 7 includes a discussion of the extent to which the effects found in the experimental study correspond to those observed from the corpus data. Chapter 8 draws together the corpus and experimental findings, and discusses them with respect to some key questions raised about comparative alternation in *y*-adjectives in the literature review. The discussion in this chapter includes also an interpretation of some of my unanticipated findings with the aid of theories from psychological views of language. The main point of Chapter 8 is that considerations stemming from a paradigm of comparatives and from the morphology of *y*-adjective bases are equally important for an account of comparative alternation in *y*-adjectives. In Chapter 9, the key contributions of this work to the field of comparative alternation studies and beyond are highlighted. This chapter includes a discussion of the constraints faced in the research reported in this thesis and how future studies may be informed by the current work.

CHAPTER 2

LITERATURE REVIEW

2.1 Chapter overview

In this chapter, I first discuss in 2.2 the challenge of keeping apart synchronic and diachronic approaches when dealing with comparative alternation in y-adjectives. The reasons that y-adjectives are chosen as an investigative target for a study of comparative alternation are examined in 2.3, and the reasons for specifically choosing these adjectives rather than other disyllabic adjectives are examined in 2.4. Section 2.5 discusses how the comparatives of y-adjectives often challenge predominantly structural accounts of comparative alternation. Section 2.6 shows how a contextualisation of structural accounts within diachronic perspectives might be important for understanding the comparatives of y-adjectives. Section 2.7 introduces a number of paradigmatic accounts of comparative alternation, with a proposal on how the conception of a paradigm of comparatives presents new questions/threads of investigation that may add to our understanding of comparative alternation in y-adjectives.

2.2 Saussurean linguistics and the comparatives of y-adjectives

A large part of how the literature in this work is reviewed is informed by the limitations that Saussurean linguistics present to an understanding of comparative alternation in y-adjectives. From a Saussurean (1960 [1916], p. 81) point of view, diachronic and synchronic accounts should be kept apart in any study of linguistics, where a diachronic account refers to a description of linguistic features as they evolve over time, while a synchronic one refers to a description of those features as a state at a specific point in time. As Saussure (1960 [1916], p. 81) notes, “the linguist who wishes to understand a state must discard all knowledge of everything that produced it and ignore diachrony. ... The intervention of history can only falsify his judgement”. Saussure’s (1960 [1916], p. 81) dichotomisation between diachronic and synchronic approaches is not without its critics. As Bauer (2007, p. 43) notes, “by the late twentieth century, there were some linguists complaining that this strict distinction...had become a major problem in dealing with language”. Critics of Saussure believe that change is so fundamental to all living languages (Bauer, 2007, p. 43) that it is impossible to exclude diachronic considerations in any study of linguistic features. In my view, Saussure’s (1960 [1916], p. 81) dichotomisation presents a problem, in particular, for comparative alternation

because supposedly synchronic accounts of this alternation are often not water-tight in explaining the comparatives of y-adjectives. This means that the researcher is often faced with a natural impetus to see whether a more coherent understanding of these comparatives might be obtained from diachronic perspectives.

To exemplify this, let us refer to an account of comparative alternation in D’Arcy (2014), based on disyllabic adjectives drawn from the Origins of New Zealand English (ONZE) Corpus (Gordon et al., 2004; Gordon et al., 2007) and the Toronto English Archive (TEA). The account is clearly positioned as synchronic, given D’Arcy’s (2014, p. 222) note that although the “ONZE provides a view to diachrony”, “the emphasis here is synchronic”. A conclusion drawn in the account is that while English disyllabic adjectives may appear to alternate between *more* and *-er* as a group, this alternation is not prominent within individual adjectival types (D’Arcy, 2014, p. 235). As D’Arcy (2014, p. 235) claims, “individual adjectives pattern one way (synthetically) or the other (analytically)”, so that “whether a corpus contains more synthetic forms or more analytic forms is determined by the adjectives the collection has managed to capture”. The problem with accepting this claim is that there remain attestations of disyllabic y-adjective types that do alternate between *more* and *-er*. *Heavy* and *worthy*, for instance, are each attested with both *more* and *-er* in the British National Corpus (BNC) (Davies, 2004–), with 789 tokens of *heavier* versus 17 tokens of *more heavy*, and 11 tokens of *worthier* versus 38 tokens of *more worthy*. We can of course question the seeming anomaly between D’Arcy’s claim and my observations from the BNC by suggesting that either her or my observations are artefactual of some sampling bias from the relevant corpora. This might be true, but I would like to point out that D’Arcy’s (2014, p. 235) claim and my observations may not in fact be anomalous if we build a diachronic perspective into our theorisation of comparative alternation. A decline in the *more* constructions of disyllabic y-adjectives from Late Middle English to post-19th-century Modern English noted in Kytö and Romaine (1997, p. 344) suggests, for instance, that with time, we would get fewer *more* constructions of y-adjectives. This implies that there should come a point when comparative constructions of y-adjectives are dominated by the *-er* form. In theory, this ought also to be the point when any claim on individual disyllabic adjectival types patterning consistently with only one comparative form can extend neatly to the entire y-adjectival group. Therefore, rather than being exceptions to claims on this consistent patterning, disyllabic y-adjectives may be slower, either collectively or individually, to arrive at this eventuality. This would explain why we have *heavy* and *worthy* attested still with both *more* and *-er* in the BNC. By showing how a diachronic perspective can potentially resolve any seeming anomaly between different

synchronic views on comparative alternation, I hope to have shown why in dealing with the alternation, and especially when it occurs in y-adjectives, it can be tricky and even detrimental to keep synchronic and diachronic accounts apart.

In view of this, I will not, in my review of the literature, interpret any work as being exclusively synchronic or diachronic. Accounts that predict comparatives on the basis of phonological and/or morphological features, and/or syntactic positioning will be interpreted as descriptions of factors that are becoming more or less predictive of comparative alternation in y-adjectives, or that y-adjectives are regularising more or less towards in comparative formation. Following this, it is reasonable to expect that there will always be instances of comparative y-adjective constructions that challenge these descriptions. Further, I will not assume, in my interpretation of given accounts, that the formal features related to y-adjectives play no part in the amount of time it takes for these adjectives to be found predominantly with a particular comparative. It is reasonable to expect therefore that at any specific point in time, comparative alternation in other groups of adjectives with a configuration of structural features different to those of y-adjectives might be more easily accounted for by a set of structural predictors than might comparative alternation in y-adjectives. This does not mean that structural predictors are unhelpful for understanding the comparatives of y-adjectives. What it means is that it might take a relatively longer time for certain structural factors to accurately predict these comparatives, so that questions about what could be suppressing the reliability of these predictions are very interesting indeed (more on this in 2.6 and 2.7).

2.3 Why y-adjectives

A more immediate question is why I have chosen the y-adjectives as an investigative target for a study of comparative alternation. The most straightforward answer is that y-adjectives do alternate between comparatives *more* and *-er*. As noted in 2.2, *heavy* and *worthy* are each attested with both *more* and *-er* in the BNC. In addition, there are corpus studies such as those of Bauer (1994) and Lindquist (2000) aimed at building a systematic account of which subsets of y-adjectives tend to be paired with *more*, and which, with *-er*. While Bauer bases his account on the contrast of a *-ly* versus just *-y* ending in y-adjectives, Lindquist bases his on syntactic-based contrasts, e.g. attributive versus predicative positioning, in y-adjectives ending in *-ly*. Regardless of what they are based on, the formulation of these accounts would necessarily have to be premised in the first instance on the presence of comparative alternation in y-adjectives. The same premise would hold in corpus studies that document shifts in y-adjectives over time towards or away from *more* or *-er* constructions (Bauer, 1994, pp. 58–

59; Kytö & Romaine, 1997, p. 344). These diachronic studies often include an evaluation of whether an account of the comparative patterning of y-adjectives can be established for observations made over an extended period of time; and the motivation for this evaluation has to stem from the fact that there is alternation between *more* and *-er* in y-adjectives that is in need of explanation to begin with.

It might be suggested that the continuity of this alternation over time remains uncertain because of proposals about regularisations towards or away from particular comparatives (Bauer, 1994; Kytö & Romaine, 1997). In other words, although these proposals are premised in the first instance on the existence of comparative alternation in y-adjectives, they might at the same time suggest a waning need to account for this alternation now that we expect the comparatives of y-adjectives to be more predictable with time. The question would follow therefore as to whether there is still much left in this alternation that requires systematic study. While this question seems valid on cursory inspection, any increased predictability over time of the comparatives of (subsets of) y-adjectives is not sufficient ground to claim that there remains nothing worthy of study in comparative alternation in y-adjectives. To explain this, let us return to the token counts of the comparatives of *heavy* obtained from the BNC. Tokens of *heavier* are more frequent in the BNC at a count of 789 than those of *more heavy* at a count of 17. The case of comparative alternation in *heavy* is therefore neatly aligned with Kytö and Romaine's (1997, p. 344) observation that the *more* constructions of y-adjectives declines over time. Despite this, there are still 17 instances in the BNC of *more heavy*, which disallows the claim that comparative alternation in y-adjectives such as *heavy* is fully accounted for. It might be that with time, we would no longer find any token of *more heavy*, but until then, we need to account for why most tokens of *heavy* form their comparatives with *-er* while a minority form theirs with *more*. If we compare the case of *heavy* with that of say, *cautious*, which has all 135 of its tokens of comparative constructions in the BNC attested with *more*, there is certainly much left about comparative alternation in y-adjectives to be accounted for.

The notion that comparative alternation in y-adjectives is worth investigating is strengthened if we compare diachronic observations of this alternation with those of adjectives containing three or more syllables, e.g. *beautiful*. When referring to adjectives of three or more syllables, the mnemonic of BEAUTIFUL adjectives will be employed, although it should be kept in mind that these adjectives exclude ones ending in *-y* such as *unhappy* and *unfriendly*. Based on the literature, there are grounds to believe that the kind of shift towards comparative *more* for the BEAUTIFUL adjectives, when *more* began to spread as an alternative to *-er* around the 14th century (Pound, 1901, p. 3; Mustanoja, 1960, p. 279), is not paralleled in the

y-adjectives. The documentation in this literature suggests that we do get the application of *more* constructions on y-adjectives when *more* became available; y-adjectives such as *hardy* and *holy* are in Mustanoja's (1960, p. 279) list of adjectives first attested with *more*. However, while acceptance of the *more* construction with BEAUTIFUL adjectives is sustained over time, to the extent that **beautiful* is odd in Present-day English (PDE), any initial receptiveness towards *more* constructions on y-adjectives does not seem to have been sustained. If it had been, we would not observe a decline in the *more* comparatives of y-adjectives (Kytö & Romaine, 1997, p. 344) at around the same period when initial receptiveness towards *more* in these adjectives might also be inferred (Mustanoja, 1960, p. 279), i.e. the middle of the 14th century in Late Middle English.

A seeming initial receptiveness towards *more* constructions on y-adjectives and then away from them suggests that, regularisation towards one comparative over an alternative aside, there are factors accounting for the comparatives of y-adjectives that need to be investigated. This is tantamount to saying that there are factors beyond the passing of time that might influence the regularisation of y-adjectives towards one or the other comparative, so that it is sensible to investigate what those factors might be. As it stands, the outcome of any supposed regularisation after six-and-a-half centuries for the comparatives of y-adjectives departs quite radically from that for the comparatives of the BEAUTIFUL adjectives. *More heavy* and *more worthy* are acceptable alternatives to *worthier* and *heavier* in PDE, as attested from the BNC and the Corpus of Contemporary American English (COCA) (Davies, 2008–), when **beautiful* has become an odd alternative to *more beautiful*. There is little ground therefore to presuppose that an understanding of the comparatives of y-adjectives requires no more than that for an understanding of the comparatives of BEAUTIFUL adjectives. If regularisation is what accounts for the predominance of *more* constructions in the BEAUTIFUL set, we need more than that to account for the comparatives of y-adjectives. We need to consider, for example, whether the regularisation process for comparative alternation in y-adjectives might be suppressed by certain factors.

I have pointed out how y-adjectives are a worthy investigative target for a study of comparative alternation, both because this alternation is apparent, and because there is much in it that still needs to be accounted for even with an acceptance that all y-adjectives would regularise eventually towards a particular comparative. There are other reasons for the choice of y-adjectives as an investigative target. One is that it permits the creation of a research space for furthering our understanding of parts of the comparative alternation phenomenon that do not lend themselves easily to being accounted for by structural factors. In their juxtaposition of

different phonological endings as a possible conditioning for the comparatives of disyllabic adjectives, for instance, it is claimed in Quirk et al. (1985, p. 462) that a final unstressed vowel motivates the *-er* construction. This inadvertently suggests that all y-adjectives, since they all end in an unstressed vowel, would take the *-er* construction. As should be clear by this point, this is untrue. There are some y-adjectives for which this phonological conditioning seems to hold relatively well, e.g. *heavy* with its 789 attestations in the *-er* construction in the BNC as opposed to its 17 attestations in the *more* construction. However, there are y-adjectives for which this conditioning does not hold as well, e.g. *worthy* with its 11 attestations in the *-er* construction in the BNC as opposed to its 38 attestations in the *more* construction. The more frequent occurrence of *worthy* with *more* than with *-er* is not specific to the BNC; this is observed also in COCA (Davies, 2008–), where 107 tokens of *more worthy* are attested in comparison to 51 tokens of *worthier*.

It seems therefore that we need more than the structural conditioning of a final unstressed vowel to account for the comparatives of y-adjectives. This points in turn to the need for a collective group called the y-adjectives as a target of investigation for comparative alternation. Instances of disyllabic adjectives ending in an unstressed /i/ with comparatives that remain unaccounted for by proposed phonological conditioning, e.g. the case of *worthy*, can then be studied under the umbrella group of y-adjectives. The advantage of this umbrella group is that it allows us to start off without any assumptions *a priori* as to the comparatives we expect to find in its members because finding a way to account for the variant comparative alternatives in this group is precisely the goal at hand. By putting forward the y-adjectives as a target of investigation therefore, I am creating a space for understanding parts of the comparative alternation phenomenon that remain unaccounted for by structural considerations.

As pointed out, the problem with the phonological conditioning of a final unstressed vowel is that it forces an untrue assumption that there is a tendency for all y-adjectives to be paired with *-er*. It might be argued, however, that this problematic assumption is neutralised by claims about how subsets of y-adjectives differ in terms of the comparative forms they are found with. Some scholars suggest that disyllabic adjectives ending in *-ly* tend to be found with *more* rather than with *-er*, while the opposite holds true for disyllabic adjectives ending in just *-y* (Bauer, 1994, pp. 58–59; Leech & Culpeper, 1997, p. 359). Given that y-adjectives are not necessarily assumed in the literature to be phonologically conditioned to occur with *-er*, my argument on the need then to have y-adjectives as a target of investigation to eliminate any such assumptions may be taken to be unconvincing. My response to this is two-fold. First, in focusing only on disyllabic adjectives, the literature on comparative alternation that divides

y-adjectives into subsets of those ending in *-ly* and those ending in just *-y* does not extend the coverage of their investigations to a third subset of what I collectively call the y-adjectives. This is the subset of y-adjectives prefixed with *un-*, which as a result of this prefixation, are not disyllabic, e.g. *untidy*. Y-adjectives such as *untidy* are taken as exceptions to the rule of *more* construction as default for adjectives of three or more syllables (Quirk et al., 1985, p. 462; Palmer et al., 2002, p. 1584), and as a matter of fact, such y-adjectives prefixed with *un-* do alternate between *more* and *-er*. For instance, two attestations each of *more untidy* and *untidier* are noted from the BNC, which indicates not only the presence of comparative alternation in *untidy*, but the lack of a clear tendency for this adjective to be paired with a specific comparative. It might be suggested that y-adjectives prefixed with *un-* could be paired with the same comparative forms found with their non-*un* counterparts and so, there is no need to consider y-adjectives such as *untidy* as a separate subset from other y-adjectives. There is no literature, however, to back up this suggestion. The need to account for comparative alternation in y-adjectives prefixed with *un-* is therefore no less than the need to account for it in other subsets of y-adjectives; and it remains a fact that the literature to date has not considered y-adjectives prefixed with *un-* in its coverage of the other subsets. By positioning y-adjectives as I define them as an investigative target, I am explicitly extending the coverage for a study of comparative alternation to y-adjectives prefixed with *un-*.

The case for y-adjectives as an investigative target for a study of comparative alternation is in fact strengthened rather than weakened by works that address this alternation in terms of whether y-adjectives end in *-ly* or just *-y* (Bauer, 1994, pp. 58–59; Leech & Culpeper, 1997, p. 359). What is worthy of note from this literature are the time periods of observations, all of which are confined to the 20th century. The study in Bauer (1994) is based on data obtained from issues of *The Times* and *The New York Times* between 1900 and 1989. The study in Leech and Culpeper (1997) is based on the Lancaster-Oslo/Bergen Corpus (LOB) and a written component of the BNC, the former covering the early 1960s, and the latter covering periods further into the second half of the 20th century, between the 1980s and early 1990s. These time periods leave us wondering, at best, whether potential accounts of comparative alternation in y-adjectives based on their *-ly* or non-*ly* endings extend to periods prior to the 20th century. At worst, they may inadvertently lead us to the assumption that regardless of time period, the contrast between *-ly* and non-*ly* endings is an effective predictor of the comparatives of y-adjectives. There are grounds for this assumption not to hold, however, based on Leech and Culpeper's (1997, p. 359) tabulation of the comparatives of disyllabic adjectives ending in *-ly* and disyllabic adjectives ending in just *-y*. This tabulation shows the percentage

difference in *-er* constructions between the two sets of adjectives to be more apparent in the BNC component of Leech and Culpeper's dataset than in the LOB component. If we consider this in view of the fact that the LOB covers data from a period earlier in the 20th century than the BNC, then any apparent difference between the comparatives of disyllabic adjectives ending in *-ly* and disyllabic adjectives ending in just *-y* may be a relatively recent phenomenon that does not apply to earlier periods.

Given this, and the fact that part of the research reported in this thesis involves investigating comparative *y*-adjective constructions found prior to the second half of the 20th century (see 4.4 and 4.5.1), it is justified to have *y*-adjectives (inclusive of those ending in *-ly* and those ending in just *-y*) as a collective target of investigation. Periods prior to the 20th century are precisely ones where questions remain unanswered from Bauer (1994, pp. 58–59), and Leech and Culpeper (1997, p. 359), as to whether the observation holds that a *-ly* ending conditions *more* while an ending in just *-y* conditions *-er*. By taking *y*-adjectives as a collective target of investigation in the context of the diachronic data in this work, we have a means through which answers to these questions might be sought.

2.4 Why *y*-adjectives rather than other disyllabic adjectives

Despite my extensive arguments for *y*-adjectives as an investigative target, it remains a fact that alternation between comparatives in *more* and *-er* is not confined to these adjectives. The alternation is found in other adjectives, mainly disyllabic ones, which is the reason that most studies on comparative alternation have as investigative targets a broadly-defined group of disyllabic adjectives. This fact leaves me with the need to explain the reasons that my work is confined only to *y*-adjectives. There are two reasons for this.

The first is that all *y*-adjectives share some formal properties not necessarily found in other disyllabic adjectives. All *y*-adjectives, as noted in 2.3, share the feature of having a final unstressed vowel, which means that all *y*-adjectives are trochaic. Other disyllabic adjectives can be trochaic of course, e.g. *proper*, but there are also those that are iambic, e.g. *severe*. In other words, disyllabic adjectives outside of the *y*-adjectival set are variable with regard to stress, while *y*-adjectives are consistently trochaic. The point is if the alternation between *more* and *-er* exists even within a narrow group of adjectives that share quite specific formal properties such as the *y*-adjectives, it makes empirical sense to focus first on this narrow group for a study of comparative alternation before a parallel study is expanded to any larger, more broadly-defined group. If iambic adjectives are noted to condition comparative *more* to a greater extent than trochaic ones (Mondorf, 2003, p. 278), and if final syllabic stress on

adjectives is noted to condition comparative *-er* (Kruisinga, 1932, p. 62; Curme, 1947, p. 220), then by starting off with an investigative target consisting of only *y*-adjectives (all trochaic), we can reduce the potential grounds for variation in comparative forms tagged to differences between *y*-adjectives and other adjectives. With that, the reasons for this variation within *y*-adjectives will have a stronger chance of emerging.

The second reason for my focus on *y*-adjectives instead of other disyllabic adjectives stems from prior studies on historical shifts of comparative constructions. As mentioned in 2.2 and 2.3, Kytö and Romaine (1997, p. 344) note a percentage shift in the *more* constructions of disyllabic *y*-adjectives from Late Middle English to post-19th-century Modern English. The same authors also document percentage shifts in *more* constructions for another three groups of adjectives, which they refer to as disyllabic adjectives ending in: *-ous*; *-ful*; and *-le/-er*. It is worthy of note that among the percentage shifts documented, the difference in percentages of *more* constructions between the first and last periods of observation is the greatest at 55 per cent for the disyllabic *y*-adjectives. The difference for the disyllabics ending in *-le/-er* is around 50 per cent, and for the disyllabics ending in *-ful* and *-ous*, the differences are, respectively, around 24 per cent and 18 per cent. The percentage differences are estimated visually from the graphs presented in Kytö and Romaine (1997, p. 344), and a comparison of these differences suggests that disyllabic *y*-adjectives are a group where the shift away from a particular comparative seems relatively more apparent. Kytö and Romaine's (1997, p. 344) observations suggest, in other words, that relatively speaking, *y*-adjectives constitute a more fertile ground than other adjectives for a study of comparative alternation.

Another observation from Kytö and Romaine (1997, p. 344) is that while percentages of *more* constructions for adjectives ending in *-y* and *-le/-er* are on a general decline over time, percentages of these constructions for adjectives ending in *-ful* and *-ous* stabilise at 100 per cent from Early Modern English to post-19th century Modern English. These trends give us added reason to choose disyllabic *y*-adjectives over disyllabics ending in *-ful* or *-ous* for a study of comparative alternation. If the latter two groups of adjectives have been consistently found with *more* since Early Modern English, there remains little comparative alternation to study. This leaves us with the percentages of *more* for disyllabics ending in *-le/-er*. Like the *more* constructions for the disyllabic *y*-adjectives, these constructions are shown to be on a general decline over time without the kind of clear stabilisation towards a particular comparative observed for the adjectives ending in *-ful* and *-ous* (Kytö & Romaine, 1997, p. 344). It may be suggested therefore that there is as much reason to focus on disyllabic adjectives ending in *-le/-er* as there is to focus on *y*-adjectives for a study of comparative alternation. To the

extent that the percentage decline between the first and last periods of observation for the disyllabics ending in *-le/-er* is not too far off from those ending in *-y*, I agree with this suggestion. However, the fact holds that disyllabic *y*-adjectives share a common orthographic ending while the group labelled as disyllabics ending in *-le/-er* in Kytö and Romaine (1997, p. 344) clearly do not. *Y*-adjectives are therefore a more narrowly-defined group of adjectives than the *-le/-er* group of disyllabics. If, as noted earlier, it is empirically sound to carry out a study of comparative alternation on a more narrowly-defined group of adjectives in the first instance than on a broader group, the choice of *y*-adjectives over disyllabic adjectives ending in *-le/-er* as an investigative target is justified.

2.5 Challenge of the comparatives of *y*-adjectives for structural predictors

Having shown why the comparatives of *y*-adjectives are a worthy investigative target, this section discusses the challenges these comparatives present to structural accounts of comparative alternation. As noted in 2.2, any challenge that *y*-adjectives present to these accounts should not be taken to mean that the accounts are problematic, but rather, that *y*-adjectives might be relatively slower in having their comparatives predicted accurately by these accounts.

One difficulty that comparative alternation in *y*-adjectives presents to structural accounts is traced to the fact that most *y*-adjectives are disyllabic. This means that the most well-entrenched rule for comparative alternation, i.e. adjectival length, is easily challenged by the formal properties of *y*-adjectives. According to the adjectival length rule, monosyllabic adjectives form the comparative with *-er* while adjectives of three syllables or more form the comparative with *more* (Jespersen, 1949, p. 347; Schibsbye, 1965, p. 134; Zandvoort, 1977, p. 188; Quirk et al., 1985, pp. 461–462; Palmer et al., 2002, pp. 1583–1584; Carter & McCarthy, 2006, p. 439). Since most *y*-adjectives are neither as short as the monosyllabics nor as long as the trisyllabics, we cannot easily apply the rule of adjectival length to predict the comparatives of *y*-adjectives. Even supposedly trisyllabic *y*-adjectives, i.e. those prefixed with *un-* such as *untidy*, are not necessarily found in the comparative *more* construction that other trisyllabics are typically found in (see 2.3). Like the disyllabic *y*-adjectives, these trisyllabic *y*-adjectives may be attested with *-er* (Quirk et al., 1985, p. 462), and are part of the group that “violate(s) the generalization that polysyllabic adjectives prefer periphrastic expression of degree” (Bauer et al., 2013, p. 186). It is in fact noted in Bauer et al. (2013, p. 187) that among adjectives that form the comparative with *-er* when *more* is expected, *y*-adjectives predominate; the examples given include *finickier*, *lemonier* and *slipperier*. Given these observations, we cannot rely fully

on the adjectival length rule for an exhaustive explanation of comparative alternation in y-adjectives.

Structural accounts apart from those related to adjectival length are no more water-tight in predicting the comparatives of y-adjectives. Let us consider Kruisinga (1932, p. 63), who notes that adjectives with a weak-stressed ending in *-er*, *-y* and *-le* “preceded by a non-syllabic sound”, e.g. *clever*, *subtle* and *silly*, predict comparative *-er*. We might also consider Curme (1947, p. 220), who notes that disyllabic adjectives with orthographic endings *-er*, *-le*, *-y*, *-ow* and *-some*, e.g. *yellow* and *handsome*, condition the *-er* alternative in comparison. Both in terms of their phonology and orthography, the y-adjectives in my work are part of the group predicted by Kruisinga and Curme to take the *-er* form. Nonetheless, attestations of *more heavy* and *more worthy* from the BNC (see 2.2) suggests that even if we view phonological predictors of comparative alternation in orthographic terms (or vice versa), we still cannot seem to arrive at a structural account precise enough to predict the comparatives of y-adjectives. It may be suggested that I am not interpreting Kruisinga’s (1932, p. 63) stance in the way intended. That is, in associating the *-er* construction with adjectives comprising weak-stressed endings preceded by a non-syllabic sound, what Kruisinga (1932, p. 63) intends is to incorporate some allowance for the use of *more* in cases where the weak-stressed *-y* ending is preceded by sounds that are potentially syllabic, even if the syllabicity is unrealised when followed by *-y*. These cases would include y-adjectives with a *-ly* ending, e.g. *likely*, *lovely* and *friendly*, and those with a *-ry* ending, e.g. *sorry*. In these adjectives, the *-y* ending is preceded by /l/ and /r/, which have the potential for syllabicity (Cruttenden, 1994, p. 28). Even if we take it that Kruisinga’s (1932, p. 63) stance was formulated to account for comparative *more* at the same time that it accounts for comparative *-er*, which does in fact align it neatly with Quirk et al.’s (1985, p. 462) view that “[f]or *-ly* adjectives, comparison with periphrasis is common...”, the fact remains that this stance is still open to challenge because of attestations of the *-ly* subset of y-adjectives with *-er* from the BNC, e.g. *likelier*, *lovelier* and *friendlier*. Not only are *likelier*, *lovelier* and *friendlier* attested, more tokens of *lovelier* are attested at 32 occurrences than of *more lovely* at seven occurrences.

Views similar to those of Kruisinga (1932, p. 63) are found in Palmer et al. (2002, p. 1583), who note that initially-stressed disyllabics ending in *-y*, *-ly*, *-le*, *-ow* condition the comparative *-er*. Palmer et al. are careful, nonetheless, in noting also that with disyllabics in general, “the analytic forms are always possible” (Palmer et al., 2002, p. 1583). Although specific formal features are acknowledged as predictors of comparatives, a large part of comparative alternation for Palmer et al. is “lexically-determined”, i.e. there are some lexical

types that simply form their comparatives with *more* and others that simply form it with *-er*. While not immediately obvious, an account of comparative alternation driven by lexical determination is also a structural one because we are in effect claiming here that a highly-specified configuration of phonetic, phonological and orthographic material realising an adjectival type conditions it to form the comparative either with *more* or with *-er*. A claim for lexical determination in comparative alternation is even more precise in fact than typical structural accounts in the set of formal specifics taken to predict a particular comparative form. While this highly precise set of formal specifics might account for why the comparatives of some y-adjectives end up breaking the structural rules for comparative formation based on a less precise (or more general) set of formal specifics, the notion of lexical determination is still not water-tight in its predictions. It can only be so if we can claim with confidence that there are no y-adjectives that alternate between *more* and *-er* in their comparatives. This is not something we can claim; it remains a fact, as noted in 2.2, that y-adjectives such as *heavy* and *worthy* are each attested with both *more* and *-er* in the BNC. We might suggest that the attestations could have come from the same author/speaker in the corpus, so that an alternation between *more* and *-er* in the same y-adjectival type here is in fact idiosyncratic. Even then, this is evidence to show that even the highly precise configurations of formal material that differentiates between adjectival types can be limited in conditioning them neatly towards one or the other of the two comparatives. A lexical determination account can still be rendered moot therefore by the comparative alternation in y-adjectives.

I have shown how available structural accounts are often non-exhaustive in explaining comparative alternation in y-adjectives because there are always comparative y-adjective constructions that are counterexamples to these accounts. Even without these counterexamples, there is no necessary agreement among grammarians on whether it is *more* or *-er* that is conditioned by certain formal specifics. For instance, while it is an unstressed vowel in the final syllable that conditions disyllabic adjectives towards *-er* for Quirk et al. (1985, p. 462), for Jespersen (1949, p. 350), it is the presence of a stressed vowel in the final syllable of disyllabics that conditions *-er*. Thus, while disyllabic y-adjectives would be associated with *-er* for Quirk et al. (1985, p. 462), they would not be for Jespersen (1949, p. 350). For Zandvoort (1977, p. 189), *-er* is conditioned by a configuration of the number of syllables and word stress in the resulting comparative: “[a]djectives of TWO SYLLABLES may take *-er*...if the resulting comparative...has only one syllable after the word-stress, or two, if the first is very short”. Relative to [i:], the final [i] in y-adjectives is relatively short. Further, since “low vowels are longer than higher vowels”, as Kingston (2007, p. 418) notes, citing Lehiste (1970) and

Westbury and Keating (1980), we can expect the final /i/ in pre-comparative *y*-adjectives to be relatively shorter than the schwa in comparative *-er* affixation. The final /i/ in *y*-adjectives may be deemed to be rather short in other words. Insofar as this goes, the resulting *-er* comparatives of *y*-adjectives can be assumed to have two syllables after word stress with the first of these two syllables being rather short. *Y*-adjectives can therefore be taken to be part of the category in Zandvoort (1977, p. 189) that “may take *-er*”, which aligns Zandvoort’s account with Quirk et al, but not Jespersen.

The disagreement between grammarians on whether it is *more* or *-er* that is conditioned by certain formal specifics can be resolved. By combining both Bauer’s (1994, pp. 58–59) and Kytö and Romaine’s (1997, p. 344) observations, we might suggest that with time, *y*-adjectives are regularising towards *-er* and away from *more*. Given this, it might be the case that in the first half of the 20th century, when Jespersen’s (1949, p. 350) work was published, there was an insufficient number of *y*-adjectives paired with *-er* for him to draw a conclusion that the absence of final syllabic stress conditions *-er* to a larger extent than its presence. On the other hand, by the time we get to the latter half of the 20th century, with Zandvoort’s work, first published in the late 1950s and Quirk et al.’s work, published in the 1980s, the number of *y*-adjectives paired with *-er* might have reached a point sufficient for scholars to observe the absence of final syllabic stress (rather than its presence) as a motivation for *-er*. In view of this, it would be unfair to suggest that because grammarians seem to disagree on how the comparatives of *y*-adjectives are conditioned by a structural factor, structural accounts are necessarily flawed in explaining comparative alternation in *y*-adjectives. On the contrary, it is precisely because the comparatives of *y*-adjectives are constantly challenging available structural accounts of comparative alternation that the scholarship can increasingly be encouraged to look towards a contextualisation of these structural factors in other respects to obtain a more comprehensive account of comparative alternation in *y*-adjectives. A view of the structural conditioning for the alternation from a diachronic perspective is one way of performing this contextualisation.

2.6 The structural conditioning for comparatives with time

It has been a part of the rhetoric at various points in this chapter that we are getting an under-prediction of the comparatives of *y*-adjectives because comparative *y*-adjective formation has yet to reach a point of regularisation where it is fully predictable. If this is indeed the case, and if regularisation necessarily implicates a time factor, then accounts of comparative alternation contextualised within a diachronic perspective are what we need to look towards to

obtain a better understanding of comparative alternation in *y*-adjectives. I have earlier introduced these accounts for various purposes. In this section, I draw on them again to show how they might help us reconcile some of the challenges that comparatives of *y*-adjectives present to observations of comparative alternation that do not consciously implicate a time factor. I do acknowledge, however, that there are parts of this alternation in *y*-adjectives that remain unexplained even with a diachronic perspective, and which in fact form the impetus for the need to introduce yet more factors for consideration. The advantage of the diachronic perspective for now is that it gives us leeway to argue that *y*-adjectives need time to align with certain structural rules for comparative alternation, or on the flip side, to argue that with time, *y*-adjectives might fall out of alignment with these structural rules. To put this forward, let us juxtapose a claim in Quirk et al. (1985) with Bauer's (1994) view on it and further, with Kytö and Romaine's (1997) view on it.

One of the positions taken in Quirk et al. (1985, p. 462) is that a *-ly* ending is a conditioning for the comparative *more*. This means that *y*-adjectives that end in *-ly* are conditioned to take *more*. Insofar as Quirk et al.'s view is shared by Bauer (1994, pp. 58–59), who bases his observations on data spanning the 20th century, we might say that the role of a *-ly* ending in conditioning the *more* construction for *y*-adjectives holds for at least a century. Quirk et al.'s claim becomes questionable, however, if we now juxtapose it with Kytö and Romaine (1997, p. 344). In Kytö and Romaine, the *more* constructions for all disyllabic *y*-adjectives—those ending in *-ly* and those ending in just *-y* alike—are noted to dip between Late Middle English and post-19th-century Modern English. This suggests that a *-ly* ending does not appear to condition the comparative *more* as strongly when observations are drawn from over a relatively longer time span. From a diachronic perspective therefore, it is not at all unusual if we find *-er* instead of *more* with *y*-adjectives ending in *-ly* and conversely, *more* instead of *-er* with *y*-adjectives ending in just *-y*. These occurrences that then challenge the motivation from a *-ly* ending for the *more* construction are, from a diachronic perspective, simply an outcome of the relatively longer time it takes for some types/tokens of *y*-adjectives to adhere to a structural rule for comparative formation. The question of why this might be so is interesting, and is indeed one that suggests a need to include considerations beyond diachronic and structural ones to arrive at a fuller understanding of comparative alternation in *y*-adjectives. I leave a discussion of this, and its rather important implications for my thesis, to a later part of this chapter.

My argument for structural considerations in view of a diachronic perspective is not posited simply because it is theoretically convenient in accounting specifically for the

comparatives of *y*-adjectives misaligned with the structural rules for comparative formation. This argument is quite universal for all English linguistic forms that participate in comparative formation. Validation for it can be found in observations of how the structural dynamics that underpin comparative alternation in general tend to play out over time. In almost all cases, any alleged structural conditioning for comparative alternation cannot be disengaged from the time factor. Sometimes, these structural conditionings seem to be weakened with time; sometimes, they seem to emerge only after a substantial period of time has passed. Either way, the forms (*y*-adjectives or otherwise) that are presumably conditioned by structural factors to occur with one or the other of the two comparative alternatives seem to need time to align with or fall out of alignment with the conditioning specified.

Let us refer in this regard to a study on a set of comparative alternatives in Old English (OE) that can be taken as analogical to the kind of alternation between *more* and *-er* in PDE (González-Díaz, 2008). Contrary to the view in Pound (1901, p. 2), Kytö (1996, p. 123), and Kytö and Romaine (1997, p. 330) that periphrastic comparatives made their first appearance as *more* in the 13th century, it is claimed in González-Díaz (2008, p. 30), and also in Mustanoja (1960, pp. 278–279), Mitchell (1985, pp. 84–85) and Włodarczyk (2007, p. 197), that periphrastic comparatives date back to OE. These comparatives are classed as adverbial particles, take the forms of *bet*, *swiðor* and *ma*, and may all be glossed as *more* (González-Díaz, 2008, p. 30). The OE comparatives overlap in the time period of their attestations [see González-Díaz (2008, p. 21)], possibly in the same way that *more* and *-er* in *y*-adjectives overlap in PDE. We can infer from González-Díaz (2008, pp. 32–34) that there are structural motivations for the alternation between *swiðor* and *ma*, with *swiðor* as a comparative for participles, and *ma* as a comparative for both adjectives and participles. Since *ma* covers a broader distribution than *swiðor*, and this distribution includes the distribution of *swiðor*, it is perhaps unsurprising that with time, *swiðor* was ousted in favour of *ma*; *ma* is a “more general particle”, as noted in González-Díaz (2008, p. 34). The point is that even in a set of alternating comparatives from an earlier form of English, changes in the application of their structural predictors are not unusual when the time factor is introduced. In this case, the structural motivation for *swiðor*, which is the participle function of a form, declines with time. A change in the applicability of structural predictors with time is evidenced also from the observation that *ma* ousted *bet* (González-Díaz, 2008, pp. 31–34). Since *bet* was predominantly found with “adjectives denoting positive value” (González-Díaz, 2008, p. 32), its ousting by *ma* can in the first instance be interpreted as a change over time of the semantic/pragmatic conditioning for comparative alternation. Nonetheless, the semantic/pragmatic motivation for *bet* must still be

realised in terms of lexical determination, i.e. in terms of the adjectival types that *bet* tends to collocate with. Insofar as we can take comparative alternation based on lexical determination as a highly precise kind of structural conditioning (see 2.5), the replacement of *bet* with *ma* over time can be taken as a diachronic change in the application of structural considerations for comparative alternation.

If we now refer to the monosyllabic adjectives, where in comparison to *y*-adjectives, the structural predictor of adjectival length for comparative formation ought to apply more easily in theory, we find the same kind of change in the applicability of this predictor when the diachronic perspective is introduced. With the rule that assigns monosyllabics to *-er* (Jespersen, 1949, p. 347; Schibsbye, 1965, p. 134; Zandvoort, 1977, p. 188; Quirk et al., 1985, pp. 461–462; Palmer et al., 2002, pp. 1583–1584; Carter & McCarthy, 2006, p. 439), we are likely to expect attestations of *-er* in PDE on adjectives such as *bright*, *clear*, *fair*, *hard*, *rich*, *sad*, *sweet*, *strong*, *wide* and *wise*. Given further the claim that “[m]onosyllabics in *-d* and *-t* regularly take *-er*...”, and so do “[w]ords in *-r* (*re*)...” (Jespersen, 1949, p. 349), we might expect *bright*, *clear*, *fair*, *hard*, *sad*, *sweet* and *wide* in particular to have an even higher likelihood of attestations with *-er*. What is worthy of note is that the structural conditioning for *-er* with monosyllabics (even of those with particular endings) is not always so widespread. The monosyllabics I listed are in fact part of Mustanoja’s (1960, p. 279) list of adjectives first attested with *more* in the 14th century, together with *y*-adjectives such as *hardy* and *holy*. Indeed, Pound (1901, p. 10) notes that “adjectives were compared according to either method, without regard for length or ending” up till the 15th century. It seems therefore that even with a relatively well-entrenched structural predictor such as the conditioning of *-er* by monosyllabics, time is needed for its full realisation.

In my preceding discussion of the OE periphrastic alternatives and the case of the monosyllabics, I hope to have demonstrated that it is not uncommon to obtain a different viewpoint on the structural predictors of comparatives when we observe them over longer time spans. Therefore, to aid our understanding of the comparatives of *y*-adjectives, it is prudent to consider any potential structural predictor of these comparatives from a diachronic perspective. Indeed, Bauer (1994, pp. 58–59) and Kytö and Romaine (1997, p. 344) have done something along these lines, in their attempts to observe changes over time in the comparatives of disyllabic *y*-adjectives defined/contrasted by the structural features of a *-ly* ending and just a *-y* ending (see 2.3). As noted in 2.2, a decline in the *more* constructions of *y*-adjectives from Late Middle English to post-19th-century Modern English (around 1350–1710) is observed in Kytö and Romaine (1997, p. 344). This decline complements to some extent Bauer’s (1994, pp. 58–

59) view of a regularisation towards *-er* over time for a subset of *y*-adjectives ending in just *-y* instead of *-ly*. At a very general level therefore, the trend for comparative alternation in *y*-adjectives over some periods might be taken as a tendency towards a pairing with *-er*. When backgrounded against the view that “the general tendency over the recorded history of English has been for syntactic comparison to expand at the expense of morphological comparison” (Denison, 1998, p. 128)—see also Brook (1973, p. 180) and Barber (1964, p. 131; 1997, pp. 146–147), we might further suggest that shifts from one comparative alternative to the other for *y*-adjectives could be different at different time periods. That is, *y*-adjectives could be regularising towards different forms at different time periods. If we take a comparative form to be structurally conditioned to some extent, we could also say that *y*-adjectives might be more or less susceptible to the structural conditioning for different comparative forms at different time periods.

A number of questions would follow from this line of thought. They are:

- what could be enhancing the susceptibility of *y*-adjectives over time to the structural conditioning for a particular comparative form; or
- on the flip side, what could be suppressing this susceptibility for the alternative form?

These questions are important to the thesis, and the latter question in particular is relevant to a question posed earlier in this section. That is:

- why might *y*-adjectives take relatively longer to adhere to the structural motivations for a particular comparative?

To address these questions, I aim to examine, for a large part of this thesis, whether an account in terms of a paradigm of comparative constructions might add to our understanding of comparative alternation in *y*-adjectives, beyond what is obtainable from structural factors and the contextualisation of those factors within diachronic considerations.

2.7 A paradigmatic account of comparative alternation in *y*-adjectives

Before I introduce the potential of a paradigmatic account for understanding comparative alternation in *y*-adjectives, I must stress that this introduction is not tantamount to claiming that an account of this nature is better than other accounts. Rather, my goal is to suggest that structural and diachronic considerations might be complemented by paradigmatic ones for us to get a more complete understanding of the comparatives of *y*-adjectives. This goal is aligned with current trends towards building accounts of comparative alternation based on

multiple considerations (Mondorf, 2003; Hilpert, 2008; Mondorf, 2009). In this section, I explain what a paradigmatic account of comparative alternation can mean. I also show how there is room for our understanding of the comparatives of *y*-adjectives to be clarified from a paradigmatic perspective, following which I discuss the paradigmatic predictors of interest in this thesis.

Paradigmatic accounts are generally less concerned with the formal features of adjectival bases and/or their distributions than structural ones. Instead, when explaining comparative alternation, paradigmatic accounts are concerned more with the association between different adjectival bases that can potentially occur in a given distribution. As Bauer (2004, p. 80) notes, “[t]he general meaning of paradigm is a set of forms (usually having something in common) which contrast with each other and can replace each other in a given context”. A familiar example of a paradigm is the inflectional morphological paradigm. This paradigm is conventionally defined by a whole list of word forms associated with the same lexeme (Spencer, 2013a, p. 2) and that can potentially replace each other in a given syntactic context. The lexeme can be represented, for instance, as the form of a verb base such as *jump*. The list of word forms that defines the paradigm of the lexeme JUMP then includes its base *jump*, and additionally, *jumps* and *jumped*. For the case of JUMP, each entry in its paradigm is related to the basal realisation of this lexeme by inflectional affixation, i.e. *-s* for the present singular and *-ed* for the preterite.

A paradigm may be understood also as a subset of a schema, although not all schemas are necessarily paradigms. Word forms in a paradigmatic association have to abide by the condition of occurrence in the same syntactic context, but those in a schematic relationship are not restricted by this condition. The formal and/or semantic “associations among lexical items” or “lexical associations within a schema” that Bybee and Moder (2007, pp. 143–144) refer to may or may not therefore be word forms that are in a paradigmatic relationship. Members of a paradigm, however, generally have the associations referred to by Bybee and Moder (2007, pp. 143–144), which are associations “on the phonological level...by initial segment, by rhyme, by stress pattern, or by number of syllables”, “on the syntactic level...by membership in categories such as noun or verb”, and “on the semantic level...by being similar or opposite in meaning or by belonging to the same semantic field”. If we return to the morphological paradigm for JUMP, the entries in this paradigm are associated on the phonological level by initial segment, on the syntactic level by belonging to the same syntactic category of being verbs, and on the semantic level by the shared meaning of JUMP.

The case of how the forms in the morphological paradigm for JUMP come to be in a paradigmatic relationship can serve as a starting point for how we may arrive at the paradigms that aid us in understanding comparative alternation. For purposes of exemplification, let us consider the paradigm for an adjectival lexeme COMMON. The paradigm for COMMON can presumably constitute the adjectival base *common* and the adjectival constructions for *common*, which include *more common* and *commoner*. Both *more common* and *commoner* are related to the same adjectival base because *common*, *more common* and *commoner* “can replace each other in a given context” (Bauer, 2004, p. 80). For example, they can each fill the blank slot in *this is a _____ design*. There is justification therefore for *common*, *more common* and *commoner* as members of the same paradigm. Before I detail what the paradigm of COMMON can mean for comparative alternation, there are a number of caveats that must first be resolved. One is the fact that *more* in *more common* may not be deemed as an affix to the same extent as *-er* in *commoner*. This in turn raises the question of whether *more common* is in fact a valid entry in the paradigm for COMMON, since in typical morphological paradigms, entries are related to a shared base by inflectional affixation. However, if as claimed in Sweet (1902), Curme (1947), Jespersen (1949), Schibsbye (1965), Quirk et al. (1972, 1985), Carter and McCarthy (2006) and Bauer et al. (2013), comparative *more* constructions are periphrastic, then the question of whether *more* is an affix may not be so important for the validity of *more common* as a member of the paradigm for COMMON. There is much in the literature suggesting that constructions are deemed to be periphrastic precisely because they realise “a cell in an otherwise synthetic morphological paradigm” (Spencer, 2013b, p. 227); see also Sadler and Spencer (2001). Periphrastic constructions are, in other words, entries “in an inflectional paradigm which is otherwise realized by morphology” (Brown et al., 2012, p. 239). If the periphrastic status of constructions entails that they are necessarily part of a morphological paradigm, and we accept that comparative *more* constructions are periphrastic, there is no issue of *more common* being an invalid entry in the paradigm for COMMON.

It may be suggested that even if the periphrasis in *more common* is sufficient to override the questionable status of *more* as an affix, we still have to deal with the fact that *more common* is in a non-contrastive relationship with *commoner*. This contrast can be claimed between the paradigmatic entries of *common* and *more common* (and also between the entries of *common* and *commoner*), with the first in each pair being the positive and the second the comparative. A contrast cannot be so easily claimed, however, between *more common* and *commoner*, since both these constructions are comparatives. If members of a paradigm are supposed to “contrast with each other” (Bauer, 2004, p. 80), the question then is whether *more common* and

commoner can be members of the same paradigm. It should be pointed out in this respect that in some views, the criterion of a contrastive relationship with other members is not necessarily a critical one for periphrastic entries in paradigms. The key concept often evoked in these views is that of feature intersection, claimed to be a condition for periphrasis (Sadler & Spencer, 2001; Ackerman & Stump, 2004; Brown et al., 2012; Spencer, 2013b). As Spencer (2013b, p. 229) notes, we have feature intersection “when a cell in a morphological paradigm is realized by a periphrastic construction even though each of the features expressed is realized synthetically (morphologically) elsewhere in the paradigm”. I have to add here that by the term *feature*, Spencer (2013b, p. 229) is referring quite specifically to grammatical features/functions. Contrary to the notion of contrast then, Spencer’s (2013b, p. 229) view suggests that functional features of a periphrastic member in a paradigm are expected to be found in other members from the same paradigm. Given this, the non-contrastive relationship between *more common* and *commoner*, arising from their shared function of the comparative, should by no means prevent them from being members of the same paradigm. The notion that the paradigm for COMMON includes in its entries *common*, *more common* and *commoner* is buttressed by the fact that these three items all contain the phonological form /kɒmən/, which evokes the same semantic sense in all three instances. There are, in other words, schematic overlaps between *common*, *more common* and *commoner*, just as there are schematic overlaps between the entries in the paradigm for JUMP. If the presence of schematic overlaps in the sense mapped out in Bybee and Moder (2007, pp. 143–144) is a necessary (though not sufficient) condition for claiming membership in the same paradigm, then this membership can be claimed between *common*, *more common* and *commoner*.

Paradigms of adjectival lexemes such as that of COMMON have actually been unconsciously drawn upon in available accounts of comparative alternation. For instance, when Hilpert (2008, p. 397) considers the ratios of the positives of adjectives to their comparative counterparts as a potential predictor of *more* and *-er*, the account he is seeking has to be premised on some paradigmatic association between adjectival bases and the comparatives formed from them, e.g. the association between *common*, *more common* and *commoner* within the paradigm for COMMON. It is only with this premise that there are grounds to consider adjectival bases on a par with their comparative counterparts, and to then suggest that the ratios between them may predict the comparative alternatives for the bases. Similarly, when Mondorf (2009, p. 41) finds that adjectives with a high number of comparatives do not often occur with *more*, her observation can be motivated only by an acceptance, at some conceptual level, of paradigmatic associations between the comparative constructions (whether *more* or *-er* ones)

of the same adjectival bases. It is only then that there are grounds to amalgamate all the comparatives for specific adjectival bases, and to then look towards the amalgamation as a predictor of whether or not those bases are likely to be paired with *more*.

Where paradigms drawn on for accounts of comparative alternation are concerned, entries in them need not always be tied to a specific lexeme such as COMMON. There are studies that suggest that the paradigms underpinning their findings are defined by entries tied to specific grammatical categories. In particular, these paradigms are defined by membership in the category of English adjectives as opposed to, say, the category of English verbs. Any schematic overlap between members here is therefore “on the syntactic level” (Bybee & Moder, 2007, pp. 143–144) rather than on the phonological or semantic levels. In a paradigm of English adjectival bases, an adjectival base such as *common* still constitutes an entry. Together with it, we would have entries such as *lazy*, *hardworking*, *ugly*, *diligent*, *tall*, *short* and so on, since these belong to the same grammatical category as *common* and are potentially interchangeable with *common* in a syntactic context. An acceptance of this paradigm of adjectival bases in turn permits the use of the association between its members as a predictor of whether comparative *more* or *-er* is found for each member. When Braun (1982, p. 101), Quirk et al. (1985, p. 463) and Hilpert (2008, pp. 396–397) suggest that relatively more frequent adjectives tend to be found with *-er*, and relatively less frequent ones with *more*, their claim has to be premised on some notion of a paradigm of adjectival bases. Without this, there is little reason as to why these authors should decide to draw on the relative frequencies of different adjectival bases as a predictor of the comparative forms for these bases. In other words, if the frequency of an adjectival base relative to other adjectival bases is deemed to be a predictor of some sort, there must be an implicit acceptance in the first instance that adjectival bases are paradigmatically associated, so that it is sensible to think about what their relative proportioning means for the linguistic phenomenon of interest.

A consequence of evoking a paradigm of adjectival bases for an understanding of comparative alternation is the suggestion that the alternation in *y*-adjectives should then be explainable by the relative proportioning of *y*-adjective bases, i.e. more frequent *y*-adjectives occur with *-er*, and less frequent ones with *more*. This in turn suggests that my construct of a class of *y*-adjectives for a study of comparative alternation may be irrelevant. Indeed, Hilpert (2008, p. 397) does show that amongst three *y*-adjectives from the BNC, i.e. *easy*, *noisy* and *choosy*, the one with the highest relative frequency in its positive is also the one with the highest percentage of its comparatives formed with *-er*. Conversely, the one with the lowest relative frequency in its positive is also the one with the lowest percentage of its comparatives formed

with *-er*. A paradigm of adjectival bases, however, cannot be as fully explanatory of comparative alternation in *y*-adjectives. This is because at a later point in his study, Hilpert (2008, p. 407) presents us with a statistical model showing the frequencies of adjectives (inclusive of *y*-adjectives) in their positives to have the least impact relative to other factors in predicting the *-er* form. Support for this observation is available in Mondorf (2009, p. 41), who notes a less unitary pattern in disyllabic *y*-adjectives with respect to an association of the high frequency of an adjectival base with comparative *-er*. As reported, “*likely* stands out as favouring the analytic variant, even though it is highly frequent”, and the same goes for the adjectives *ready* and *costly*, although they have high relative frequencies in their positives (Mondorf, 2009, pp. 41–42). There is still substantial validity, in other words, in taking *y*-adjectives as a class for a study of comparative alternation; even if the variant frequencies of *y*-adjectives can form part of an explanatory account for the comparatives of *y*-adjectives, its explanatory power could be limited. This is not to say that we should suspend any endeavour to draw on paradigms for an account of comparative alternation in *y*-adjectives. On the contrary, we should continue to do so because a paradigm of adjectival bases is not the only paradigm available to understand this alternation.

We have seen how membership in a paradigm can be tied to an adjectival lexeme or to the grammatical category of being adjectival (as opposed to being verbal or nominal). Where paradigms are evoked for an understanding of comparative alternation, there is no reason why membership in them cannot also be tied to a specific grammatical function such as the comparative function. By definition, a paradigm tied to the comparative function would constitute entries of comparative constructions with *more* and *-er*, and perhaps even with *less* and *as...as*. A large part of this paradigm is no doubt based on schematic overlaps “on the semantic level” (Bybee & Moder, 2007, pp. 143–144) between the constructions mentioned, i.e. all these constructions convey the meaning of the comparative. Nonetheless, these constructions “can replace each other in a given context” (Bauer, 2004, p. 80) without causing ungrammaticality, e.g. any semantic oddity aside, we can fill the slot in *this room is _____ than that one* equally with *more noisy*, *noisier*, *handsomer* or *more handsome* without a violation of grammatical well-formedness. Insofar as this goes, it is reasonable to deem comparative *more* and *-er* constructions as members of the same paradigm. A paradigm of these comparative constructions (or a paradigm of comparatives for short) is therefore one that includes not only the comparative *more* and *-er* constructions of *y*-adjectives, but also those of monosyllabic adjectives, disyllabic adjectives that are not *y*-adjectives, adjectives of three or more syllables and adverbs. For ease of expression from this point forward, the following

mnemonics are employed: FAT adjectives for monosyllabic adjectives; BEAUTIFUL adjectives for adjectives of three or more syllables; HANDSOME adjectives for disyllabic adjectives that are not *y*-adjectives (as also noted in 2.3); and QUICKLY adverbs for adverbs that end in an orthographic <y> and an /i/ sound, just like the *y*-adjectives (more on the QUICKLY adverbs in 3.5). The *y*-adjectives will continue to be referred to as such. Since a paradigm of comparatives constitutes entries that are comparative constructions, it provides us with a means to consider the frequencies of comparative *more* and *-er* constructions (together or separately) for any explanatory account of comparative alternation. Where the alternation concerned is that of *y*-adjectives, we have an avenue to consider the comparative *more* and *-er* constructions of other categories of adjectives and/or adverbs as potential predictors of the comparatives of *y*-adjectives (more on this towards the end of this section, and in 3.4 and 3.5).

Thus far, there are no accounts of comparative alternation based on PDE data that have drawn on a paradigm of comparatives (implicitly or otherwise), but if we return to González-Díaz's (2008, pp. 30–31) work, which is based on OE data, we may spot some hint of the unconscious use of this paradigm. When González-Díaz suggest that the relatively lower frequencies of *swiðor* and *bet* in OE led to their eventual replacements with *ma*, this suggestion has to be premised on some notion that *swiðor*, *bet* and *ma* are members of the same paradigm, and since these forms are comparatives, this paradigm is likely to be a paradigm of comparatives. It is only in an implicit acceptance of this paradigm that there would then be reasons as to why González-Díaz should decide to consider the relative frequencies of *swiðor*, *bet* and *ma* as a predictor of which of these comparatives gets retained over time, and which gets eliminated.

The studies that I have suggested are paradigmatic accounts of comparative alternation do not in most (or even any) cases make explicit use of the term 'paradigmatic'. I am categorising these accounts as paradigmatic nonetheless because they draw on principles premised on the existence of some association between different members of a paradigm. These associations are not the syntagmatic ones that hold between the forms within a comparative construction or between a comparative construction and its distribution. They are instead associations that allow comparative constructions and/or their constituents to be drawn together as members of a set/group based on overlapping distributions in the first instance, buttressed by shared formal/semantic features. The question that follows is whether we have exhausted all relevant paradigmatic associations (or all relevant paradigms for that matter) in accounting for comparative alternation in adjectives, including in the *y*-adjectives. The answer seems to be a negative. As it stands, the literature is rather 'lopsided'—for lack of a better term—in its

study of the range of paradigmatic factors that may be important for comparative alternation relative to its study of the range of structural ones. Paradigmatic factors have not been as extensively mined for study, in other words, as structural ones.

If we refer to Hilpert's (2008, p. 403) proposed list of 11 explanatory variables for comparative alternation, drawn from a number of studies including Quirk et al. (1985), Kytö and Romaine (1997), Leech and Culpeper (1997), Lindquist (1998) and Mondorf (2003), we can see that only two of them can be deemed paradigmatic, i.e. the frequencies of adjectival bases in their positives, and the ratios of those positives to their comparative counterparts. The other nine variables all refer to comparative alternation as motivated by some structural conditioning. In contrast to this extensive mining of structural features for an understanding of comparative alternation, the paradigms implicated in this understanding are quite few in number. Investigated predictors of English comparatives that we might take as paradigmatic are often those drawn from paradigms constituting adjectival bases, where membership is defined either with reference to a lexeme represented by an adjectival base, e.g. the paradigm of COMMON described earlier, or with reference to the grammatical category of being adjectival, of which adjectival bases would be members. Indeed, the idea that a paradigmatic account of comparative alternation, if plausible, ought to be obtained by recourse to the adjectival base seems quite entrenched in the literature. In D'Arcy's (2014, p. 227) study for instance, targets of investigation are selected based on whether the adjectival bases implicated alternate between *more* and *-er*, and not based on whether an item is in fact a comparative construction. The predominantly *more* constructions of the BEAUTIFUL adjectives and the predominantly *-er* constructions of the FAT adjectives are therefore excluded from D'Arcy's study. There is no consideration here that even if the BEAUTIFUL and FAT adjectives do not alternate between *more* and *-er*, the comparative constructions they are consistently found in might be potential predictors of the comparatives for adjectives that have this alternation.

D'Arcy (2014, p. 227) cannot of course be faulted for not considering comparatives of the BEAUTIFUL and FAT adjectives in her account. She is after all working within the tradition of variationist linguistics where the standard practice, as she notes following Guy (1988), is to exclude items that behave categorically in a context of variation. Nonetheless, given the current state in the literature where paradigmatic considerations in comparative alternation are often confined to paradigms constituted, in part or in whole, by entries of adjectival bases, it is timely to ask whether considerations related to a paradigm of comparative constructions could also be important for any account of comparative alternation. After all, if potential predictors of comparatives shaped by structural viewpoints have been extensively

investigated, there is no reason as to why potential predictors of comparatives shaped by paradigmatic viewpoints should not also be investigated beyond the current state of the literature. I am in no way suggesting that in an investigation of paradigmatic predictors for an understanding of comparative alternation, we have to start off with full paradigms, where every single (potential) member in a paradigm of interest is considered. The fact is that full paradigms of say, adjectival bases or comparative constructions, are quite possibly non-existent at any point in time, in any corpus sampling or in any one language user's cognitive repertoire. It should be noted also that even from a structural viewpoint, no account on comparative alternation can start off with a full set of structural predictors. Different accounts can and do consider more or fewer of those structural predictors, but no account can claim to have considered a full set of them because to begin with, we do not have a definite answer on what the full set of structural predictors for comparative alternation is. The point is: if we cannot claim to have a full set of structural predictors in place for any account of comparative alternation, we should not expect to have full paradigms in place for these accounts.

The use of a paradigm of comparatives for an understanding of comparative alternation is of especial importance for the *y*-adjectives, where this alternation has not been satisfactorily explained by other available accounts. By turning towards a paradigm of comparatives, we have a new set of questions that we can ask about comparative alternation in *y*-adjectives. We can, for instance, begin to ask whether the *more* constructions of *y*-adjectives can be predicted by the *more* constructions from other categories of items, and also whether the *-er* constructions of *y*-adjectives can be predicted by the *-er* constructions from other categories of items. We may even ask whether the *-er* constructions of these other categories can predict the *more* constructions of *y*-adjectives, and whether the *more* constructions of these other categories can predict the *-er* constructions of *y*-adjectives. By introducing these questions that are now sensible to ask against the background of a paradigm of comparatives, I hope I have shown how there is room still for understanding comparative alternation in *y*-adjectives from a paradigmatic viewpoint. As I will show further into this thesis, the questions that a paradigm of comparatives permits us to ask about comparative alternation in *y*-adjectives do lead to answers that can enhance structural and diachronic perspectives to this alternation. In particular, where a review of the diachronic literature has motivated the question of what could be suppressing *y*-adjectives from aligning themselves with the structural conditioning for one comparative over another (see 2.6), we may obtain some answers by considering the influence of associations from a paradigm of comparatives.

2.8 Chapter conclusion

In this chapter, I have mapped out the reasons for choosing *y*-adjectives as an investigative target for a study of comparative alternation. I have discussed how even with a contextualisation of structural considerations within diachronic ones, we still fail to get a comprehensive account of comparative alternation in *y*-adjectives. This chapter does not claim that with the introduction of paradigmatic considerations, we will end up with a fully comprehensive account of this alternation. What has been suggested is that the introduction of a paradigm of comparatives can provide an avenue for the exploration of previously unexplored questions about the comparatives of *y*-adjectives, thereby adding a level of clarity to what we understand of them. In Chapter 3, I discuss the specific literature that provides the impetus for this belief.

CHAPTER 3

THEORETICAL FRAMEWORK

3.1 Chapter overview

This chapter goes into a deeper discussion of the factors that govern the general direction of the subsequent empirical work reported in this thesis. In 3.2, I argue that by taking comparative *y*-adjective constructions as members of a paradigm of comparatives, we are presented with a set of frequency measures that allows us to: (i) take *y*-adjectives as a collective in an attempt to explain their comparative alternation; and (ii) explore an avenue that may explain parts of this alternation that remain unaccounted for by available accounts. Two studies that motivate my decision to investigate the comparatives of *y*-adjectives in terms of a paradigm of comparatives are discussed in 3.3. I map out in 3.4 a general sense of how I expect members of this paradigm to influence the comparatives of *y*-adjectives. In 3.5, I discuss the grounds for my belief that even the comparatives of adverbs and in particular, those of QUICKLY adverbs, may contribute to an understanding of the comparatives of *y*-adjectives. The importance of considering the contribution of structural factors to this understanding is emphasised in 3.6. This is followed by a note in 3.7 as to why a consideration of possible intersections between paradigmatic and structural factors might also be important for an account of comparative alternation in *y*-adjectives.

3.2 A paradigm of comparative constructions

As noted in 2.7, paradigmatic accounts of comparative alternation are often realised in terms of (relative) frequency measures of some sort. With this as a point of departure, a view of comparative alternation in terms of a paradigm of comparatives can be expected to differ in at least one respect from a view of this alternation in terms of a paradigm of adjectival bases. In a paradigm of comparatives, any frequency measure taken as a potential predictor of comparative alternation is necessarily computed from the comparative constructions themselves. It will be some count, in other words, of comparative *more* and/or *-er* constructions, e.g. *more hardworking*, *taller* and *narrower*. In a paradigm of adjectival bases, any such count is necessarily computed from adjectival bases, e.g. *hardworking* and *tall*. Where relevant in this chapter, I will refer to the frequency counts obtained from a paradigm of comparatives as *constructional frequencies*, and those obtained from a paradigm of adjectival bases as *basal frequencies*. It is this distinction that presents us with the avenue to explore

paradigmatic factors more extensively for an account of comparative alternation than has been possible in previous research (c.f. 2.7). A paradigm of comparatives, as a source for constructional frequencies, naturally allows us to think of any comparative alternation in terms beyond the basal frequencies considered in Quirk et al. (1985, p. 463), Hilpert (2008, p. 403) and Mondorf (2003, pp. 260–261).

For the case of comparative alternation in *y*-adjectives, a major benefit of constructional frequencies is that they direct our investigative focus towards an understanding of what it is about each of the two comparative constructions that increases/lowers its extent of application to *y*-adjectives. In redirecting the focus away from adjectival bases to the comparative *more* and *-er* constructions themselves, constructional frequencies also effectively help us side-step the difficulty of having to formulate an explanation for the comparatives of *y*-adjectives solely in terms of the formal specifics of adjectival bases. As noted in 2.5, structural accounts of comparative alternation, which are mostly driven by these formal specifics, are often challenged by the actual comparatives found for *y*-adjectives. With constructional frequencies, the weight of predicting these comparatives can now fall on whole constructions rather than on specific *y*-adjective bases. This entails less reliance solely on the formal specifics of *y*-adjective bases to explain an alternation between *more* and *-er*, which means in turn that where these formal specifics cannot fully explain the alternation, we could explore constructional frequencies as a potential means of supplementing the explanation.

Although it is probably the first time it has been proposed for use in a study of comparative alternation, the principle underpinning a constructional take on frequency is by no means idiosyncratic. This principle is congruent with exemplar theory (Bybee, 2006, 2007a), which claims that when a word-form is repeatedly and frequently encountered with a specific set of linguistic (and sociolinguistic) information, such as a specific phonetic and phonological realisation, a specific morphological affix, a specific semantic denotation and/or a specific social context of usage, the word-form is stored in the language user's cognitive repertoire with this whole set of information, and will consequently be accessed with this set of information. A suite of linguistic and extralinguistic information becomes indexed to the word-form in other words. In line with Bybee's (2006, 2007a) theory, the same principle of word-forms being stored and retrieved with their indexed features should reasonably apply to the storage and retrieval of whole constructions of comparatives, especially for adjectives that are (relatively) unambiguously indexed with particular comparative forms, e.g. *more beautiful*, *more boastful* and *taller*. It is theoretically reasonable therefore to draw on the kind of constructional

frequencies obtainable from a paradigm of comparatives as predictors of comparative alternation in *y*-adjectives.

3.3 Theoretical impetus for consideration of constructional frequencies

The question remains as to what specifically motivates my interest in understanding the comparatives of *y*-adjectives in terms of the constructional frequencies derived from a paradigm of comparatives. I have shown how structural factors do not fully account for our understanding of comparative alternation in *y*-adjectives (see 2.5). I have also argued that a constructional approach to frequency permits us to consider the influences of comparative *more* and *-er* constructions on this alternation, in addition to the influences of adjectival bases (or their formal specifics) (see 3.2). I have not argued, however, for my belief that the question of how *more* and *-er* constructions get applied to *y*-adjectives can be reasonably answered with an investigation of the frequencies of these constructions.

This belief stems from two studies that lie outside the purview of comparative alternation. They nonetheless present a way of understanding how alternative ways of expressing a grammatical function can get applied to relevant bases in a way not overly dependent on the formal specifics of those bases. The approaches presented in these studies are not, in other words, predominantly oriented towards structural considerations, and it is precisely this that makes them insightful for any attempt to understand the comparatives of *y*-adjectives independently of the challenges these comparatives present to structural accounts. To explain these approaches further, I will now refer to the works of Bybee and Newman (1995, 2007) and Marchman and Bates (1994).

Bybee and Newman (1995, 2007) are concerned mainly with English plural formation. In particular, they are concerned with testing whether the theory of natural morphology applies to plural formation in using a database of nonce words. The key claim in the theory of natural morphology is that affixation is a more natural morphological process than internal stem change (Dressler, 1985), given the former's symbolic rules of concatenation (Marcus et al., 1993). In real English nouns, an example of plural formation by affixation is adding *-s* to *cat* to get *cats*; and an example of plural formation by stem change is replacing the vowel /u:/ in *tooth* with /i:/ to get *teeth*. What Bybee and Newman (1995, 2007) found, however, is that it is not so much its 'naturalness' as its lexical arbitrariness that determines whether a morphological operation gets favoured as the default in English plural formation. Between plural formations that involve affixation and those that involve an internal change in the form of the stem, a general finding in Bybee and Newman (1995, 2007) is that affixation may appear

easier to learn or ‘more natural’ not because it is inherently so, but because it is less lexically arbitrary, i.e. more widespread in terms of the nominal types it is found with. A conclusion drawn from this study therefore is that the larger the range of different lexical items employing a particular morphological operation to form the plural, which entails that the operation is low in lexical arbitrariness and high in type frequency, the more likely that operation will be chosen to express the plural on novel nouns (Bybee & Newman, 1995, p. 634). It should be noted for information that in the experimental study that led to this conclusion, the nonce stimuli constructed to introduce participants to the different means of plural formation included only the plural operations of affixation and stem change; there were no instances in these stimuli of plural formation without any modification to the stem, as would be the case, for example, for a real English word such as *sheep*. The general idea in Bybee and Newman (1995, p. 634) is echoed in Marchman and Bates’s (1994) study of how children overregularise the past *-ed* to verbs with irregular past. According to Marchman and Bates (1994, p. 360), English-speaking children only begin to show this overregularisation after acquiring a critical number of verb types, i.e. 60–70. My additional close examination of their findings further reveals that in the children’s vocabulary store, the 60–70 verb mark is also the point where the proportion of verbs that form the past tense regularly begins to exceed, at an increasing rate, the proportion of verbs that form the past tense irregularly (Marchman & Bates, 1994, p. 354).

Marchman and Bates (1994) are certainly pursuing a rather different subject matter from Bybee and Newman (1995, 2007). Nonetheless, a comparable theory emerges from both Bybee and Newman’s (1995, 2007) and Marchman and Bates’s (1994) observations. That is, for a morphological operation to be abstracted and applied (either on nonce words or in the form of overregularisations), it has to occur with a sufficient number of lexical types in the user’s lexicon. It has to have a sufficiently high type frequency in other words. This idea is spelt out in Marchman and Bates’s (1994, p. 360) claim that “the learning of lexical items triggers the organization of lexical information in such a way as to allow the abstraction of general patterns and subsequent productive usage”. The idea is coherent also with an earlier study by Plunkett and Marchman (1993). In this study, discussed in Marchman and Bates (1994, pp. 342–343), the transition in an artificially created connectionist network model from the learning by rote of the past tense form of each stem “to the organization of the lexicon in terms of general patterns” was triggered when “the vocabulary had achieved a ‘critical mass’”. For the children in Marchman and Bates (1994), this generalisation is realised supposedly with the use of the regular past as default when the range of lexical types found with the regular past exceeds that found with the irregular past after the 60–70-verb mark. The core idea put forward

therefore from a review of Bybee and Newman (1995, 2007) and Marchman and Bates (1994) is that if a functional operation is widespread enough, i.e. if it is found with a sufficient number of lexical types (presumably a greater number of lexical types than an alternative operation that does the same job), it has a higher chance of being chosen to do the job. There are reasons for testing whether this general principle holds in explaining comparative alternation in y-adjectives.

Like the indeterminacy between *more* and *-er* in y-adjectives, indeterminacy can exist between different ways of forming the English plural. It exists, for instance, in *eponyms*. In Pinker (1999, p. 183), it is argued that an eponym such as *Mickey Mouse*, which, as a unit, is a proper noun no longer containing the *mouse* within it as a common noun, we have a blocking of the “percolation of the original information” for forming the plural that accompanies the common noun *mouse*. This in turn allows *Mickey Mouses* with the regular plural ending to emerge as an alternative to *Mickey Mice*. Although the indeterminacy between *Mouses* and *Mice* in the plural of *Mickey Mouse* is resolved with Pinker’s (1999) theory, the need to introduce a theory to explain the exceptional form of *Mouses* suggests that English plural formation is not as clear-cut as it seems. In fact, both *Mickey Mouses* and *Mickey Mice* are attested in the American English Google Books corpus (Bauer et al., 2013, p. 217), and with frequencies that may differ but not radically. Additionally, a semantic extension of the word *mouse* from ‘the furry rodent’ to ‘the computer device’ has produced plural form indeterminacies. As Bauer et al. (2013, p. 217) note, “[m]ouse denoting a piece of computing equipment...has either *mice* or *mouses* as its plural”. Since indeterminacies exist both in the comparatives of y-adjectives and in plural formation, principles found workable in resolving the indeterminacy between alternatives of plural formation in Bybee and Newman (1995, 2007) could well work in resolving that between alternatives of comparative formation in y-adjectives. In particular, if the relatively high type frequency (or low lexical arbitrariness) of a means of plural formation can predict its occurrence over other alternatives, it is reasonable to test whether the type frequency of a comparative construction—as an indicator of its lexical arbitrariness—can predict its occurrence in comparative y-adjective constructions.

The motivation for this test stems also from the observation that rules of comparative formation based on the formal specifics of adjectival bases are occasionally challenged in the comparatives of y-adjectives (see 2.4), which in some sense is comparable to children’s seeming under-concern for the formal specifics of the verb base in past tense overregularisations (Goodluck, 1991; Marchman & Bates, 1994; Owens, 1996; Hoff, 2005). The existence of past *-ed* overregularisations in children suggests that the *-ed* operation that is

abstracted and overregularised probably has a relatively weak attachment to the bases from which it is abstracted, because if those attachments were strong, an isolation of *-ed* from those bases prior to its overregularisation would be inhibited in some ways [see relevant discussion on entrenchment effects in Bybee (2006)]. If past *-ed* has a weak attachment to the bases from which it is abstracted, we would in theory also expect this past tense operation not to be tagged with too much formal information related its verb base, so that when the operation then gets overregularised, formal considerations of the base should not also dominate. This is not so much to say that these considerations are completely absent as it is to say that there might be other overriding considerations. The point is that if overregularisations of *-ed* in children can be interpreted to implicate a weak concern with the form of the verb base in a way comparable to how comparatives of *y*-adjectives challenge accounts related to the formal specifics of the adjectival base, the possibility holds that principles overriding form considerations in past tense overregularisations could also be ones that override form considerations in comparative formation in *y*-adjectives. That is, if the preferred means (between alternatives) of forming the past tense for children is at some stage governed by the principle of opting for the alternative generalised from the greatest number of lexical types, the preferred means of forming the comparative for *y*-adjectives might well be governed by a similar principle. It is reasonable therefore to propose a test of whether the relatively high type frequency (or large lexical spread) of a functional operation, given its capacity to explain *-ed* overregularisations in Marchman and Bates (1994), might also have some capacity in explaining comparative alternation in *y*-adjectives. It is worthy of note that adults are also known to participate in past tense overregularisations (Bybee, 2015, p. 95), so that the fact that an explanation for past tense overregularisations is derived from observations of children's language use should not preclude it from a test of whether it can explain comparative alternation in *y*-adjectives in adults.

My discussion thus far has focused on how relative frequencies of alternative means of expressing a grammatical function might shed light on the subsequent application of these alternatives. A question that might arise is whether the subsequent application of these alternatives occurs only on specific lexical types. If we consider that there is a higher likelihood of indeterminacy in the plural for *mouse* than in the plural for *dog*, it might be suggested that the principle of applying the plural operation with a larger lexical spread would work only on a noun like *mouse*, but not on a noun like *dog*. A comparable question might then hold for the comparatives of *y*-adjectives, that is whether the principle of applying the comparative form with a larger lexical spread would work only on certain *y*-adjective types but not on others. The fact, however, is that we are unlikely to find *y*-adjectives that determinately take only one

comparative form to the same extent that *dog* determinately takes the plural affixation. It does not seem also, at least not in the work of Marchman and Bates (1994) that different lexical types respond differently to an abstracted morphological operation in overregularised use. Children's productions of all of 'maked', 'runned' and 'sitted' are attested in Marchman and Bates (1994, p. 357), for instance, although the unmarked form of each of these lexical types, i.e. 'make', 'run' and 'sit', are quite different in their phonological make-up. In theory, it does not appear therefore that we should prejudge the issue and suggest that if indeed the comparatives of y-adjectives can be explained by the type frequencies of the comparative *more* and *-er* constructions, the explanation is restricted only to particular y-adjective types. Even if this issue holds in practical terms, and it well might, it would have been dealt with in the statistical analyses of my empirical data, where I did actually include the specific forms of y-adjective bases as a predictor of the comparatives they are found with (see 5.4, 7.5.2 and 7.5.3).

It might be suggested further that the fact remains that alternation between *mouses* and *mice*, *maked* and *made*, or *sitted* and *sat* involves options of stem change versus affixation, while comparative alternation in y-adjectives does not involve a stem change option. Given this, questions might arise as to whether the lexical spread of a functional operation, in accounting for the choice of a plural alternative and a past tense alternative, respectively in Bybee and Newman (1995) and Marchman and Bates (1994), can then reasonably be applied to account for the choice of a comparative alternative in y-adjectives. This to me is an open question to which answers can be provided by this thesis in particular, but until we have those answers, the question should not prejudge the issue and preclude any study that can shed light on answers to the question.

3.4 Constructional frequencies as insights into the comparatives of y-adjectives

It can be inferred from Bybee and Newman (1995, p. 634) that the larger the range of lexical items found with a plural operation, indicated by its high type frequency, the less lexically arbitrary (or more generalised) the operation is. Conversely, the smaller the range of lexical items found with a plural operation, indicated by its low type frequency, the more lexically arbitrary (or less generalised) the operation is. Thus, if in line with Marchman and Bates (1994), we ought to consider the extent of generalisation of a comparative construction (either a *more* or an *-er* construction) as a potential predictor of its application on y-adjectives, then what we ought to consider are the type counts of comparative constructions, i.e. a measure of their generalisation, as potential predictors of the comparatives of y-adjectives. Indeed, it is

a goal of one of the two empirical investigations reported in this thesis to determine whether such counts might in fact be predictors. Based on the general principle inferred from Bybee and Newman (1995, 2007) and Marchman and Bates (1994) that the application of a functional operation is predicted by its type count, we may hypothetically expect the type count of comparative *more* constructions to predict whether we tend to get *more* constructions for *y*-adjectives. Similarly, we may hypothetically expect the type count of comparative *-er* constructions to predict whether we tend to get *-er* constructions for *y*-adjectives.

One of the questions extending from this general hypothesis is whether I ought to consider the type counts of *more* and *-er* constructions from all adjectives or specific subsets of adjectives as predictors. We can posit a few subsets in this regard, namely those referred to in 2.7 as: the FAT adjectives; the BEAUTIFUL adjectives; the HANDSOME adjectives; and the *y*-adjectives themselves. On a conceptual level, there is no reason why I should not suspect that type counts of comparative constructions from the *y*-adjectives themselves might influence the comparatives of *y*-adjectives in general. Insofar as this goes, we can expect a comparative construction to be abstracted and generalised from a range of *y*-adjective types to the same extent that we can expect this abstraction and generalisation to happen from a range of other adjectival types. The theoretical possibility holds therefore that if there is already a larger database of *y*-adjective types for *more* than for *-er* constructions, or vice versa, the comparative construction with the higher type count may influence the comparative construction that gets used on future *y*-adjectives. The difficulty remains nonetheless in statistically testing for this possibility because a test of this nature would implicate non-independent samples, i.e. the comparative constructions of interest in both the predictor and dependent variables would be the comparatives of *y*-adjectives. There are grounds therefore—driven by statistical constraints rather than by theory—to avoid considering type counts of comparative constructions from the *y*-adjectives as a source of influence on the comparatives of *y*-adjectives in general.

Leaving aside the *y*-adjective subset, a second question extends from my general hypothesis on the influences of type counts of *more* and *-er* constructions on the comparatives of *y*-adjectives. That is: whether I ought to consider type counts of *more* and separately, of *-er* constructions, from all the other adjectives at one go as predictors of the comparatives of *y*-adjectives; or whether I ought to consider for this purpose type counts of comparatives separated into their specific subsets of FAT, BEAUTIFUL and HANDSOME adjectives. There is no reason *a priori* to decide against considering type counts of comparatives for all of the FAT, BEAUTIFUL and HANDSOME sets of adjectives taken together. Indeed, this was what I did as part of the data analyses for one of my empirical studies (see 5.3). At the same time,

there are grounds to investigate, as part of these analyses, type counts of comparatives from each of the FAT, BEAUTIFUL and HANDSOME sets for their influences on the comparatives of *y*-adjectives. These reasons stem from what we know about the tendency for BEAUTIFUL adjectives to occur with *more*, and for FAT adjectives to occur with *-er*. These tendencies suggest that if type counts of *more* constructions were to have any predictive effect on the comparatives of *y*-adjectives, these influences might come predominantly from the BEAUTIFUL adjectives. Likewise, if type counts of *-er* constructions were to have any predictive effect on the comparatives of *y*-adjectives, these influences might come predominantly from the FAT adjectives.

The case of the HANDSOME adjectives is an interesting one. We can infer, based on the literature, that many subsets within the HANDSOME group show a bias towards the *more* comparative. Within the HANDSOME set, we have what Mondorf (2003, p. 282), quoting Sweet (1968 [1904]), refers to as adjectives that end in a heavy consonant group/consonant cluster, e.g. *abrupt, correct, distinct, ancient, frequent*. As noted in Sweet (1968 [1904], p. 326), the *more* construction “is the more usual of the two when the adjective ends in a heavy consonant-group”. Informed by Rohr’s (1929, p. 18) work, Mondorf (2003, p. 282) notes also that “adjectives in /-kt/ clusters such as *correct* and *distinct*, lose their ability to form the comparison synthetically during the 18th century”. Indeed, all the HANDSOME adjectives ending in /-pt/ and /-kt/ in Mondorf’s (2003, p. 283) data are found exclusively with *more*. We might add to this the expectation for disyllabic participles ending in a heavy consonant group, e.g. *convinced* with /nst/, to be also found with *more*, given the observation that “[p]articiple forms which are adjectives regularly only take periphrastic forms” (Quirk et al., 1985, p. 462). From these observations, there are grounds to suggest that HANDSOME adjectives ending in a consonant cluster, and also HANDSOME adjectives that are participles, are biased towards *more*.

This bias towards *more* extends to HANDSOME adjectives that end in the suffix *-ish*, e.g. *girlish*; as noted in Mondorf (2003, p. 259), this suffix “def[ies] the addition of the *-er* inflection altogether”. There is evidence to suggest also that HANDSOME adjectives that end in /l/ or /ə(r)/, e.g. *brutal, stable* and *partial*, are biased towards *more*. These HANDSOME adjectives are investigated in Mondorf (2003, pp. 283–284) not so much for their phonological endings, but for their morphological structure. Nonetheless, if we leave morphology aside, a close study of these adjectives from Mondorf shows that while the morphologically simple adjectives in this data do not exclusively take *more*, half of them (*able, brittle, fickle, stable* and *subtle*) are biased towards this comparative, i.e. their occurrences with *more* exceed 60 per

cent. If we add this to Mondorf's (2003, p. 283) own observation that morphologically complex adjectives ending in /l/ or /ə(r)/ "exclusively require the analytic comparative", there seems to be a stronger tendency for HANDSOME adjectives that end in /l/ or /ə(r)/ to be paired with *more* than otherwise. Outside of the subsets of HANDSOME adjectives I have discussed, there are also a number of individual HANDSOME adjectives for which *more* seems "to be gaining ground" (Quirk et al., 1985, p. 462); these include *quiet*, *common*, *solid*, *polite* and *handsome*.

Since quite a few subsets of HANDSOME adjectives are biased towards *more* in the same way that BEAUTIFUL adjectives are, there are grounds to believe that if type counts of *more* constructions were to have any predictive effect on the comparatives of y-adjectives, these influences might just as likely come from the HANDSOME group as they might from the BEAUTIFUL one. An examination of type counts of the comparatives of HANDSOME adjectives for their influences on the comparatives of y-adjectives is therefore justified.

3.5 Constructional frequencies of the QUICKLY adverbs

Since adverbs are also found in comparative constructions, it is reasonable on some level that any consideration of the type counts of these constructions should include ones from adverbs. To explain this further, we need to return to the notion of paradigms raised at the beginning of 3.2. As noted, a view of comparative alternation implicating a paradigm of comparatives would necessarily implicate the *more* and *-er* constructions of the paradigm. Further, if paradigmatic accounts of comparative alternation are often expressed as (relative) frequency measures of some sort, then a paradigm of comparatives may be taken as the site where (relative) frequency measures of *more* and *-er* constructions are obtained. We might presuppose therefore that where Bybee and Newman (1995, p. 634) found the relative frequency spread of a means of plural formation across lexical types to be a predictor of its application to novel items, this finding has to be grounded (implicitly or otherwise) in the notion of a paradigm of plural constructions. Some of the constructions in this paradigm might be formed by affixation, some by stem change and some with no alteration to the stem. Regardless, they all have to be 'housed' under the same paradigm without which frequency measures of alternative morphological processes to forming the plural cannot be sensibly compared for their relative spread across lexical types.

In the same manner, for an explanation of the comparatives of y-adjectives made in terms of the frequency spreads of *more* and *-er* constructions across lexical types to be sensible, all *more* and *-er* constructions have to be taken as 'housed' under the same paradigm, i.e. the paradigm of comparatives referred to in 2.7 and 3.2. Comparative adverb constructions are

necessarily part of this paradigm because they are, by definition, comparative constructions. Thus, where the type count (or extent of generalisation) of a comparative *more/-er* construction has the potential to predict its use with *y*-adjectives, and this type count has to stem from a paradigm of comparatives, it is reasonable to suspect that comparative *more/-er* constructions of adverbs can contribute to this type count. By extension, it is reasonable to explore any influence of the comparatives of adverbs on the comparatives of *y*-adjectives. In particular, for reasons justified later in this section, any influence of the comparatives of adverbs that share some formal similarity with *y*-adjectives ought to be explored.

I have suggested, from the rather abstract viewpoint of paradigms, why the comparatives of adverbs may be considered as potential predictors of the comparatives of *y*-adjectives. However given that adverbs can potentially be taken to belong to a different grammatical class from adjectives, concerns might arise as to the validity of understanding comparative alternation in *y*-adjectives in terms of the comparatives of bases from another grammatical class. The plural constructions in Bybee and Newman (1995) all have bases from the same grammatical class, i.e. nouns. This is the case likewise for the past tense constructions in Marchman and Bates (1994), which all have bases that are verbs. In prior works therefore, documentations on how morphological constructions of existing bases can influence those of new bases are grounded in observations of those influences between bases of the same grammatical class. One might question the validity as such for me to then consider influences between the comparative constructions of bases from different grammatical classes. I do not profess to have an answer to this question. In my view, however, what is more important is the fact that it remains debatable as to whether adjectives and adverbs do indeed constitute separate classes; see, for example, Payne et al. (2010) versus Giegerich (2012).

Advocates of adjectives and adverbs as members of the same grammatical class, e.g. Kuryłowicz (1936), Lyons (1966) and Baker (2003), go way back in time and often draw on the complementary distribution between the two in support of their claims. Within this school of thought, adverbs with *-ly* endings have been proposed as inflected forms (rather than derivations) of adjectives and hence, a part of the adjectival class (Giegerich, 2012). On the other hand, advocates of the dual-class approach to the adjectival–adverbial relation, e.g. Zwicky (1995) and Payne et al. (2010), have traditionally taken *-ly* to be class changing. Payne et al. (2010, p. 65) note, following Zwicky (1995, p. 532), that although adverbs ending in *-ly* are not “the most frequent items in the adverb category”, this does not mean that the *-ly* endings in these items are not class-changing. By comparing the semantic functions of a set of highly frequent adjectives with those of a set of highly frequent adverbs, Payne et al. (2010, p. 72)

further note that adjectives and adverbs are segregated enough functionally to be kept as separate classes. What is clear therefore is that there is no agreement in the literature as to whether adjectives and adverbs belong to separate grammatical classes. An exploration as such of any influence that comparatives of adverbs have on those of y-adjectives does not necessarily implicate bases from different grammatical classes.

The question of whether we are in effect dealing with separate grammatical classes between adjectives and adverbs becomes even trickier in view of proposals on a historical merger or morphological levelling between the comparative *-er* of adverbs and the comparative *-er* of adjectives. Sweet (1902, p. 59) is of the view that we have the suffix *-er* for both adjectives and adverbs in Present-day English (PDE) because both comparative *-ere* for adjectives in Middle English (MdE) and *-er* for adverbs merged into just *-er*, “so that the distinction between adjective and adverb was lost”. Notwithstanding Payne et al.’s (2010, p. 72) claim that there is little core semantic overlap between them, both adjectives and adverbs can be taken to denote properties on a very general level, the former of objects, and the latter of actions. It may well be therefore that the merger Sweet (1902, p. 59) mentions stems from the semantic overlap of property denotation between adjectives and adverbs. Sweet’s (1902, p. 59) proposal suggests that where comparatives are concerned, it is prudent not to underestimate any relationship between adjectives and adverbs for historical reasons.

It would be ideal if comparatives of all categories of adverbs could be explored for any influence they might have on the comparatives of y-adjectives. However, due to time and resource constraints on the research reported in this work, I was unable to do this (see 9.3). What I was able to do, however, was to perform this exploration on a subset of adverbs. These are ones that exhibit form similarity with y-adjectives in terms of having an orthographic <y> and an /i/ ending. Examples include *quickly*, *safely* and *hungrily*, and the particular adverb of *easy*, which has the exact same form as an adjectival counterpart. As noted in 2.7, this set of adverbs is referred to as the QUICKLY adverbs. The nature of the QUICKLY adverbs suggests that even without an *a priori* reason in terms of class similarity to explore whether the comparatives of adverbs in general influence the comparatives of y-adjectives, we have a reason in terms of formal similarity to attempt an understanding of the comparatives of y-adjectives with respect to the QUICKLY adverbs. In fact, in Bybee’s (2007b) network model, which is a more fine-grained development from the type count-based model of generalisation in Bybee and Newman (1995, 2007), a prerequisite for the mapping of a morphological operation is for both the sources and targets of the mapping to contain “parallel sets of phonological and semantic connections” (Bybee, 2007b, p. 170). As noted also in Hay and

Bresnan (2006, p. 322), the “classification of a new exemplar proceeds by assessing its similarity to existing exemplars”. QUICKLY adverbs certainly have some phonetic or phonological similarity to y-adjectives. In other words, even if we leave aside the issue of whether adverbs and y-adjectives are part of the same grammatical class, there are still grounds by way of form similarity to hypothesise that type counts of comparative *more* and *-er* constructions of QUICKLY adverbs may predict whether we tend to find these constructions applied to y-adjectives.

It may be suggested, however, that in a hypothesis of this nature, justified mainly by basal form similarities, we are neglecting the dissimilarities between other aspects of the bases. Most QUICKLY adverbs, for instance, are not semantic counterparts of y-adjectives. They are instead semantic counterparts of other adjectives, since it is often the suffixation of *-ly* on adjectives that are not y-ones, e.g. *severe*, *dreadful* and *intimate*, which transforms them into QUICKLY adverbs. By virtue of the lack of semantic parallels between the QUICKLY adverbs and the y-adjectives, an investigation of whether the comparatives of QUICKLY adverbs can influence those of the y-adjectives might therefore be deemed questionable. The problem with this argument is that we do not yet know what we would find from investigating any potential influence that the comparatives of QUICKLY adverbs might have on the comparatives of y-adjectives, and how any finding in this regard might relate to any semantic dissimilarities between the QUICKLY adverbs and the y-adjectives. There is no reason therefore to have to prejudge the issue and exclude any hypothesis related to predictive effects of the comparatives of QUICKLY adverbs on the comparatives of y-adjectives on the basis of *a priori* semantic dissimilarities between their bases.

3.6 Structural factors as insights into the comparatives of y-adjectives

The discussion thus far has focused on a potential way of understanding comparative alternation in y-adjectives that does not involve too many structural entanglements. The intention is not to undermine any structural explanations for this alternation, but to explore whether the challenges that comparatives of y-adjectives present to these explanations can be addressed if we focus on something other than the formal specifics related to y-adjectives. This is not the same as saying that formal considerations ought to be cast aside. Indeed, it is necessary if not crucial to ensure that structural factors are not neglected in any potential account of comparative alternation in y-adjectives. At least one structural factor is considered in each of the empirical investigations reported in this thesis. In the corpus study in particular, I investigated four structural factors. They are: the syntactic contexts of comparative

y-adjective constructions (attributive or non-attributive); the morphological structure of y-adjective bases (complex or simple); the presence or absence of a final /li/ in these bases; and the [\pm voiced] feature of the penultimate segment in these bases. With regard to the factor of morphological structure, a form is generally taken to be morphologically complex if it contains more than one morpheme, and morphologically simple if it is monomorphemic or is made up of only one morpheme (Bauer, 2004, pp. 32, 94–95); there are aspects in the coding of my empirical data, however, where for various reasons, these definitions cannot strictly apply, but more on this in 4.7.3. With regard to the factor of the final /li/, this final /li/ is referred to interchangeably as a *-ly* ending for the rest of this chapter; and for reasons spelt out in 4.3.2, the terminology consistently used for the rest of the thesis from that point on is the final /li/. Informed by the corpus findings, a subsequent experimental study for this work has an investigation of structural factors confined to only that of the morphology of y-adjective bases. What follows in the rest of this section is a discussion of how the structural factors investigated in this thesis are motivated.

The motivation for investigating whether syntactic contexts are important for the comparatives of y-adjectives stems from the absence of clear agreement in the literature that an attributive context biases adjectives towards *-er*, while a predicative one biases them towards *more*. Although Leech and Culpeper (1997, p. 366) show from their dataset a higher percentage of comparatives in attribution with the *-er* form and a higher percentage of comparatives in predication with the *more* form, the percentages reported are not ones that provide overwhelming support for the syntactic factor in comparative alternation. Like Leech and Culpeper (1997, p. 366) and subsequently Hilpert (2008, p. 407), Mondorf (2003, p. 275) also finds, within a dataset of just the monosyllabic adjectives, a higher percentage of *-er* in attribution than in non-attribution and conversely, a higher percentage of *more* in non-attribution than in attribution. What is interesting is that in another group of adjectives, i.e. the disyllabics ending in an orthographic *-r*, Mondorf (2003, p. 278) observes that regardless of attributive or non-attributive positioning, a higher percentage of *more* than of *-er* occurrences is found. Mondorf's (2003) discrepant observations may no doubt be explainable by the fact that they are made on different groups of adjectives. Nonetheless, the discrepancy does suggest that occurrences of adjectives with *more* or *-er* might be independent of their syntactic attributive versus non-attributive contexts. This possibility is somewhat supported by Lindquist (2000, p. 126), who shows the comparative *-er* constructions to be “rather evenly spread between the attributive and predicative positions”, from his study of a dataset of disyllabic adjectives ending in *-ly*.

If we extend my explanation of Mondorf's (2003) discrepant observations on the role of syntactic positioning in comparative alternation to the literature reviewed in the preceding paragraph, it is true that any disagreement on whether the syntactic factor is important could stem from the fact that studies investigating this factor have looked at different groups of adjectives. Nonetheless, the observation that the syntactic factor is one that holds in some cases, but not all, is precisely what makes it worth testing for in any study of comparative alternation, including my current study of comparative alternation in *y*-adjectives. A small caveat in this regard is that a test of this nature is also one where it is difficult to formulate precise hypotheses about whether syntactic contexts predict the comparatives of *y*-adjectives and if so, in what manner. Lindquist's (2000, p. 126) study suggests that syntactic positioning does not matter for the *-er* constructions in the *-ly* ending subset of *y*-adjectives. However, what remains unknown is whether syntactic positioning similarly does not matter for the *more* constructions in this subset or indeed, that it does not matter for both the *-er* and *more* constructions for the *y*-adjective set as a whole. For these reasons and also because there are claims that syntactic positioning does matter for comparative alternation, an investigation of syntactic positioning on the comparatives of *y*-adjectives, though important, is not one where I can start off with a clear notion on what to expect.

Like syntactic positioning, the motivation for investigating whether the morphology of adjectival bases can predict the comparatives of *y*-adjectives stems from the literature. The general view is that morphology has this effect for some categories of bases if not all. Mondorf (2003, p. 283) claims, for instance, that for disyllabic adjectives ending in *-l* and *-le*, morphologically complex ones "exclusively require" *more*. Hilpert (2008, p. 407) also finds the effects of morphological complexity to be significant in introducing a bias towards *more*, and for a larger sample of adjectives than just those ending in *-l* and *-le*. The idea that morphological complexity might introduce a bias away from *-er* is further buttressed by the rather large range of suffixes "not attested in the LOB or core written BNC with *-er* comparison" (Leech & Culpeper, 1997, p. 355). They include: "*-ed, -ing, -ish, -ive, -ous, -ful, -less, -al, -en* and *-ern*" (Leech & Culpeper, 1997, p. 355). Although this range of suffixes does not include *-y* and *-ly*, which can realise morphological complexity in *y*-adjectives, e.g. in *health* (*health+y*) and *lively* (*live+ly*), the range is large enough for us to suspect that morphological complexity 'pushes' an adjectival base towards *more*. There are grounds to hypothesise therefore that morphologically complex *y*-adjectives are biased towards *more* and to test for it in my investigations. Granted, there is no implication here about the comparative form we should expect morphologically simple *y*-adjectives, e.g.

silly, to be biased towards. Nonetheless, if it is the morphologically complex *y*-adjectives, and not the morphologically simple ones, that “exclusively require” *more* (Mondorf, 2003, p. 284), this suggests that relatively speaking, morphologically simple *y*-adjectives have a higher likelihood of occurring with *-er* than morphologically complex ones. It is not unreasonable therefore to put forward a hypothesis that morphologically simple *y*-adjectives are biased towards *-er*. For ease of expression from this point forward, *complex* is at times used as a mnemonic for *morphologically complex*, and *simple* as a mnemonic for *morphologically simple*.

Given the examples of *y*-adjectives in 1.2, the *y*-adjectives investigated necessarily includes both those that end in *-ly* and those that end in just *-y*. The question of whether the presence versus absence of a *-ly* ending is a predictor of the comparatives of *y*-adjectives has been studied quite extensively in the literature. There is no clear agreement, however, as to whether a *-ly* ending biases adjectives towards a particular comparative, although the disagreement here seems far less than that for the factor of syntactic positioning. While Leech and Culpeper (1997, p. 364) note that the majority of the comparatives found in the BNC for *likely* are *more* constructions, this departs from Sweet’s (1968 [1904], pp. 326–327) claim on adjectives ending in *-ly* being increasingly found with *-er*. Leech and Culpeper’s (1997, p. 364) observation is aligned nonetheless with the claim that *more* tends to be found with disyllabic adjectives ending in *-ly* (Quirk et al., 1985, p. 462), and also with the claim that *-er* tends to be found with disyllabic adjectives ending in just *-y* (Biber et al., 1999, p. 522). The notion that a *-ly* ending conditions the comparative *more* while an ending in just *-y* conditions the comparative *-er* is supported in Lindquist (2000, p. 125) and in Hilpert (2008, p. 409). It is supported also in Bauer (1994, pp. 58–59), who notes that by the end of the 20th century, “the rules are becoming more fixed. Disyllabic adjectives which end in the suffix *-ly* take periphrastic comparison, other adjectives in *-y* [...] take suffixed comparison”. Since Sweet (1968 [1904]) is the only one who is not in agreement with the others on which comparative alternative is predicted by the *-ly* ending, the logical step is to adopt the majority view and hypothesise that *y*-adjectives with a *-ly* ending are biased towards *more*, and *y*-adjectives without a *-ly* ending, towards *-er*. The point nonetheless is that regardless of whether I eventually obtain confirmation of these hypotheses, there are grounds from the literature to test for the factor of a *-ly* ending in comparative alternation in *y*-adjectives, at least in a preliminary investigation to evaluate whether this factor ought to be given further attention.

The fourth structural factor investigated for its potential to explain the comparatives of *y*-adjectives is the voicing feature of the penultimate segment of *y*-adjective bases. There is no

prior study of this factor, but the motivation to examine it stems from inferences drawn from the literature on comparative alternation. In this literature, phonetic features studied are usually the final elements of adjectives. Building on Kytö and Romaine (1997) and Mondorf (2003), Hilpert (2008, p. 407), for instance, investigates four final elements as predictors of comparative alternation. They are /i/, /r/, /l/ and /li/. *Y*-adjectives do not, by definition, have final /r/ and /l/. With respect to Hilpert's (2008, p. 407) list of final elements, the only within-group variation for the *y*-adjectives is the variation between /li/ and /i/. A test for whether this variation predicts comparative alternation is often operationalised in terms of the presence versus absence of a *-ly* ending. What is interesting, however, and this has not been noted in any prior study, is that if we can consider the penultimate /l/ in /li/ as part of a final element that might predict the comparatives of *y*-adjectives, there is no reason why we should not also consider any other penultimate segment in *y*-adjectives as having this potential. Since all *y*-adjectives by definition have an undifferentiated final /i/, we will, in a consideration of this nature, be presumably investigating whether the penultimate segment that precedes /i/ matters for the comparatives of *y*-adjectives. It is also in this penultimate segment, additionally, that we have the closest point of alignment with previous works that take differentiated final elements as potential predictors of comparative alternation.

My proposal here in particular is that the [\pm voiced] feature of the penultimate segment in *y*-adjectives might potentially predict the comparatives of these adjectives. This proposal is motivated in part by Hilpert's (2008, p. 407) finding that both the final elements of /l/ and /r/ predict the *more* constructions of the adjectives in his dataset, and the fact that both these final elements are [+voiced]. Hilpert's (2008, p. 407) study of /l/ and /r/ remains a study of them as final elements and not as penultimate segments of course. It is reasonable, however, to take his findings in concert with the observed bias of *y*-adjectives ending in /li/ (*-ly*) towards *more* (Quirk et al., 1985, p. 462; Bauer, 1994, pp. 58–59; Biber et al., 1999, p. 522) and propose that as a penultimate segment, aside from its role in the final element /li/, /l/ in *y*-adjectives might have that same effect of predicting *more* constructions. In this respect, it becomes worth investigating whether the presence of a [+voiced] penultimate segment in general, by extension from the [+voiced] feature of penultimate /l/, predicts *more* constructions on *y*-adjectives. In an investigation of this nature, the converse of examining whether [+voiced] penultimate segments predict a bias of *y*-adjectives towards *more* is whether [-voiced] penultimate segments predict a bias of these adjectives towards *-er*. The question remains, however, as to why features of voicing ought to take priority over features of place or manner of articulation in the investigation of penultimate segments. If my introduction of the penultimate segment

consideration is motivated in part by the final /l/ and /r/ in Hilpert (2008, p. 407), I could just as well be arguing for a study of the [\pm approximant] feature in penultimate segments as a predictor of the comparatives of y-adjectives. While this may be true, it is also true that for a study of comparative alternation, there are grounds to conceptualise penultimate segments in y-adjectives in terms of [\pm voiced]. It has been suggested, for instance, that “voiced consonants tend to be preceded by longer vowels than voiceless consonants” (Kluender et al., 1988, p. 153), or to put it in another way, voiceless consonants shorten preceding vowels to a greater extent than voiced ones—see Lehiste (1970, p. 24). We might expect therefore that y-adjectives with a [+voiced] penultimate segment are longer in duration than those with a [-voiced] penultimate segment. Since we have views, based on syllable counts, that longer words are biased towards *more* and shorter words towards *-er* (Jespersen, 1949, p. 347; Schibsbye, 1965, p. 134; Zandvoort, 1977, p. 188; Quirk et al., 1985, pp. 461–462; Palmer et al., 2002, pp. 1583–1584; Carter & McCarthy, 2006, p. 439), it might be that in y-adjectives, most of which are disyllabic, it is the length of the word in the sense of its phonetic length that has a role in predicting the alternation between *more* and *-er*. In this respect, it is in the [\pm voiced] feature, and not in [\pm approximant] feature, of the penultimate segment in y-adjectives that we can obtain a justification for any difference in the length of these adjectives.

3.7 Potential intersections of structural factors with paradigmatic ones

Up until now, proposed paradigmatic predictors of the comparatives of y-adjectives, i.e. predictors related to constructional frequencies, have been discussed independently of proposed structural ones. It should be pointed out, however, that a large part of this independent discussion stems more from theoretical convenience than from a practical realisation of what may actually happen if we have both paradigmatic and structural factors to consider. If the comparative *more* and *-er* constructions of other categories of items do matter for an understanding of the comparatives of y-adjectives (see 3.4 and 3.5), then we need to think about how they might matter with respect to the structural predictors proposed in 3.6.

This point may be better appreciated if we return briefly to the proposed hypothesis that complex y-adjectives might be biased towards *more* and simple ones towards *-er* (see 3.6). Even if we obtain statistical confirmation of this bias, there will remain comparative y-adjective constructions that are not aligned with the bias. Attestations of complex y-adjectives such as *worthy* with *-er* in the BNC (see 2.2) suggest, for instance, that even if the account of a relationship between morphological complexity and *more* constructions is reasonably valid for y-adjectives, there is potential for this account to be made more comprehensive. It is also at

this point where a consideration of potential points of intersection between paradigmatic factors and structural ones in predicting the comparatives of *y*-adjectives may become important. These points of intersection may be realised in a number of ways. We may, for instance, be able to predict the comparatives of *y*-adjectives with the type counts of *more* and *-er* constructions from other categories of items, but only in certain morphological subsets of *y*-adjectives. It may also be the case that a morphological account of comparative alternation in *y*-adjectives is valid only against the backdrop of paradigmatic considerations. For example, morphological complexity might predict the *more* construction on *y*-adjectives only when there is a large enough type count of *more* constructions from other categories of items; likewise, morphological simplicity might predict the *-er* construction on *y*-adjectives only when there is a large enough type count of *-er* constructions from other categories of items. It may further be the case that paradigmatic factors could reverse the effects of morphological ones. For example, a large enough type count of *-er* constructions from other categories of items might suppress any tendency towards the pairing of *y*-adjectives with *more* arising from morphological complexity; likewise, a large enough type count of *more* constructions from other categories of items might suppress any tendency towards the pairing of *y*-adjectives with *-er* arising from morphological simplicity. The array of untested possibilities that I have mapped out suggests that it is necessary to investigate not only whether the *more* and *-er* constructions from other categories of items can predict the comparatives of *y*-adjectives, but also how these predictions play out in morphological subsets of *y*-adjectives.

My proposal for how comparatives of other categories of items might interact with structural factors in predicting the comparatives of *y*-adjectives applies not only to the factor of morphology, but also to the other structural factors noted in 3.6. However, because the validity of understanding comparative alternation in *y*-adjectives in terms of a paradigm of comparatives has not been explored in previous work, I do not have much basis to go beyond simply saying that in obtaining this understanding, we need to check for points of intersection between paradigmatic and structural considerations. The corpus study reported in Chapters 4 and 5 aims to add some empirical data that contribute to this understanding. Nonetheless, until I can determine whether the *more* and *-er* constructions from other categories of items can indeed predict the comparatives of *y*-adjectives, I am unable to formulate well-defined hypotheses concerning how I expect the comparatives of these other categories to interact with the structural predictors. It should be noted therefore that where potential points of intersection between paradigmatic and structural predictors are concerned, I shall not, in my corpus study, go beyond a preliminary identification of where these points might reside. It is only in the

subsequent experimental study that I consider more deeply what I infer from my corpus findings about these points of intersection, either by testing for them directly as interaction effects or by controlling for them in the experimental design. In other words, any fine-grained investigation as to whether the comparatives of other categories of items might enhance and/or suppress structural influences on the comparatives of *y*-adjectives is left to my experimental study.

3.8 Chapter conclusion

In this chapter, I have discussed how frequencies of comparative constructions—derived from a paradigm of comparatives—might afford an avenue for enhancing our understanding of comparative alternation in *y*-adjectives. I have highlighted the specific works that motivate my thinking about the comparatives of *y*-adjectives in terms of a paradigm of comparatives, following which I mapped out a sense of how we might expect the comparatives of *y*-adjectives to be influenced by the *more* and *-er* constructions of other categories of items. I have discussed also the reasons why it might be worthwhile to consider comparative alternation in *y*-adjectives with respect to the comparatives of QUICKLY adverbs. I have emphasised that in investigating how paradigmatic factors might contribute to an account of comparative alternation in *y*-adjectives, we should take care to consider the contributions of structural factors. Indeed, the chapter ends on the note that it is crucial to identify possible points of intersection between structural and paradigmatic factors in predicting the comparatives of *y*-adjectives. For the purposes of empirical investigations to be performed on corpus data, I will spell out more precisely in Chapter 4 the paradigmatic and structural hypotheses introduced in this chapter.

CHAPTER 4

CORPUS STUDY

4.1 Chapter overview

This chapter maps out the hypotheses tested in the corpus part of this research, the steps taken in the construction of the corpora to test these hypotheses, and how the data obtained from the corpora were prepared for data analyses. Section 4.2 gives the justifications for basing the hypotheses on frequency measures. Building on 3.4 to 3.6, 4.3 maps out what these hypotheses are. Section 4.4 presents my rationale for testing these hypotheses on historical speech-like data. Section 4.5 describes the set of seven corpora built for the corpus study, including the rationale for not relying on existing corpora. Section 4.6 describes how the dataset of seven corpora were processed. Section 4.7 details the coding principles used in decisions about: (i) the inclusion or otherwise of comparative constructions in the frequency tallies for data analyses; and (ii) the structural features to be tagged to individual tokens of comparative y-adjective constructions.

4.2 Frequency measures of variables in hypotheses

There are two reasons for basing the hypotheses in the corpus study on frequency measures. The first is related to the historically-oriented nature of this investigation (more on the reasoning for this is given in 4.4). The nature of such an investigation makes it more practical to have the data drawn from a corpus or a series of corpora than from other sources, since it would be quite impossible, for instance, to obtain recordings of interviews with people who lived in, say, periods as early as the 17th century. If corpus data is the best source of data to use given the nature of my study in this part of the thesis, and such data often leads the analyst towards conclusions based on frequency tallies of one kind or another, it follows that the hypotheses I am investigating are best expressed in terms of frequency measures of some sort. This means that where the interests of my hypotheses are the comparative *more* and *-er* constructions for y-adjectives, the relevant hypotheses make reference to the frequencies of these constructions.

For the sake of exposition, there is a second reason why my hypotheses are based on frequency measures. That is, the theoretical impetus for these hypotheses is in a large part frequency-based. For instance, in the works of Bybee and Newman (1995) and Marchman and

Bates (1994), which I have noted to be influential on the current study (see 3.3), the variables proposed as predictors of a means of expressing a grammatical function are essentially frequency measures of type counts. For Bybee and Newman (1995, p. 634), this is a count of the nonce nominal types found with particular operations of plural formation; and for Marchman and Bates (1994, p. 360), this is a count of the verb types found with particular operations of past tense formation. Since my corpus study draws on theoretical underpinnings based in part on Bybee and Newman (1995, p. 634) and Marchman and Bates (1994, p. 360), some variables in this study are necessarily in the form of the frequency measure of type counts. I am in particular interested in the type counts of the comparative constructions of categories of adjectives other than the *y*-ones, and of the QUICKLY adverbs. There is therefore a theoretical reason, in addition to a practical one, in formulating hypotheses based on frequency measures for my corpus study.

4.3 Hypotheses

The goal of the corpus study is to test a number of hypotheses where the statistics generated from frequencies of comparative constructions serve as indicators for whether the hypotheses are confirmed. The theory underpinning some of these hypotheses introduced comparative constructions of the FAT, HANDSOME and BEAUTIFUL adjectives, and the QUICKLY adverbs as potential predictors of the comparatives for *y*-adjectives (see 3.4 and 3.5). Since these predictors stem from a paradigm of comparatives (see 2.7), hypotheses based on them are referred to at times as paradigmatic hypotheses. At the same time that a consideration of paradigmatic predictors was advocated, I emphasised the need to consider a set of structural factors, e.g. the morphological structure of *y*-adjective bases, for their role in predicting the comparatives of *y*-adjectives (see 3.6). Hypotheses based on these structural factors are referred to at times as structural hypotheses. The hypotheses investigated in the corpus study therefore include both paradigmatic and structural ones, as well as those that consider points of intersection between paradigmatic and structural predictors.

4.3.1 Paradigmatic hypotheses

The paradigmatic hypotheses in my corpus study are essentially speculations about whether the comparatives of *y*-adjectives can be predicted by the comparatives of the FAT, HANDSOME and BEAUTIFUL adjectives, and the QUICKLY adverbs. While type counts for comparatives of the FAT, HANDSOME and BEAUTIFUL adjectives, and of the QUICKLY adverbs, are of interest in the corpus study (see 4.2), any influence they have on

the comparatives of *y*-adjectives can in theory be evidenced from counts of comparative *y*-adjective constructions. I have not mentioned whether we should obtain this evidence from type or token counts because the reasoning for the decision stems more from the data itself than from theory; and the earlier chapters are all focused on the theoretical aspects of this thesis. As I will exemplify with actual data in 5.2, there is more value in observing token rather than type counts of comparative *y*-adjective constructions for evidence of hypothesised influences on these comparatives. When I refer to counts of the comparatives of *y*-adjectives in the relevant hypotheses that follow, I will therefore refer to their token counts. In 3.3, I referred to how it is the higher type count of a specific means of plural formation (in comparison to its alternatives) that predicts its application to novel nouns in Bybee and Newman (1995, 2007), and how the same principle seems to hold for children's past form overregularisations as noted in Marchman and Bates (1994). If we are to put forward a test of whether this principle holds also in the application of *more* and *-er* comparatives to *y*-adjectives, we should look towards an investigation of Hypotheses 1 and 2 in the corpus data:

Hypothesis 1 (H1)

Token counts of *more* comparatives of *y*-adjectives correlate positively with type counts of *more* comparatives of one or more other categories of items.

Hypothesis 2 (H2)

Token counts of *-er* comparatives of *y*-adjectives correlate positively with type counts of *-er* comparatives of one or more other categories of items.

The other categories of items referred to in H1 and H2, and in subsequent hypotheses, are the comparatives of the FAT, HANDSOME and BEAUTIFUL adjectives, and the QUICKLY adverbs.

I have opted in this thesis not to take a fixed position as to whether *more* and *-er* constructions are necessarily in an inverse relationship, but subscribers to such a position might suggest that H2 would be redundant given H1, and vice versa. It is important to point out, however, that even if we assume an inverse relationship between *more* and *-er* constructions, this is not tantamount to saying that H1 and H2 are an inverse of one another. The fact is that the other categories of items that enter into a correlation with the comparatives of *y*-adjectives are likely to differ between H1 and H2. We should, for instance, expect these other categories in H1 to contain more BEAUTIFUL adjectives than FAT ones, following the rule that

adjectives of three or more syllables form the comparative with *more* (see 2.5). Following the rule that monosyllabic adjectives form the comparative with *-er* (see 2.5), we should also expect the other categories of items in H2 to contain more FAT adjectives than BEAUTIFUL ones. If we say that H1 and H2 are inverses of each other, so that if we have one, we do not need the other, then we are saying that any correlation between the *more* constructions of BEAUTIFUL adjectives and those of the *y*-adjectives is an exact mirror of any correlation between the *-er* constructions of FAT adjectives and those of the *y*-adjectives. Since I have no basis for saying this, it is legitimate to have both H1 and H2. Both hypotheses are needed because they are presumably testing for different sets of correlations. It may be suggested further that the samples of type and token counts correlated within H1 and H2 are not strictly speaking independent. The types and tokens referred to in H1 both contain samples of *more* comparatives, and those referred to in H2 both contain samples of *-er* comparatives. Questions may be raised therefore on the statistical validity of testing for correlations between non-independent samples. My view on this is that it is one thing to assume an association between the comparatives of *y*-adjectives and those of other items, which is what is assumed if we think of the types and tokens in each of H1 and H2 as non-independent. It is another thing, however, to test for what this association can mean for the comparatives of *y*-adjectives. I am not denying the former assumption given my notion of a paradigm of comparatives in the first instance, but it is too strong a claim to say that because these associations exist, they are important in predicting the comparatives of *y*-adjectives. What is being tested for in H1 and H2 is precisely this importance.

With H1 and H2 in place, we can generate another set of hypotheses, respectively Hypotheses 3 and 4:

Hypothesis 3 (H3)

Token counts of *-er* comparatives of *y*-adjectives correlate negatively with type counts of *more* comparatives of one or more other categories of items.

Hypothesis 4 (H4)

Token counts of *more* comparatives of *y*-adjectives correlate negatively with type counts of *-er* comparatives of one or more other categories of items.

Since H1 and H2 can be deemed not to be an inverse of one another, the same can be said about H3 and H4. A more important question to ask perhaps about H3 and H4 is whether they are

inverses, respectively, of H1 and H2. If they are, then they will technically be redundant. This question is premised again on an assumption that if comparatives are not formed with *more*, they are formed with *-er*, and vice versa, so that if, for instance, a positive correlation is confirmed between the *more* constructions of other items and those of the y-adjectives, i.e. H1 is confirmed, this necessarily confirms the negative correlation between the *more* constructions of other items and the *-er* constructions of y-adjectives, i.e. H3 is confirmed. Likewise, if a positive correlation is confirmed between the *-er* constructions of other items and those of the y-adjectives, i.e. H2 is confirmed, this necessarily confirms the negative correlation between the *-er* constructions of other items and the *more* constructions of y-adjectives, i.e. H4 is confirmed. Given that I have opted not to ground my investigations on the premise that *more* and *-er* constructions are necessarily in an inverse relationship, these deductions should not be of great concern to me, and insofar as this goes, investigations of H3 and H4 should still be reasonable even with investigations of H1 and H2. Let us assume nonetheless, for the sake of argument, that *more* and *-er* constructions are indeed in an inverse relationship. What I would like to point out is that even with this assumption, it is not so easy to take H3 as a direct outworking of H1, and H4 a direct outworking of H2.

If we take H3 as a direct outworking of H1, we have to assume that the extent of any positive correlation between the *more* constructions of y-adjectives and those of other items is exactly the same for all y-adjectives, so that if this correlation happens to be pushing y-adjectives towards *more* and away from *-er*, all y-adjectives will respond to the same extent to this push. This then allows a negative correlation in H3 to emerge at the same time that a positive correlation in H1 emerges. If it is the case, however, that some y-adjectives are responding to a positive correlation between the *more* constructions of y-adjectives and those of other items to a far greater extent than others, e.g. realised through a surge in new comparative *more* tokens of those y-adjectives in addition to the original ones that have been pushed towards *more*, then we may get a confirmation of H1 but without necessarily a confirmation of H3. This latter scenario is certainly plausible, and it is plausible without having to violate any premise that *more* and *-er* constructions are inverses of one another. In this way, H3 need not necessarily be a direct outworking of H1, or vice versa, so that it is justifiable to have H3 in addition to H1. What I have laid out with respect to any claim of an inverse relationship between H1 and H3 holds also with respect to any such claim between H2 and H4.

4.3.2 Structural hypotheses

While the paradigmatic hypotheses in my corpus study are speculations about the comparatives of *y*-adjectives with respect to the comparatives of other items, the structural hypotheses in this study are speculations about how the comparatives of *y*-adjectives may be predicted by a set of structural factors inherent to *y*-adjective bases or contextual to the comparative constructions of *y*-adjectives. As noted in 3.6, these structural predictors are: the syntactic contexts of comparative *y*-adjective constructions (attributive or non-attributive); the morphological structure of *y*-adjective bases (complex or simple); the presence or absence of a final /li/ in these bases; and the [\pm voiced] feature of the penultimate segment in these bases.

When I refer to the final /li/, it should be emphasised that the coverage of this reference extends to what has been referred to as the *-ly* ending in the literature on comparative alternation. I have refrained from referring to this factor as a *-ly* ending in my own study because while the terminology of an ‘ending’ in ‘a *-ly* ending’ is supposed to indicate a morphological ending (Bauer, 2004, p. 43), e.g. in *friendly*, rather than a purely phonological one, e.g. in *silly*, the intent of this indication is not clear when the terms ‘*-ly* ending’ or ‘ending in *-ly*’ are used in studies on comparative alternation. There is often little mention of morphological complexity/suffixation whenever the *-ly* ending is brought up, for instance. It is interesting to observe also that Lindquist’s (2000, p. 125) reference to “adjectives ending in *-ly*” subsequently became referred to as a final /li/ in Hilpert’s (2008, p. 403) interpretation of Lindquist’s (2000) work. This leads one to suspect that although morphological complexity ought to go with the *-ly* ending in most (though not all) cases, the notion of a *-ly* ending, when called up in comparative alternation studies, is conceived of more as a phonological than a morphological factor. In view of this, and following Hilpert (2008, p. 403) as well, I shall take references to the *-ly* ending in the literature as references to the sequence /li/. Where the implication of morphology in this sequence has to be tested/accounted for in the subsequent analysis of my corpus data, I will state it explicitly as such (see 5.4.1).

I noted in 3.6 how for some of the structural factors of interest mentioned in this section, there is no necessary agreement in the literature as to which comparative form they predict. Even if this agreement exists, the predictions may become questionable if observations were drawn from across longer time spans (see 2.6). The structural hypotheses I am about to list are therefore not worded in terms of whether a specific feature in these structural factors predicts *more* or *-er*, e.g. whether attributive positioning specifically predicts *-er*. Rather, they are worded in terms of whether a structural factor is a significant predictor of the comparatives of

y-adjectives, e.g. whether syntactic positioning is a significant predictor of these comparatives. The structural hypotheses to be tested in the corpus study are as follows:

Hypothesis 5 (H5)

The syntactic positioning (attributive/non-attributive) of tokens of comparative y-adjective constructions is a significant predictor of the comparative forms in these tokens.

Hypothesis 6 (H6)

The morphology (complex/simple) of y-adjective bases is a significant predictor of their comparatives.

Hypothesis 7 (H7)

The final /li/ (its presence/absence) in y-adjective bases is a significant predictor of their comparatives.

Hypothesis 8 (H8)

The [\pm voiced] feature (whether this is [+voiced] or [-voiced]) of the penultimate segment in y-adjective bases is a significant predictor of their comparatives.

As suggested, any overlap in these hypotheses with respect to the morphological status of a final /li/ will be dealt with later in my data analysis (see 5.4.1). Although there is in theory an overlap between H7 and H8 insofar as y-adjectives with a final /li/ can be taken as a subset of y-adjectives with a [+voiced] penultimate segment, this overlap should not pose too much of an empirical concern in confounding the findings for these hypotheses. In a preliminary modelling of my corpus data, the [\pm voiced] penultimate segment of y-adjectives is found to remain a non-significant predictor of the comparatives of these adjectives regardless of whether y-adjectives with a final /li/ were included in the analysis.

4.3.3 Considerations both paradigmatic and structural

Thus far, I have kept the paradigmatic hypotheses apart from the structural ones. There remains a possibility nonetheless that the paradigmatic hypotheses apply not to y-adjectives as a group, but to structural subsets of them. This possibility aligns with my theoretical orientation in 3.7 towards points of intersection between paradigmatic factors and structural ones in predicting the comparatives for y-adjectives. As pointed out in 3.7, there is no *a priori* basis on

which to formulate well-defined hypotheses about how any intersection between paradigmatic and structural factors might play out in the corpus data. There is no basis, for instance, for me to decide either way whether we should expect the morphological structure of *y*-adjectives to enhance or suppress any effect that the comparatives of HANDSOME adjectives might have on the comparatives of *y*-adjectives. What I am able to do is to have a set of questions (in place of well-defined hypotheses) to guide an investigation of whether there are empirical grounds, in the first instance, to consider potential areas of interaction between paradigmatic and structural factors in predictions of the comparatives of *y*-adjectives. If there are, I would also have information on where these areas of interaction might lie. As a supplement to H1–H4 (see 4.3.1) therefore, the following Questions 9–12 are considered in the correlational analyses of my corpus data. In line with the structural factors tested in H5–H8 (see 4.3.2), the structural subsets referred to in these questions are subsets of comparative *y*-adjective constructions defined by:

- their attributive versus non-attributive syntactic positioning;
- the morphological complexity versus simplicity of the *y*-adjective bases in these constructions; and
- the [\pm voiced] feature of the penultimate segment in these bases.

I will say later in 5.4.3 why subsets defined by the presence versus absence of a final /li/ are not included in the list above for correlational analyses. The ‘other categories of items’ referred to in Questions 9–12 are the comparatives of the FAT, HANDSOME and BEAUTIFUL adjectives, and the QUICKLY adverbs.

Question 9 (Q9)

Is there any correlation between token counts of *more* from structural subsets of *y*-adjectives and type counts of *more* from one or more other categories of items?

Question 10 (Q10)

Is there any correlation between token counts of *-er* from structural subsets of *y*-adjectives and type counts of *-er* from one or more other categories of items?

Question 11 (Q11)

Is there any correlation between token counts of *-er* from structural subsets of *y*-adjectives and type counts of *more* from one or more other categories of items?

Question 12 (Q12)

Is there any correlation between token counts of *more* from structural subsets of *y*-adjectives and type counts of *-er* from one or more other categories of items?

The use of token counts for the comparative *y*-adjective constructions referred to in Q9–Q12 follows from this use in H1–H4 (see 4.3.1). As noted in 4.3.1, I will leave an explanation on why there is more value in observing token rather than type counts of comparative *y*-adjective constructions to 5.2, where I can exemplify the explanation with actual data.

4.4 Speech-like data for testing the hypotheses

The hypotheses in 4.3 were tested on speech-like data. I am classifying this data as speech-like rather than as speech because the data comprises dialogues from stage comedies (see 4.5.3 for more on this) which were written to be spoken, but are not speech *per se*.

A core reason that I am using speech-like data in my corpus study stems from the fact that studies on comparative alternation based on data of this nature are far and few between in the literature. The spoken/speech-like component of corpora on which most studies on comparative alternation are based is often small. This, as noted in D’Arcy (2014, p. 219), makes written language the primary source of data in these works. The main data sources in Leech and Culpeper (1997), for instance, are the written component of the BNC and the Lancaster-Oslo-Bergen Corpus (LOB), the latter of which contains solely written data. Even if the whole BNC, including its spoken component, were used, 90 per cent of the material from the BNC is written (Burnard, 2009). This means that studies on comparative alternation that rely on the whole BNC, e.g. Hilpert (2008) and Mondorf (2003, 2009), would have analysed mainly written data, with spoken data constituting only a small component. Although Mondorf (2003, 2009) bases her study on sources of data other than the BNC, these other sources are all newspapers, which means that most of her data would have been written as well. Studies that rely on the Helsinki Corpus of English Texts (Rissanen et al., 1991), e.g. Kytö (1996), are also based on written data, since within the 31 text types included in the Helsinki Corpus, the majority of 23 can be clearly defined as written. The stronger focus on written than on spoken data in the literature on comparative alternation suggests that there may be important insights

to comparative alternation from spoken/speech-like data that remain undiscovered because not many studies were performed on such data.

It might be proposed in this regard that actual spoken data rather than speech-like data from stage comedies could have been drawn on for my purposes. The reason that I opted to use the latter is because I am looking at comparative alternation in *y*-adjectives from periods as early as the beginning of the 17th century to periods around the mid-20th century (see 4.5.1 for the rationale for periods chosen). Recordings of actual speech would have been unavailable for the earlier periods of my study, so that I would have no better option than to use speech-like data for these periods. Further to this, if I am using speech-like data for any one period of my study, I would have to use it for all periods to ensure consistency in the type of data sampled.

It is worthy of note that studies on comparative alternation based on spoken data are not only limited in number, but limited also in the time frame they cover. D’Arcy’s (2014) study, which uses data obtained from the Origins of New Zealand English (ONZE) corpus (Gordon et al., 2004; Gordon et al., 2007), is based on spoken data. However, since “the bulk of the data [in the ONZE corpus] was collected after 1990” (D’Arcy, 2014, p. 222), we can expect the time period captured in D’Arcy’s (2014) analysis to date to around late 20th century. Even if we take into account that fact that some of the speakers in this data were born in the mid- to late 1800s (D’Arcy, 2014, p. 222), we can only say that the data stretches as far back as the mid-19th century. A similar conclusion holds for data from the CONCE corpus (Kytö et al., 2000), used in Kytö and Romaine’s (2006) study. The CONCE corpus (Kytö et al., 2000) may have a larger speech-like component than most other corpora; however, it contains data only for the 19th century. The time frames covered in the data used in D’Arcy (2014) and Kytö and Romaine (2006) suggest essentially that there are not many studies on comparative alternation performed on spoken/speech-like data going further back than the 19th century. Given this, and since I am interested in periods that go as far back as the beginning of the 17th century (see 4.5.1), the focus on spoken/speech-like data in my corpus study is anticipated to add to the literature, not only in terms of expanding the small base of research on comparative alternation performed on this type of data, but in terms of expanding the time frame of observations beyond which such studies have been performed.

4.5 Description of corpora

This section describes the set of seven corpora of speech-like data compiled for the purposes of testing the hypotheses listed in 4.3. In 4.5.1, I explain why in this compilation, I chose to include data dating only to the beginning of the 17th century and not earlier. The

rationale for compiling my corpora from scratch instead of drawing on available ones is given in 4.5.2. This is followed by a detailed description in 4.5.3 of how my corpora were compiled.

4.5.1 *Rationale for chosen periods of study*

I have noted in 4.4 that the data used for my corpus study are those dating from the beginning of the 17th century. A reason that the 17th century is chosen as a starting point is the practical difficulty of obtaining sufficient data for periods prior to the 17th century. A second reason stems from documentation in the literature that it is from the beginning of the 16th century that comparison with periphrastic *more* gradually became as frequent as they are today (Pound, 1901, p. 19; Kytö, 1996, p. 123; Kytö & Romaine, 1997, p. 330). That being the case, we may expect it to take some time for usages of *more* and *-er* to demonstrate an alternation approximating the kind we find in PDE. As Pound (1901, p. 24) notes, one of the “chief points in which sixteenth century [comparative] usage differs from modern usage” is “[t]he greater freedom in the use of *more* and *most* with disyllables in *-y* and *-le* and *-er*”. There is no guarantee of course that the 17th century is the time when we would begin to find alternation between *more* and *-er* approximating that in PDE. Nonetheless, Pound’s note certainly suggests that the 16th century is not an ideal starting point to hunt for any systematic explanation of this alternation, which leaves us with the 17th century as a starting point.

4.5.2 *Rationale for not relying on existing corpora*

There are a number of reasons that govern my decision to compile a set of corpora specifically for my corpus study rather than to rely on existing corpora. One of them stems from my intended periods of coverage, which is the 17th–20th centuries. Corpora like the British National Corpus (BNC) and the Corpus of Historical American English (COHA) do not go as far back as the 17th and 18th centuries. The BNC covers data only from the “later part of the 20th century” (Burnard, 2009). Although COHA covers a longer period, i.e. 1810–2009, it does not contain data that date back earlier than 1810.

While the problem of coverage may be solved by drawing on a number of other corpora for the earlier periods in my study and then using them in combination with the BNC and/or COHA, this option raises concerns about the comparability of data from different periods. Data comparability is important for my corpus study since this study specifically incorporates a diachronic perspective on comparative alternation in *y*-adjectives. If I were to combine a few available sources of data for my corpus study, one of which is the BNC, I would have to source for British English (BrE) data from the 17th, 18th and 19th centuries comparable to that from

the BNC. Further, if my intention is to use speech-like data, the data drawn on for the earlier periods would have to be comparable (in corpus size and sample representation within each corpus) with the spoken component of the BNC. The spoken component of the BNC includes spoken/speech-like data from news broadcasts, lectures, classrooms, courtrooms and public debates (Burnard, 2007; Davies, 2008–), and it is difficult to obtain data for some of these genres from earlier periods of language use. There will definitely not be any data of news broadcasts obtainable for, say, the 17th century. Even if I were to use only genres in the spoken component of the BNC for which data are available from earlier periods, say, courtroom proceedings, it is not the case that such data are consistently available for all my periods of study. While transcripts of trial proceedings for the 17th and 18th centuries are obtainable from *A Corpus of English Dialogues* (Kytö & Culpeper, 2006), such transcripts are not available—at least not available for free access—for the 19th century. This means that if I were to draw on a combination of available corpora for my study, such as the BNC in combination with *A Corpus of English Dialogues* (1560–1760) (Kytö & Culpeper, 2006), I would not have comparable data, in this case, of courtroom proceedings, for at least one century in my intended periods of coverage. In addition, the sample representation of courtroom proceedings for the 17th and 18th centuries in *A Corpus of English Dialogues* (Kytö & Culpeper, 2006) may be inconsistent with the sample representation of these in the BNC.

Even if I switch my points of reference around and opt to use some readily available data for the earlier periods as a benchmark for obtaining readily available data for the later ones that are then as closely matched as possible with those for the earlier periods, I am still unable to ensure data comparability across periods. Let us assume that letters can be taken as dialogues between persons mediated by the written medium and therefore, can be justified as speech-like. If I were to use the *The Letters of Joan and Maria Thynne (1575–1611)* (Williams, 2012)—available from the Oxford Text Archive—as part of my corpus data for the 17th century, I would have to ensure the availability of letters as part of my corpora for the 18th, 19th and 20th centuries. I am unable to do this, at least not without incurring the difficulty of reproducing hardcopy letters in a form suitable for corpus analyses with standard software. The spoken component of the BNC itself, which I might have chosen as my data for the 20th century, does not contain letters. Emails are there in the written component of the BNC, but their comparability with letters from the 17th century is questionable.

A second reason that I am reluctant to draw on available corpora is that there are often already studies on English comparative alternation based on them. ARCHER or *A Representative Corpus of Historical English* is an available corpus that is in fact able to address

some of the problems I raised on data comparability. ARCHER covers the period 1650–1999, which means that it contains data spanning my intended periods of coverage. Its use therefore would save me the trouble of having to separately ensure consistency in sample size and representativeness in my periods of study since these periods are now covered under one corpus and such consistencies are likely to have been established by the compilers of that one corpus. Further, ARCHER includes data from genres such as diaries, dramas and letters, which means that the corpus is aligned with my intention to focus on speech-like data. A caveat, however, with using ARCHER is that there are already studies done on the comparative alternation data in it—see, for instance, Kytö and Romaine (1997) and Kytö and Romaine (2006). The same may be said about the comparative alternation data in the BNC, which as noted before, have been used in the works of Mondorf (2003, 2009) and Hilpert (2008). A concern therefore with the use of available corpora for my study is that of repeating what has already been discovered about comparative alternation from these corpora. If I use self-compiled corpora, I am more likely to find something that is not a repetition of what has been found from existing corpora. I am also more likely to be able to establish external validity (or otherwise) for what others have found from available corpora.

In the next section, I describe the set of seven corpora compiled for this corpus study. The principles governing this compilation are:

- data availability in all my periods of study;
- data comparability in the corpora for different periods in terms of the genre of data, and corpus sizes and sample representations; and
- the creation of a set of corpora on which no prior studies on comparative alternation have already been performed.

4.5.3 Corpora for this study

The corpora compiled for this study span seven periods of English use, with each corpus representing one of these seven periods. Each period (or corpus) constitutes a 50-year time span. These periods are: 1601–1650 (period A1); 1651–1700 (period A2); 1701–1750 (period B3); 1751–1800 (period B4); 1801–1850 (period C5); 1851–1900 (period C6); and 1901–1950 (period D7). The corpora are compiled from excerpts of BrE stage comedies (including farces), except in the case of one excerpt in one period, where the shortage of comedies and farces for a particular playwright requires the inclusion of a 94-word excerpt from one of his works classified as ‘domestic’ rather than as a ‘comedy’ or a ‘farce’.

The size of each corpus is approximately 288,000 words. Each corpus comprises approximately 48,000-word excerpts each from six playwrights, with an approximate of 12,000 words obtained for any one excerpt from any one work of any one playwright. The number of works from which the approximate 48,000-word excerpts from each playwright were obtained ranges from four to eight. The word counts for each corpus and the play entries in them are given in Appendix 4A.

While the ideal is to obtain 12,000 words from each of four works by a particular playwright for a corpus, this is not always possible for shorter works, which, when specified sections were excluded (see later in this section), may contain less than 12,000 words. There are also occasions where a playwright does not have at least four solely-authored works for inclusion in a corpus. On these occasions, to fulfil the principle of including excerpts from at least four works from each playwright, it became necessary to include excerpts from works that the playwright concerned jointly authored with other playwrights. A condition to having an excerpt from a jointly-authored work included as one of the four excerpts from a playwright is that the playwright concerned must be the first author of the jointly-authored work. I am assuming here that the order of authorship in a jointly-authored work indicates the extent of contribution from each playwright to the work, so that if playwrights are first authors, the extent of their contribution can be taken to be close to that they would have put towards a solely-authored work. Granted, my assumption can be incorrect, especially when the ordering of authorship is principled upon an alphabetical ordering of names. In the absence of information allowing me to decide what the ordering of authorship means, however, I will take this ordering to indicate the extent of contribution from a playwright to a work.

Each corpus comprises excerpts published in the period defined by the corpus, e.g. the 1601–1650 corpus comprises excerpts published in the period 1601–1650. The year of (first) publication of an excerpt is used as the means to decide which corpus period to include it in. This is because while every excerpt has a year of (first) publication, not every excerpt has a (range of) year(s) of (first) performance and/or authorship. The scarcity of data in some cases may require the inclusion of excerpts that are (first) published in a stated corpus period, but which are (first) performed and/or authored in a (range of) year(s) earlier than the stated period. Every effort was made nonetheless to ensure that excerpts included in every corpus compilation have time intervals between their years of (first) publication and, if available, their years of (first) performance and/or authorship, that are as short as possible.

Excerpts included in the corpora were obtained from the *Literature Online* (LION) database (Proquest, 1996-2013), except in one instance, where the shortage of comedies and

farces in LION for a playwright in one period required an excerpt for one of his works to be obtained from the *Internet Archive* (N.A., 1996), which is another online database of dramas. As I was a student affiliated with a university at the point of conducting this research, I had access to the LION database through the university library. Access to the *Internet Archive* (N.A., 1996) is available from the World Wide Web.

Excerpts for the corpora exclude:

- front and back matters;
- epilogues and prologues;
- *dramatis personae*; titles of acts and scenes, e.g. *Act 1, Scene 1*;
- descriptions of settings;
- names of characters before conversational turns;
- whole conversational turns or parts of turns spoken in verse;
- whole conversational turns or parts of turns that are not in English (with the exception of instances where a non-English phrase/clause belongs to a sentence that is partially in English);
- songs;
- and short words and phrases announcing the entrance and exit of characters, e.g. *exeunt*.

Apart from the items related to conversational turns, most of the items above were excluded because they are not speech-like in a manner similar to the bulk of dialogues in a stage play. Descriptions of settings in a play script, for instance, are not meant to be spoken, but are meant as information on how a scene should be set or what props are needed. Whole conversational turns or parts of turns not spoken in English were excluded for the fact that this is a study of English comparative alternation and hence, only data in English can in principle be used. Parts of conversational turns spoken in verse were excluded for two reasons. First, their representativeness of everyday speech is questionable. Second, the comparative constructions (if any) found in them may be found with particular comparative forms for no other reason but that of ensuring alignment with the prosodic constraints of the lines spoken in verse. If so, the inclusion of verses in my corpora would confound the findings generated to address the hypotheses in 4.3. After excluding the stated items, excerpts were obtained from the beginning of each work and the principle of having the last sentence of each excerpt being a full sentence was applied. This principle explains why stipulated word counts of excerpts in the corpora are stated as approximates rather than absolutes.

The reason that I compiled my corpora from stage comedies (including farces) is that works of this nature are not only speech-like (see 4.4), but are available for all seven periods of my study. The decision to have each corpus span a 50-year period is both practically- and theoretically-motivated. Practically, as tokens of comparative *y*-adjective constructions are a rather rare occurrence in the corpora, it is only if the data were binned into a period of at least 50 years that the availability of these tokens for assignment to every period under study can be assured. For my particular dataset, defining each corpus in terms of a 50-year period aids also in avoiding the situation of having different excerpts from the same playwright cut across two or more corpora. It may be suggested that I could have tagged each token of a comparative *y*-adjective construction to a specific year instead of a specific 50-year time span. If I do that, however, I would be faced with two challenges. First, I would be unable to ensure that for every specific year where tokens of comparative *y*-adjective constructions are found, I would have a reasonable type count of the comparatives of other categories of items, e.g. the comparatives of FAT adjectives; I need to ensure this before any meaningful correlation between the comparatives of *y*-adjectives and the comparatives of these other categories can be drawn for my entire time frame of study. Also, the more I base my observations on data tagged to specific years rather than prolonged periods, the less comparable my data will be with the diachronic literature on comparative alternation; the patterns of comparative alternation noted in this literature are often based on binning observations into whole/several centuries of English use (Kytö & Romaine, 1997, p. 344), if not also into 50-year periods (Kytö & Romaine, 1997, p. 337).

The reason that only stage comedies were included in my corpora, instead of both comedies and tragedies, is to control for any variation in the comparatives of *y*-adjectives that might be related to different style levels of what could be classed as the same genre of stage plays. Since I cannot be certain that variation in style levels within a genre is not a predictor of comparative form, and since I am not testing for it as a potential predictor, it is best that I control for it in my data sampling. The choice of comedies over tragedies stems from the assumption that comedies are in general relatively more reflective of the everyday life of language users. This assumption is based on claims that comedies tend to focus “on the social level of life” (Leggatt, 1998, p. 5) around institutions of family, marriage and so on, so that a “study of the genre [of comedies] needs to include an awareness of the particular society in which it operates” (Leggatt, 1998, p. 5).

Given that there are fewer female playwrights in the earlier periods of my corpora than in the later ones, I cannot ensure an equal representation of excerpts from male and female

playwrights in my seven corpora. I cannot also ensure that no excerpt from any female playwright was included in my compilation since this inclusion was sometimes necessary to meet the requirements of corpus size and sample representations within each corpus. I do not see my non-control of the gender factor as a major concern, however. Based on what Kytö and Romaine (2006, p. 207) found from a historical dataset of letters, which can be taken to be another form of speech-like data, there is not much variation between men and women with respect to the comparative forms they use. Kytö and Romaine's (2006, p. 207) findings indicate in fact that whenever the use of comparative *more* is higher for men than for women in a particular historical period, the use of comparative *-er* is also higher for men than for women. Similarly, whenever the use of comparative *more* is lower for men than for women, the use of comparative *-er* is also lower for men than for women. There is no clear evidence therefore that any variation between *more* and *-er* is related to whether a comparative construction is used by a man or a woman, which is what we would expect if gender is indeed a predictor of comparative alternation.

4.6 Data processing

When my full dataset was in place, I generated concordance lists of *more* and *-er* constructions for each period of data in AntConc (version 3.2.4w) (Anthony, 2011). I then categorised the lines of data from each concordance list into *more* and separately, *-er* constructions of: *y*-adjectives; FAT adjectives; HANDSOME adjectives; BEAUTIFUL adjectives; and QUICKLY adverbs.

To address H1–H4 in 4.3.1, token counts of *y*-adjectives paired with *more* and separately, of *y*-adjectives paired with *-er*, were obtained for each period. Type counts were also obtained for comparative *more* constructions and separately, for the *-er* ones, of the FAT, HANDSOME and BEAUTIFUL adjectives, and of the QUICKLY adverbs. These type counts were computed separately for each period, and for each adjectival and adverbial category. To address H5–H8 in 4.3.2, comparative *y*-adjective constructions were coded for the following structural features (more on this coding in 4.7.3):

- occurrence of those constructions in attributive versus non-attributive syntactic contexts;
- morphological complexity versus simplicity of the *y*-adjectives in those constructions;
- presence versus absence of a final /li/ for the *y*-adjectives in those constructions;
- [+voiced] versus [-voiced] feature of the penultimate segment for the *y*-adjectives in those constructions.

To address Q9–Q12 in 4.3.3, token counts of *y*-adjectives paired with *more* and separately, of *y*-adjectives paired with *-er*, were obtained for each coding of a structural feature.

4.7 Coding principles

A set of coding principles were employed as part of data analyses. Section 4.7.1 documents the principles used to decide on the inclusion or otherwise of a comparative adjectival construction in the relevant type/token counts referred to in 4.6. Section 4.7.2 documents these with respect to the comparatives of the QUICKLY adverbs. Section 4.7.3 documents the principles underpinning the coding of comparative *y*-adjective constructions for the structural features listed in 4.6.

4.7.1 Coding for inclusion in counts of comparative adjectival constructions

This section documents decisions made on the inclusion or otherwise of comparative adjectival constructions in the type/token counts obtained for investigation. Following González-Díaz (2008, p. 79), any adjective collocating with a *more* that bears “a quantifier function in connection to a nominal constituent” was omitted from these counts. An example would be *There are more happy people around today than yesterday*. Unlike González-Díaz (2008, p. 79), who omitted from her counts of comparative adjectival constructions instances of comparatives in correlative structures, e.g. *the more successful she is...the more obnoxious she becomes*, I included these in my counts, as long as they did not implicate a quantifier function with reference to a nominal constituent. In this case, *more wealthy* in the correlative, *The more wealthy people there are, the more plasma TVs we will sell*, would not be included in my counts because it has a quantifier function linked to the NP of *wealthy people* rather than a comparative function linked to the adjective *wealthy*. For *-er* comparatives in coordination, e.g. *easier and fitter*, both comparative constructions were included in the relevant type/token counts of comparative constructions. For *more* comparatives in coordination, however, they were included in the counts only if *more* was found with both adjectives in the coordination, e.g. *more pleasing and more lovely*. If *more* was found only with one adjective and not the other, e.g. *more delicate and pleasing*, only one count of comparative *more* would be noted. This is to err on the side of caution in the event that the second adjective in coordination was not intended to be compared.

Departing from González-Díaz (2008, p. 79), I included in my counts of comparative adjectival constructions instances where the adjective in what looks like a comparative

construction is nominalised, e.g. *stupid* in *the more stupid of the two*. While the grammatical role of the adjective in these constructions may be nominal, their underlying form can be argued to be adjectival. The nominalised adjectives in these constructions can be modified by an adverb, like adjectives in typical comparative adjectival constructions, and unlike other nominals (see examples as follows):

Tom is [the more damningly stupid]_{NOM} of the two.

Tom is [more damningly stupid]_{COMP} than Jack.

**Tom is [the openly captain]_{NOM}.*

If the nominal *stupid* in the *more stupid of the two* is an adjective, then *more stupid* is necessarily an instance of a comparative construction, given that adjectives pre-modified by *more* are noted to be comparatives (Quirk et al., 1985, p. 403).

With respect to counts for the *-er* comparatives of FAT adjectives, I excluded instances such as *former* and *latter*. The reason is that a meaningful adjectival root/base in these instances cannot be segmented out. We cannot have a meaningful adjectival root of *form* and *lat(t)* respectively from *former* and *latter*. Although the free morpheme *form* exists in English, it does not have any meaning associated with being positioned earlier in a sequence/series, which is the meaning we would expect it to have if it is the adjectival root of *former*. Further, it is hard to conceive of the root/base in *latter* as *late*, since the *-er* comparative of *late* seems more appropriately to be that of *later* rather than *latter*.

Unlike the case with *former* and *latter*, I included instances of *upper* in counts of the *-er* comparatives of FAT adjectives. The root *up* in *upper* is not only a free morpheme with a meaning associated with *upper*, it lies on a gradable scale with the root *low* in *lower* (Rusiecki, 1985, p. 5). Being found on some gradable scale is typical (though not obligatory) of other adjectives that conventionally participate in the comparative, e.g. *short* and *tall*, and *small* and *big* (see Figure 4a).

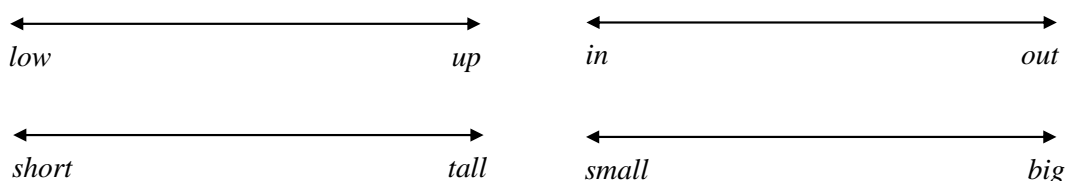


Figure 4a. Scales of gradability.

As illustrated in Figure 4a, the root *short* lies on a gradable scale with the root *tall*, and so does the root *small* with the root *big*. It may be suggested that *up* should lie on a gradable scale with *down*. This suggestion, however, does not preclude the notion of *up* and *low* as two ends also of a gradable scale, if we consider the sense of relations obtained from constructions such as *the upper floors of a house as opposed to its lower ones*, and *the upper part of the body as opposed to its lower one*. These parallel the sense of relation obtained from constructions such as *a bigger cat as opposed to a smaller one*. In other words, we can easily justify a substitution of *small* and *big* on both ends of a gradable scale with *low* and *up*. Insofar as this goes, it is as reasonable to include *lower* and *upper* in counts for the *-er* comparatives of FAT adjectives as it is to include *smaller* and *bigger*. As can be inferred from Figure 4a, instances of *inner* and *outer* in my dataset were also included in these counts. They were included for the same reason that *lower* and *upper* were included, i.e. the sense of relation obtained from constructions such as *a city's inner walls as opposed to its outer ones* parallels that obtained from constructions such as *a bigger cat as opposed to a smaller one*.

When evaluating an item for the presence of an adjectival root/base to justify its inclusion in counts for the *-er* comparatives of FAT adjectives, *better* was deemed to contain this root/base. Although not immediately apparent because of its suppletion, *better* has a meaningful adjectival root in *good* (Quirk et al., 1985, p. 459; Bobaljik, 2012, p. 4) and *well*, so that the sentences, *This is a good novel* and *She is well-groomed*, are respectively as well-formed as their comparative counterparts, *This is a better novel* and *She is better-groomed*. There are grounds therefore to include instances of *better* that are clearly adjectives rather than adverbs in my counts for the *-er* comparatives of FAT adjectives. Extending upon the principle of excluding *better* with an adverbial function from these counts, instances of *better* in *I had/I'd better* were excluded because *better* in these cases are noted to serve the function of a comparative adverb in a modal idiom (Quirk et al., 1985, p. 465). Instances of *longer* in the phrases *no longer* and *any longer* were also excluded because *longer* has a comparative adverbial rather than adjectival function in these phrases.

For comparative constructions in the role of pre-/post-modification, e.g. *more beautiful* in *a more beautiful house* pre-modifies the nominal head *house*, and *more loudly* in *talks more loudly* post-modifies the verbal head *loudly*, a decision had to be made on whether these comparative constructions were or were not adjectival. The traditional way of basing the decision on the grammatical category of the modified heads (Payne et al., 2010, p. 32) was adopted. If a comparative construction pre-/post-modified a nominal head, e.g. *more beautiful* in *more beautiful cat*, it was taken as a comparative adjectival construction and included in the

relevant counts for those constructions. This principle was applied except in the case of comparative constructions that pre-modify participles, e.g. *deeper* in *deeper tainted* and *more smartly* in *more smartly dressed*. For these comparative constructions, the decision as to whether we had a comparative adjectival construction was made on the basis of form, and if that failed, on the basis of distribution.

In their role of pre-modifying participles, comparatives with clearly distinctive adjectival and adverbial forms, e.g. *deeper* versus *more deeply*, respectively in *deeper tainted* versus *more deeply tainted*, the adjectival form, i.e. *deeper* in this case, would be taken as a comparative adjectival construction and included in the relevant counts for these constructions. *More deeply*, on the other hand, would be excluded from these counts. There are some comparative pre-modifiers of participles without clearly distinctive adjectival and adverbial forms, e.g. *better* in *better tainted*, *further* in *further acquainted* and *friendly* in *more friendly said*. Since no decision can then be made on the adjectival or adverbial status of these pre-modifiers on the basis of form, they were taken to be adverbial based on their distributions, and were excluded from the relevant counts for comparative adjectival constructions. Grounds for their exclusion stem partially from the view that deverbal participles are adjectival, whether they are presented as so (Quirk et al., 1985, p. 462) or taken to “masquerad[e]” as adjectives (Spencer, 2013a, p. 57). When combined with claims in traditional grammar—revisited in Payne et al. (2010, p. 32)—that “adjectives modify nouns, and adverbs modify all other categories”, this suggests that in distributional terms, comparative pre-modifiers of deverbal participles are adverbial. Indeed, Quirk et al. (1985, p. 464) would have treated deverbal participles as adjectives in taking *better* in *better-behaved* as a comparative adverb; and if deverbal participles are adjectives (and not nouns), it follows that comparative pre-modifiers such as *better* in *better acquainted* would be adverbial rather than adjectival. It should be emphasised that distributional considerations in deciding on whether comparative pre-modifiers had adjectival status were deployed only if the form of the pre-modifiers could not inform this decision. If I were to rely totally on distributional considerations, all comparative pre-modifiers of participles would be adverbial. The problem with this is that I cannot then explain why for comparative pre-modifiers with clearly distinctive adjectival and adverbial forms, i.e. the example given earlier of *deeper* versus *more deeply*, we get *deeper tainted* sometimes and *more deeply tainted* at other times.

4.7.2 Coding for inclusion in counts of the comparatives of QUICKLY adverbs

Two principles were applied in deciding whether constructions in the data ought to be taken as comparatives of the QUICKLY adverbs and included in the relevant counts for these comparatives. The first bases the decision on the grammatical category of the heads modified (Payne et al., 2010, p. 32). If a comparative construction ending in -y modifies a verbal head, e.g. *The cat sprang more quickly than the rat ran*, the construction was taken to be a comparative of the QUICKLY adverbs. The second principle applies specifically to comparative constructions that pre-modify deverbal participles. It is the flip side of a principle described in 4.7.1. That is, the principle of whether there are distinctive adjectival and adverbial forms in those comparative pre-modifiers. Returning to the *deeper tainted* versus *more deeply tainted* example (see 4.7.1), *deeply* would be deemed as an adverb with an adjectival counterpart in *deep*, given the well-documented view that adjectives can have corresponding adverbs formed from them with the affixation of a -ly ending (Payne et al., 2010, p. 32; Bauer et al., 2013, p. 169). In view of this, where comparative pre-modifiers of deverbal participles in my data clearly have an adjectival counterpart without a -ly ending, those pre-modifiers were taken to be comparative adverbs and included in counts of the comparatives of QUICKLY adverbs. A note is required here regarding instances such as *friendly*, *grisly*, *kingly*, *lively*, *manly*, and *masterly* as pre-modifiers of deverbal participles. According to Quirk et al. (1985, p. 407), these adjectival forms can be used with an adverbial function. I might add further that like *better* and *further*, they do not have distinctive adjectival and adverbial forms, so that when their -ly endings are removed, we do not get an adjectival counterpart, but a nominal one, e.g. *friend* in *friendly*. Given this, when comparatives formed from *friendly*, *grisly*, *kingly*, *lively*, *manly*, and *masterly* pre-modify deverbal participles in my data, these pre-modifiers were taken as comparatives of the QUICKLY adverbs, despite the existence of a counterpart without a -ly ending to the bases in these comparatives.

4.7.3 Coding for the structural features of comparative y-adjective constructions

As part of data preparation, tokens of comparative y-adjective constructions were coded for the following structural features: syntactic positioning of attribution versus non-attribution; morphological complexity versus simplicity of the y-adjective; the presence versus absence of a final /li/ in the y-adjective; and the [+voiced] versus [-voiced] feature of the penultimate segment in the y-adjective. The arrival at a code for the presence versus absence of a final /li/ and the [±voiced] feature of a penultimate segment are quite straightforward, and do not require much explanation. Very simply, all y-adjectives ending in /li/ were coded for the presence of

this final /li/; all others were coded for its absence. All y-adjectives with a voiced penultimate segment were coded [+voiced]; all others were coded [-voiced].

The coding principles for syntactic positioning and morphological structure require more explanation. With respect to syntactic positioning, a token was coded for being found in attribution only when its occurrence in this context is explicit, that is, it clearly pre-modifies a nominal head. An example would be *She is a lovelier person than I thought*, where the token *lovelier* is here clearly pre-modifying the nominal head *person* in [[lovelier]_{AP} [person]_N]_{NP}. This coding principle implies that in instances where the attributive role of a comparative y-adjective construction is vague, even if such a role might be argued for, a coding for attribution would not be assigned. These constructions include mainly those that are nominals, e.g. *lazier*, in a sentence such as *He is the lazier*. It may be suggested that the sentence, *He is the lazier*, is a realisation of an underlying form, *He is the lazier person*, in which case *lazier* may be argued to be attributive because it is still pre-modifying a nominal head, except that the nominal head is elided. However, if we pursue this argument, it may also be suggested that *He is the lazier* is a realisation of another underlying form, *He is the lazier of the two brothers*. In this case, the underlying form of *He is the lazier* can be taken as comprising a nominal head in the form of a comparative y-adjective construction that is post-modified by a prepositional phrase complement, i.e. [[lazier]_N [of the two brothers]_{PP}]_{NP}. Since the comparative y-adjective construction in this case does not pre-modify a nominal head in an underlying form, it cannot be coded as attributive. The argument can be taken further nonetheless that *He is the lazier of the two brothers* itself realises an underlying form that is *He is the lazier brother of the two brothers*. If so, *lazier* is shown again to pre-modify a nominal head *brother*, this time as [[[lazier]_{AP} [brother]_N]_{NP} [of the two brothers]_{PP}]_{NP}, and so might be coded as attributive.

The point I am trying to make is that if a comparative y-adjective construction was to be analysed beyond what is observable at the surface level, there are many grey areas on exactly where a coding for attribution would cease to be valid. At which level of its underlying form would a comparative y-adjective construction stop being attributive, in other words, and how do we decide on that? How can we be sure, besides, what the underlying form of a surface structure really is or in other words, how can we be sure that a full realisation of an observable surface structure is really what a speaker intends to say? How can we be sure, for instance, whether by saying *He is the lazier*, a speaker really intends to say *He is the lazier person*, or *He is the lazier of the two brothers*, or *He is the lazier brother of the two brothers*? Since the answers to these questions are highly debatable and will take me beyond the key concerns of this thesis, I have adopted the principle of assigning the code of attribution only to comparative

y-adjective constructions clearly found in the syntactic position of pre-modifying a nominal head. Tokens of comparative y-adjective constructions not coded as attributive were coded as non-attributive. These include the nominals, the postpositives, e.g. *more noisy* in *No person more noisy than her*, and the tokens found in a predicative context, e.g. *more noisy* in *She is more noisy than others I have met*. There is support from the literature for my consideration of nominals as non-attributives. Although the examples used are superlatives rather than comparatives, Lindquist (2000, p. 127) considers instances of nominals such as “the ugliest” in “It was the ugliest but the best” as predicative rather than attributive.

The other coding principle that requires more detailed discussion concerns whether the y-adjectives in comparative y-adjective constructions are complex or simple. The most general principle adopted here is that if a base with a meaning clearly associated with the y-adjective can be identified from the y-adjective, e.g. *worth* from *worthy*, the y-adjective was coded as complex. Otherwise, the y-adjective was coded as simple. This general principle of coding for morphological complexity versus simplicity was adopted even if historical evidence shows that the base is obtained not by suffixation, but by backformation. An instance of this is *laze* in *lazy*. Since the first attestation of *laze* (v.), given as 1592 in the Oxford English Dictionary Online (OED Online) (n.d.), is later than the first attestation of *lazy* (adj.), given as 1549, there are grounds to suspect that *laze* might originally have been derived from *lazy* by backformation instead of the other way round. However, as backformation is noted in Bauer (2003, p. 39) to be invisible in retrospect, I coded y-adjectives such as *lazy* for morphological complexity in the same way that I coded y-adjectives with pre-existing bases for this complexity. With the backformation of *laze* from *lazy*, a derivational process of forming *lazy* from *laze* by /i/ suffixation may actually follow, so that technically, it no longer matters for a coding of complexity whether *laze* has any pre-existent status as a base prior to the emergence of *lazy*.

The decision as to whether y-adjectives should be coded as complex or otherwise becomes more complicated in some situations. One of these is when a base with a meaning clearly associated with the y-adjective can be identified in earlier periods of English, but may be less easily identified in later periods. Given this and the diachronic nature of my data, the y-adjective in a comparative construction from an earlier period in my data may be coded differently for its morphological structure than the same y-adjective when it occurs again in a comparative construction from a later period. In the few instances where this kind of variant coding was necessary, my coding was largely informed by etymological descriptions of the y-adjectives concerned and their identified bases in the OED Online (n.d.). To give an example of how this was done, let us refer to the morphological coding for the y-adjective *ugly*. The

OED Online (n.d.) indicates first of all that *ugly* is possibly derived from the verb, *ug*, i.e. *ug+ly*, which in turn suggests that there is some extent of morphological complexity in *ugly* from an etymological viewpoint if not in PDE. A number of definitions for *ug* are given in the OED Online (n.d.), all of which can be associated with the meaning of *ugly*. These definitions are “[t]o inspire or affect with dread, loathing, or disgust”, “[t]o feel dread or apprehension, disgust or loathing” and “[t]o abhor, loathe, detest”. It should be pointed out, however, that the last attestation of *ug* with these meanings given in the OED Online (n.d.) is between the early and late 1800s. This is not to suggest that the use of *ug* had ceased completely after the 1800s; there might well be some uses of it that were somehow not captured in the sources used to compile the OED Online (n.d.). Nevertheless, documentation on when *ug* was last attested with a meaning associated with *ugly* can reasonably be taken, I believe, to suggest a reduced usage of *ug* after the 1800s, so that even if its use persists, this use is not widespread enough for it to be captured for documentation. In other words, it is reasonable to assume that the *ug* in *ugly* is not easily detectable after the 19th century. Based on this reasoning, tokens of *ugly* in the comparatives obtained from the first six periods of my corpus data (the beginning of the 17th century to the end of the 19th century) were coded as complex. On the other hand, tokens of *ugly* in the comparatives obtained from the last period of my corpus data (the beginning to the middle of the 20th century) were coded as simple.

A further more complicated situation for morphological coding concerns the situation when a base can be coerced out of a y-adjective, but not without an observation of some semantic drift in the base from the y-adjective. A case is that of *happy*. Unlike *ugly*, where the derived y-adjective has a meaning clearly associated with its base, a semantic drift in some usages of *happy* from the meaning tied to its supposed nominal base *hap* (OED Online, n.d.) is apparent for all periods of my data. The meaning of *hap* (n.), as cited from the OED Online (n.d.), is “[g]ood fortune, good luck, success, prosperity...”. For each period in my dataset, some comparative usages of *happy* can be taken to lean towards the sense of being lucky/fortunate, but there would also be some usages where this semantic sense is not too apparent. In the latter, we get a sense of *happy* associated more with “pleasure or contentment” (OED Online, n.d.) than with being lucky/fortunate. *Happy* in the sense of “pleasure or contentment” may no doubt arise from a set of circumstances deemed as lucky/fortunate, but this is not necessarily the case. Similarly, *happy* in the sense of being lucky/fortunate may generate feelings of “pleasure or contentment”, but the two senses are not necessarily synonymous. The point is that some instances of *happy* in my comparative tokens seem to have drifted semantically away from the original sense of luck/fortune in the noun *hap*, and even for

those tokens associated with the sense of luck/fortune, there is no guarantee that this sense has not evolved so that the sense of “pleasure or contentment” does not also go along with it. The question follows then as to the extent to which *happy* in my tokens of comparative constructions can be taken as a derivative of *hap*. If they cannot be taken as such, then *happy* in these tokens cannot be coded as complex. Further, given that I have no way of deciding systematically (without some qualitative judgement) whether the sense of “pleasure or contentment” or the sense of luck/fortune is tagged to any particular usage of *happy* in the comparative, I am unable to simply assess each instance of *happy* in these comparatives and decide undoubtedly that it is complex or simple.

The principle of drawing on the relative frequency of *hap* to *happy* was therefore adopted to decide on the morphological coding for the comparative tokens of *happy* in my data. This principle follows from Hay’s (2001, p. 1066) claim that “a high-frequency form may be highly decomposable if the base word it contains is higher frequency still.” If one characteristic of morphological simplicity in a word is its non-decomposability into meaningful parts, then where a form is deemed non-decomposable because its frequency is relatively higher than its supposed base, it would be reasonable to take that same form as relatively simple in its morphological structure. In this regard, all instances of *happy* in the comparative from my data can be coded as morphologically simple. For every period in this data, the token count for *happy* (adj.), in a comparative construction or otherwise, outweighs the token count for *hap* (n.). I should point out that I applied Hay’s principle to decide on the morphological coding only for the case of *happy* where there was no way I could make this decision based on information from the OED. The reason is that the claims made in Hay are not based on historical corpus data. Insofar as my corpus study is based on this kind of data, it seems reasonable that I rely first on historical information on y-adjectives available from the OED as a means of deciding on the morphological coding for these adjectives before I turn to other means.

4.8 Chapter conclusion

In this chapter, I have documented the hypotheses tested in the corpus study, and the reasons that these hypotheses are tested with frequency measures. I have also detailed the reasons for obtaining these frequency counts from speech-like data, the characteristics of the speech-like data compiled for the purpose of obtaining these counts, how the counts were obtained, and the coding principles applied to the data. The findings generated from the corpus data are reported in Chapter 5.

CHAPTER 5

CORPUS FINDINGS

5.1 Chapter overview

This chapter reports on the findings from the corpus study. An overview of the corpus data is given in 5.2. Section 5.3 reports the correlations between token counts of the comparatives of *y*-adjectives and type counts of comparatives from the **FAT**, **BEAUTIFUL**, **HANDSOME** and **QUICKLY** categories of items. This section includes an evaluation of how the reported correlations (dis)confirm the paradigmatic hypotheses in 4.3.1 and address the questions in 4.3.3. Section 5.4 reports the findings from a series of statistical models fitted to examine the proposed structural predictors of the comparatives of *y*-adjectives. An evaluation is included of how the findings (dis)confirm the structural hypotheses in 4.3.2. Section 5.5 discusses the implications of the corpus study for the subsequent experimental study.

5.2 Overview of the corpus data

The size of the combined corpora for the corpus study is approximately 2,016,000 words. In Figures 5a and 5b, we find an overview of the counts of the comparatives of *y*-adjectives in this data. Figure 5a indicates the type counts of *y*-adjective+*er* and *more*+*y*-adjective in each of the seven consecutive 50-year periods constituting the corpora, while Figure 5b indicates the token counts of these constructions.

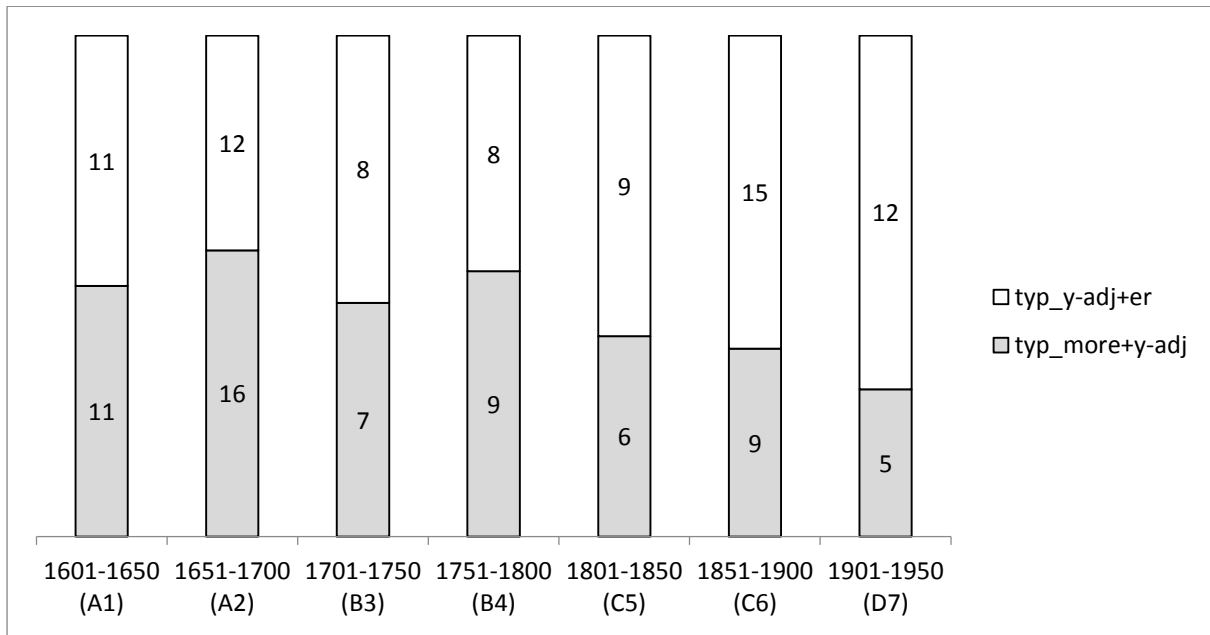


Figure 5a. Type counts of *more*+y-adjective and y-adjective+*er* for each period of study.

Note:

Sizes of the shaded and unshaded parts in each bar indicate the relative proportions of *more* and *-er* types within each period.

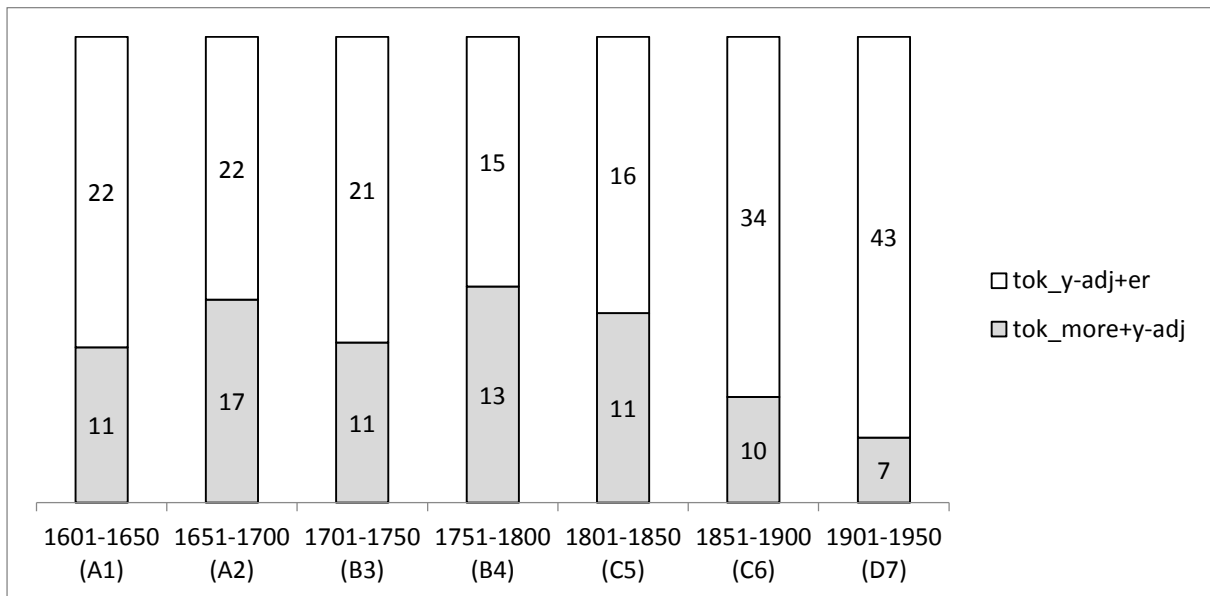


Figure 5b. Token counts of *more*+y-adjective and y-adjective+*er* for each period of study.

Note:

Sizes of the shaded and unshaded parts in each bar indicate the relative proportions of *more* and *-er* tokens within each period.

To demonstrate how y-adjectives as a group alternate between *more* and *-er* in my data, let us refer to Table 5a. The first column in this table lists the y-adjectives in my data. The spelling for these adjectives has been standardised to current norms. Items in bold are the y-adjectives that occur more than once in the comparative in my data and have their recurrences treated as separate types because these recurrences fall into one or more of the following categories:

1. they are in an alternate comparative construction within the same period;
2. they are in an alternate comparative construction in another period;
3. they are in an identical comparative construction in another period.

Following 1 and 2, regardless of whether the two constructions *more happy* and *happier* are found within the same period or in different periods, the instances of *happy* in the two constructions are treated as separate types. Following 3, *happy* in *happier* of period A1 is treated as a separate type from *happy* in *happier* of period A2. It might be suggested that by treating recurrences of certain y-adjectives as separate types under certain conditions, I am applying the notion of *types* too loosely. It should be emphasised, however, that the targets of interest in this thesis are y-adjectives as found in comparative constructions. There are grounds therefore in not identifying the base in *more happy* as an item of the same type as the base in *happier* because both bases differ in the comparative forms they pair with. Although the same reasoning cannot hold for treating the bases of *happier* constructions from different periods as separate y-adjective types, it cannot be assumed *a priori* that the comparative of *happier* in one period is predicted by certain factors to the same extent as the comparative of *happier* in other periods. Insofar as this goes, tokens of *happier* must be differentiated between periods, and a way of ensuring this is to take the bases of *happier* constructions from different periods to constitute separate y-adjective types.

The numerical values in Table 5a are token counts of *more* and *-er* constructions for each y-adjective type in each period of study in my corpora. For example, *happy* has one comparative token with *more* and eight with *-er* in period A1. *Merry* does not have any comparative tokens with *more* in any period. It is always found with *-er*—four tokens in period A1, and one token each in periods A2, B1 and B2. The y-adjective types classified in Table 5a as non-recurrent in their comparatives are: (a) those found only with *more* or only with *-er* in all their tokens; and (b) that have their tokens with only *more* or *-er* confined to just one period. *Funny*, for example, has all three of its comparative tokens occurring with *-er*, and these tokens are confined to just period D1.

Table 5a. Y-adjectival types (and counts of their comparative tokens) for each of the periods under study (refer to text for an explanation of the items in bold).

Period	A1 (1601–1650)		A2 (1651–1700)		B3 (1701–1750)		B4 (1751–1800)		C5 (1801–1850)		C6 (1851–1900)		D7 (1901–1950)	
	Token counts of <i>more</i> and <i>-er</i> constructions for each y-adjectival type													
	<i>more</i>	<i>-er</i>	<i>more</i>	<i>-er</i>	<i>more</i>	<i>-er</i>	<i>more</i>	<i>-er</i>	<i>more</i>	<i>-er</i>	<i>more</i>	<i>-er</i>	<i>more</i>	<i>-er</i>
Y-adjectives with recurrences in the alternate comparative														
busy			1									1		
early		1					1	1				3		5
easy	1	1	1	4		4	2	2	1	2	1	8		11
happy	1	8	1	5	3	8	1	7	1	5		9	1	14
healthy											1	1		
heavy		2	1	1		2		1		2		2		1
likely			2	2	3	1	3		3		2		3	
lively		1									1			1
lovely			1							1		1		
lucky			1	2	1			1				1		
ready			1	1						1	1	1		
silly							1					1		
sorry	1			1										2
speedy		1	1											
sprightly									1	1				
worthy	1		1		1	1	2	1	4	2	1	1		
Y-adjectives without recurrences in the alternate comparative (recurrences only with <i>more</i>)														
angry	1				1		1						1	
manly	1		1				1							
saucy	1		1											
Y-adjectives without recurrences in the alternate comparative construction (recurrences only with <i>-er</i>)														
merry		4		1		1		1						
pretty				1		2				1		1		1
ugly				2								1		1
Non-recurrent comparatives of y-adjectives (occurrence only with <i>more</i>)														
chary			1											
courtly			1											
friendly									1					
giddy	1													
godly	1													
guilty							1							
hearty	1													
homely													1	
racy			1											

Table 5a. *Y*-adjectival types (and counts of their comparative tokens) for each of the periods under study (refer to text for an explanation of the items in bold).

Period	A1 (1601–1650)		A2 (1651–1700)		B3 (1701–1750)		B4 (1751–1800)		C5 (1801–1850)		C6 (1851–1900)		D7 (1901–1950)		
	Token counts of <i>more</i> and <i>-er</i> constructions for each y-adjectival type														
	<i>more</i>	<i>-er</i>	<i>more</i>	<i>-er</i>	<i>more</i>	<i>-er</i>	<i>more</i>	<i>-er</i>	<i>more</i>	<i>-er</i>	<i>more</i>	<i>-er</i>	<i>more</i>	<i>-er</i>	
Non-recurrent comparatives of y-adjectives (occurrence only with <i>more</i>)	[continued]														
scurvy	1														
seemly			1												
shapely											1				
swampy													1		
uneasy					1										
unhappy											1				
unworthy											1				
weighty					1										
Non-recurrent comparatives of y-adjectives (occurrence only with <i>-er</i>)															
chilly												1			
clumsy														1	
comely		1													
deadly														1	
empty								1							
filthy				1											
funny														3	
goody		1													
greasy		1													
handy														2	
lofty										1					
lusty		1													
mighty						2									
shabby												2			
witty				1											

We have evidence that y-adjectives as a group alternate between *more* and *-er* if we study the y-adjectives that recur within the same period (in an alternate comparative construction) and/or in another period (in an identical and/or alternate comparative construction), i.e. items in bold in Table 5a. There are 22 of these y-adjectives: *busy*; *early*; *easy*; *happy*; *healthy*; *heavy*; *likely*; *lively*; *lovely*; *lucky*; *ready*; *silly*; *sorry*; *speedy*; *sprightly*; *worthy*; *angry*; *manly*; *merry*; *pretty*; *saucy*; and *ugly*. Of these 22, the last six are found with only one kind of comparative construction in all their recurrences. The other sixteen are found with both *more* and *-er* constructions. In other words, of the 22 y-adjectives that recur in a comparative in my data, those that recur in an alternate comparative construction outnumber those that do not. Within this group of 22 y-adjectives, comparative alternation seems more common than non-alternation.

There are y-adjectives in my data that have their comparative tokens found only with *more* or *-er* and in only one period, i.e. the non-bold y-adjectives in Table 5a. These y-adjectives are: *chary*, *chilly*; *clumsy*; *comely*; *courtly*; *deadly*; *empty*; *filthy*; *friendly*; *funny*; *giddy*; *godly*; *goody*; *greasy*; *guilty*; *handy*; *heartly*; *homely*; *lofty*; *lusty*; *mighty*; *racy*; *scurvy*; *seemly*; *shabby*; *shapely*; *swampy*; *uneasy*; *unhappy*; *unworthy*; *weighty*; *witty*. Although these adjectives do not individually indicate the presence of comparative alternation, between them, they do not all occur with the same comparative form. Seventeen of them occur with *more*, and 15 of them occur with *-er*. Rather than undermine the presence of comparative alternation, these 32 y-adjectives demonstrate that taken as a class, y-adjectives exhibit this alternation. A close study of these adjectives shows no systematic structural explanation as to why some of them have their comparatives formed only with *more*, while others have them formed only with *-er*. In both the exclusive *more* and *-er* sets, we find y-adjectives with and without a final /li/, and y-adjectives that are morphologically complex as well as those that are morphologically simple. Y-adjectives with the same morphological and phonological features can additionally be found either exclusively with *more* or exclusively with *-er*. *Godly* and *deadly*, for instance, are both complex with a final /li/, so that there are no clear structural reasons as to why *godly* has its comparatives only with *more* while *deadly* has them only with *-er*. Since *deadly* has a higher token count of 31 in my corpus data in comparison to *godly* at a token count of 14, we might suggest that *deadly* is found exclusively with *-er* because of its relatively higher frequency, and *godly* is found exclusively with *more* because of its relatively lower frequency. This suggestion would be aligned with claims that relatively more frequent adjectives tend to occur with *-er*, and relatively less frequent ones with *more* (Braun, 1982, p. 101; Quirk et al., 1985, p. 463; Hilpert, 2008, pp. 396–397). The problem then is the difficulty of explaining why *lucky*, with

a higher token count of 33 in my corpus data than the token count of 31 for *deadly*, is not found exclusively with *-er*, but instead alternates between *more* and *-er*. Since there is no obvious explanation, either from a structural viewpoint or in view of the frequency of *y*-adjective bases, as to why some *y*-adjectives in my data occur only with one comparative form, the apparent absence of comparative alternation in these adjectives could be taken as a data artefact.

Table 5a lists a third group of six *y*-adjectives (out of the 22 items in bold) that occur with only one comparative form, but in more than one period. Three of these occur exclusively with *more* (*angry*, *manly* and *saucy*), while the other three occur exclusively with *-er* (*merry*, *pretty* and *ugly*). These six *y*-adjectives reveal the presence of comparative alternation when taken as a group. However, because tokens of a single comparative construction for each of these six adjectives are found in more than one period, the presence of comparative alternation in these adjectives requires more justification than the 32 *y*-adjectives for which these tokens are confined to only one period. Some justifications for this follow.

A search of the comparatives of these six *y*-adjectives in the British National Corpus (BNC) (Davies, 2004–) shows that all but one of them appear with comparative forms alternate to the one in which they consistently appear in my corpora. For example, although *angry* is found exclusively with *more* in my corpora, it is attested in the BNC to occur with *-er*. Similarly, although *ugly* is found exclusively with *-er* in my corpora, there are attestations of it with *more* in the BNC. Of the six *y*-adjectives in my data that recur exclusively with one comparative form in multiple periods, only *merry* is not found in the BNC to occur with an alternate comparative form. This means that for five of these six *y*-adjectives (*angry*, *manly*, *saucy*, *pretty*, *ugly*), their seeming lack of comparative alternation in my corpora might well be artefactual. Since the BNC comprises data from a period later than those in my corpora, it might be the case that if my corpora were expanded to include periods further into Present-day English (PDE), comparative alternation in *angry*, *manly*, *saucy*, *pretty*, *ugly* would come through more clearly.

This leaves us with the problem of *merry*. *Merry* is found exclusively with *-er* in both my corpora and in the BNC. It is not the case, however, that *merry* is never attested with *more*. In examining a series of 18th-century English texts, Suematsu (2004, p. 39) documents *merry* to be in a list of adjectives found equally with both comparative forms. Further, instances of *more merry*, though few, are attested in the Corpus of Contemporary American English (COCA) (Davies, 2008–), which is larger in size than both my corpora and the BNC. In this regard at least, the seeming absence of comparative alternation in *merry* could be an artefact of the size of my dataset. Even so, the case of *merry* presents a tricky problem. That is, tokens of *more*

merry attested in COCA are attested in a corpus based on American English. Since claims on a general preference in American English for comparative *more* over *-er* (Mondorf, 2009, p. 172) exist, it might be suggested that attestations of *more merry* in COCA are not valid grounds for claiming the presence of *more merry* in the context of British English. To address this concern, let us consider an investigation in Mondorf (2009, p. 174) of the proportions of *more* comparatives in a British versus an American corpus. Four groups of adjectives were included in this investigation: monosyllabic adjectives; disyllabic adjectives ending in *-y*; disyllabic adjectives ending in *-l* or *-le*; and disyllabic adjectives ending in *-r* or *-re*. What is noteworthy from Mondorf's findings is that while "[t]he American English preference for analytic comparatives is borne out by three out of four groups" (Mondorf, 2009, p. 175), the one group where this trend is not found is the disyllabic adjectives that end in *-y*. There are grounds therefore to suggest that even if there is a preference in American English for the *more* variant in comparative formation, this preference does not apply to comparative formation in *y*-adjectives. Occurrences of *more merry* are not then idiosyncratic to American English, but can be taken to be present in British English as well. The fact that *merry* is found exclusively with *-er* in my corpus data should not therefore be attributed so much to the absence of comparative alternation in *merry* as to something that is artefactual of the size of my corpora and/or the time frame it covers.

It might be suggested nonetheless that if the presence of an alternation between *more* and *-er* is not always apparent for every *y*-adjective that occurs in the comparative in my corpus data, then any reliance on corpus data for an understanding of this alternation may be questionable. My take on this is that insofar as *y*-adjectives demonstrate comparative alternation as a group within a dataset, even if the alternation is not entirely obvious in individual *y*-adjectives, there are grounds to use that dataset for a study of the comparatives of *y*-adjectives. The goal of this thesis is to investigate comparative alternation in *y*-adjectives as a group (see 2.3), and not in specific *y*-adjectives. The fact that some *y*-adjectives in Table 5a occur consistently with *more* while others occur consistently with *-er* is itself indicative of the kind of group alternation I refer to. As Bauer (1994, pp. 50–51) notes,

“a corpus will never be the right size for showing what you are trying to show: either it will be a bit too small, or it will be too big.... This does not, however, mean that corpora are not useful in linguistic research; in many cases they are the only way of finding reliable data.”

Having justified the claim that *y*-adjectives in my corpora do alternate as a group between *more* and *-er*, we need to consider the appropriateness of using token (rather than type) counts of the comparatives of *y*-adjectives as a measure of their usage for data analyses. Let us refer in this respect to *y*-adjectives shown in Table 5a to recur in the alternate comparative construction in the same period and/or in other periods. An instance of this is *happy*. We can note that except for period C6, where all its comparatives are exclusively formed with *-er*, *happy* has both *more* and *-er* tokens in all periods. *Happy* alternates between *more* and *-er* in most periods, in other words. If type counts of the comparative constructions for *happy* were used to model the comparative forms paired with *happy*, we would not get a very informative picture of comparative alternation in *happy*. The type count of the variant comparative constructions for *happy* would just be one in each of those columns in Table 5a, except for the *more* column in period C6, where that count would be zero. These type counts that then constitute the data in a statistical description/modelling involving the comparatives of *happy* would simply capture the adjective as having both *more* and *-er* comparatives in most periods, and not the extent to which *happy* is paired with *more* or *-er*. With token counts of the comparatives of *happy*, however, we can incorporate in the data for statistical analysis information that the number of *-er* constructions for *happy* in the last period D7 is close to twice of that in the first period A1. There may not be a shift over time from *more* constructions to *-er* ones for the case of *happy*, since based on the numbers in Table 5a, the tendency of usage seems always to be in favour of *-er*. The point nonetheless of my exemplification with reference to *happy* is to show that if token counts of the comparatives of *y*-adjectives are used for data analyses, we can expect a more fine-grained picture of comparative alternation in *y*-adjectives than if type counts were used.

A cursory inspection of Table 5a suggests that although the count of comparative *y*-adjective constructions in the corpus data is relatively substantial when all tokens of these constructions are taken together (253 tokens in all), the counts are rather small in each of the *more* and *-er* construction set for each period of study. This is not something that I could have known before obtaining an overview of my data. As to whether this observation of small counts might then undermine the reliability of any subsequent correlation I draw separately for the *more* and *-er* constructions in each period, i.e. those reported in 5.3, I would like to emphasise that these correlations should not be taken to be entirely conclusive. Rather, they should be taken more for the purpose of narrowing down the range of predictors potentially important for comparative alternation in *y*-adjectives, so that an experimental study subsequent to this corpus one can be targeted at a more confined set of predictors (see 5.5).

5.3 Paradigmatic predictors of the comparatives of y-adjectives

The findings reported in this section are a series of correlations generated from the corpus data using the IBM SPSS Statistics (version 20) package (IBM Corporation, 2011). The correlations were obtained between token counts of the comparatives of y-adjectives and type counts of the comparatives of the FAT, HANDSOME, BEAUTIFUL and QUICKLY categories of items. The use of token counts of comparative y-adjective constructions as input to statistical descriptions has been justified in 5.2. The use of type counts of other categories of comparatives as input is theoretically motivated by previous studies, i.e. Bybee and Newman (1995, 2007) and Marchman and Bates (1994). As noted in 3.4, these previous studies have suggested that the application of a functional operation, which in my case is the application of the comparative *more* or *-er* construction on y-adjectives, is predicted by its type count. Correlations between the relevant type and token counts in my corpus study were obtained from seven data points corresponding to the seven times periods in the corpus data. Even if normality can be confirmed for these small number of data points, the high incidence of tied ranks in the raw data makes Kendall's tau-b (T_B) the most appropriate correlation statistic to use (Brown, 2011, p. 11). T_B measures of correlation coefficients are therefore reported. Although some of the significant correlations to be reported are found amongst many correlation tests, which I agree does increase the possibility of Type I error in the significance found, I should point out that these correlations should not so much be taken as conclusive than as a means to inform the subsequent experimental study in this thesis.

Table 5b shows a significant correlation between the *more* constructions of the HANDSOME adjectives and the *more* constructions of the y-adjectives ($T_B=.791$, $p<.05$). A significant correlation is also found between the *more* constructions of the QUICKLY adverbs and the *more* constructions of the y-adjectives ($T_B=.791$, $p<.05$). Both sets of correlations are positive.

Table 5b. Correlations between token counts of comparative *y*-adjective constructions and type counts of the comparatives of other items (where the types and tokens correlated are matched for the same comparative form).

Types	Tokens	Correlation coefficient (T _B)
all <i>more</i> +adjective (excluding <i>more</i> + <i>y</i> -adjective)	<i>more</i> + <i>y</i> -adjective	0.158
<i>more</i> +FAT		0.054
<i>more</i> +BEAUTIFUL		-0.264
<i>more</i> +HANDSOME		0.791*
<i>more</i> +QUICKLY		0.791*
all adjective+ <i>er</i> (excluding <i>y</i> -adjective+ <i>er</i>)	<i>y</i> -adjective+ <i>er</i>	0.000
FAT+ <i>er</i>		0.195
BEAUTIFUL+ <i>er</i>		-- ⁺
HANDSOME+ <i>er</i>		-0.103
QUICKLY+ <i>er</i>		-0.418

*p<0.05

⁺No coefficient value is available because there are no BEAUTIFUL+*er* types in the data.

The findings in Table 5b indicate that higher or lower token counts of *more* from the *y*-adjectives correspond to higher or lower type counts, respectively, of *more* from the HANDSOME adjectives. A relationship of the same nature holds between type counts of *more* from the QUICKLY adverbs and token counts of *more* from the *y*-adjectives. For the comparative *-er* constructions, on the other hand, Table 5b shows no significant correlation in counts between the *y*-adjectives and any of the other categories of items.

Table 5c shows correlations once the tokens of comparative *y*-adjective constructions are broken down into syntactic subsets of being found in attribution and non-attribution.

Table 5c. Correlations between token counts of syntactic subsets of comparative *y*-adjective constructions and type counts of the comparatives of other items (where the types and tokens correlated are matched for the same comparative form).

Types	Tokens	Correlation coefficient (T _B)	
		y-adjectives in attribution	y-adjectives in non-attribution
all <i>more</i> +adjective (excluding <i>more</i> +y-adjective)	<i>more</i> +y-adjective	0.513	-0.289
<i>more</i> +FAT		0.263	-0.059
<i>more</i> +BEAUTIFUL		0.103	-0.577
<i>more</i> +HANDSOME		0.718*	0.346
<i>more</i> +QUICKLY		0.410	0.577
all adjective+ <i>er</i> (excluding y-adjective+ <i>er</i>)	y-adjective+ <i>er</i>	-0.143	-0.143
FAT+ <i>er</i>		-0.143	0.048
BEAUTIFUL+ <i>er</i>		-- ⁺	-- ⁺
HANDSOME+ <i>er</i>		-0.451	-0.050
QUICKLY+ <i>er</i>		-0.117	-0.117

*p<0.05

⁺No coefficient value is available because there are no BEAUTIFUL+*er* types in the data.

One finding that can be noted from Table 5c is the significant positive correlation between the *more* constructions of *y*-adjectives in attribution and the *more* constructions of the HANDSOME adjectives (T_B=.718, p<.05). This indicates that higher or lower token counts of comparative *y*-adjective *more* constructions in attribution corresponds, respectively, with higher or lower type counts of *more* constructions from the HANDSOME adjectives. Caution should be exercised, however, in assigning too much weight to this finding because the significant correlation is found with respect to tokens of *more*+*y*-adjective in attribution rather than *y*-adjective+*er* in attribution. This makes the finding somewhat counterintuitive to some claims that adjectives in non-attribution, rather than those in attribution, are the ones more likely to be found in the *more* construction (Hilpert, 2008, p. 407). Table 5c shows no significant correlation with respect to *-er* constructions.

Table 5d shows correlations once the tokens of comparative *y*-adjective constructions are broken down into subsets based on their morphological simplicity or complexity.

Table 5d. Correlations between token counts of morphological subsets of comparative y-adjective constructions and type counts of the comparatives of other items (where the types and tokens correlated are matched for the same comparative form).

Types	Tokens	Correlation coefficient (T _B)	
		simple y-adjectives	complex y-adjectives
all <i>more</i> +adjective (excluding <i>more</i> +y-adjective)	<i>more</i> +y-adjective	-0.112	0.250
<i>more</i> +FAT		0.459	-0.256
<i>more</i> +BEAUTIFUL		-0.503	-0.150
<i>more</i> +HANDSOME		0.503	0.600
<i>more</i> +QUICKLY		0.671	0.450
all adjective+ <i>er</i> (excluding y-adjective+ <i>er</i>)	y-adjective+ <i>er</i>	-0.238	-0.195
FAT+ <i>er</i>		-0.048	0.000
BEAUTIFUL+ <i>er</i>		-- ⁺	-- ⁺
HANDSOME+ <i>er</i>		-0.350	-0.308
QUICKLY+ <i>er</i>		0.000	-0.717*

*p<0.05

⁺No coefficient value is available because there are no BEAUTIFUL+*er* types in the data.

In Table 5d, no significant correlation is found with respect to the *more* constructions implicating morphological subsets of y-adjectives. A significant negative correlation is found between the *-er* constructions of complex y-adjectives and the *-er* constructions of QUICKLY adverbs (T_B=-.717, p<.05). This finding indicates that higher or lower token counts of *-er* from complex y-adjectives corresponds with the reverse for type counts of *-er* from the QUICKLY adverbs.

Let us refer now to the values obtained when we split the tokens of comparative y-adjective constructions into subsets based on the [\pm voice] feature of their penultimate segments (see Table 5e).

Table 5e. Correlations between token counts of penultimate segmental subsets of comparative y-adjective constructions and type counts of the comparatives of other items (where the types and tokens correlated are matched for the same comparative form).

Types	Tokens	Correlation coefficient (T _B)	
		y-adjectives with [+voiced] penultimates	y-adjectives with [-voiced] penultimates
all <i>more</i> +adjective (excluding <i>more</i> +y-adjective)	<i>more</i> +y-adjective	0.050	0.158
<i>more</i> +FAT		-0.205	0.757*
<i>more</i> +BEAUTIFUL		-0.350	-0.053
<i>more</i> +HANDSOME		0.550	0.369
<i>more</i> +QUICKLY		0.450	0.474
adjective+ <i>er</i> (excluding y-adjective+ <i>er</i>)	y-adjective+ <i>er</i>	0.050	-0.350
FAT+ <i>er</i>		0.250	-0.150
BEAUTIFUL+ <i>er</i>		-- ⁺	-- ⁺
HANDSOME+ <i>er</i>		-0.053	-0.474
QUICKLY+ <i>er</i>		-0.491	-0.245

*p<0.05

⁺No coefficient value is available because there are no BEAUTIFUL+*er* types in the data.

A significant positive correlation is shown in Table 5e between the *more* constructions of y-adjectives with a [-voiced] penultimate segment and the *more* constructions of FAT adjectives (T_B=.757, p<.05). This finding indicates that higher or lower token counts of *more* from y-adjectives with a [-voiced] penultimate segment corresponds, respectively, with higher or lower type counts of *more* from the FAT adjectives. No significant correlation is found with respect to the -*er* constructions implicating penultimate subsets of y-adjectives.

The correlations reported thus far are a means of detecting significant relationships between the comparatives of y-adjectives and the comparatives of other categories of items, where the sets of comparatives correlated are matched for the same comparative form. Subsequent tables of correlations reported are aimed at detecting these significant relationships where the sets of comparatives correlated involve the alternate comparative form.

Table 5f shows that significant correlations are obtained neither when the -*er* constructions of y-adjectives are correlated with the *more* constructions of other categories of items, nor when the *more* constructions of y-adjectives are correlated with the -*er* constructions of other categories of items.

Table 5f. Correlations between token counts of comparative y-adjective constructions and type counts of the comparatives of other items (where the types and tokens correlated are matched for the alternate comparative form).

Types	Tokens	Correlation coefficient (T _B)
all <i>more</i> +adjective (excluding <i>more</i> + y-adjective)	y-adjective+ <i>er</i>	-0.250
<i>more</i> +FAT		0.103
<i>more</i> +BEAUTIFUL		0.050
<i>more</i> +HANDSOME		-0.450
<i>more</i> +QUICKLY		-0.350
all adjective+ <i>er</i> (excluding y-adjective+ <i>er</i>)	<i>more</i> +y-adjective	0.103
FAT+ <i>er</i>		0.103
BEAUTIFUL+ <i>er</i>		-- ⁺
HANDSOME+ <i>er</i>		0.216
QUICKLY+ <i>er</i>		0.315

*p<0.05

⁺No coefficient value is available because there are no BEAUTIFUL+*er* types in the data.

The correlations reported in Table 5f were also obtained for subsets of comparative y-adjective constructions established based on: whether the constructions occur in attribution or non-attribution; whether the y-adjectives in those constructions are complex or simple; and whether the penultimate segmental feature of the y-adjectives in those constructions are [+voiced] or [-voiced]. In the correlations based on these subsets, statistical significance is found only between the *-er* constructions of simple y-adjectives and the *more* constructions of HANDSOME adjectives (T_B=-.683, p<.05, as shown in Table 5g), and the relationship found is negative.

Table 5g. Correlations between token counts of morphological subsets of comparative y-adjective constructions and type counts of the comparatives of other items (where the types and tokens correlated are matched for the alternate comparative form).

Types	Tokens	Correlation coefficient (T _B)	
		simple y-adjectives	complex y-adjectives
all <i>more</i> +adjective (excluding <i>more</i> + y-adjective)	y-adjective+ <i>er</i>	-0.390	0.050
<i>more</i> +FAT		0.150	0.000
<i>more</i> +BEAUTIFUL		0.000	0.350
<i>more</i> +HANDSOME		-0.683*	-0.150
<i>more</i> +QUICKLY		-0.488	-0.350
all adjective+ <i>er</i> (excluding y-adjective+ <i>er</i>)	<i>more</i> +y-adjective	0.218	0.098
FAT+ <i>er</i>		0.327	0.098
BEAUTIFUL+ <i>er</i>		-- ⁺	-- ⁺
HANDSOME+ <i>er</i>		0.229	0.205
QUICKLY+ <i>er</i>		0.535	-0.179

*p<0.05

⁺No coefficient value is available because there are no BEAUTIFUL+*er* types in the data.

The significant correlation in Table 5g indicates that higher or lower token counts of *-er* from simple y-adjectives corresponds with the reverse for type counts of *more* from the HANDSOME adjectives.

In obtaining the correlations reported in this section, I have involved comparatives of the FAT, BEAUTIFUL and HANDSOME adjectives, and those of the QUICKLY adverbs. With respect to Hypotheses 1–4 (H1–H4) from 4.3.1 (reproduced below), which do not implicate structural subsets of comparative y-adjective constructions, confirmation is obtained for H1, but not for the other hypotheses. The confirmation for H1 is found in the significant positive correlation between token counts of *more* from the y-adjectives and type counts of *more* from the HANDSOME adjectives (see Table 5b).

Hypothesis 1 (H1)

Token counts of *more* comparatives of y-adjectives correlate positively with type counts of *more* comparatives of one or more other categories of items.

Hypothesis 2 (H2)

Token counts of *-er* comparatives of y-adjectives correlate positively with type counts of *-er* comparatives of one or more other categories of items.

Hypothesis 3 (H3)

Token counts of *-er* comparatives of *y*-adjectives correlate negatively with type counts of *more* comparatives of one or more other categories of items.

Hypothesis 4 (H4)

Token counts of *more* comparatives of *y*-adjectives correlate negatively with type counts of *-er* comparatives of one or more other categories of items.

With respect to Questions 9–12 (Q9–Q12) in 4.3.3 (reproduced below), which implicate structural subsets of comparative *y*-adjective constructions, the correlations reported indicate that while the answer to Q12 is a negative, the answers to Q9–Q11 are all positives.

Question 9 (Q9)

Is there any correlation between token counts of *more* from structural subsets of *y*-adjectives and type counts of *more* from one or more other categories of items?

Question 10 (Q10)

Is there any correlation between token counts of *-er* from structural subsets of *y*-adjectives and type counts of *-er* from one or more other categories of items?

Question 11 (Q11)

Is there any correlation between token counts of *-er* from structural subsets of *y*-adjectives and type counts of *more* from one or more other categories of items?

Question 12 (Q12)

Is there any correlation between token counts of *more* from structural subsets of *y*-adjectives and type counts of *-er* from one or more other categories of items?

Two sets of significant correlations provide a positive answer to Q9. They are the positive correlations that hold between: token counts of *y*-adjective *more* comparatives in attribution and type counts of *more* constructions from the HANDSOME adjectives (Table 5c); and token counts of *more* constructions from *y*-adjectives with a [-voiced] penultimate segment and type counts of *more* constructions from the FAT adjectives (Table 5e). The positive answer to Q10 stems from the significant negative correlation between token counts of *-er* constructions from

the complex *y*-adjectives and type counts of this construction from the QUICKLY adverbs (Table 5d). The positive answer to Q11 stems from the significant negative correlation between tokens counts of *-er* from the simple *y*-adjectives and type counts of *more* from the HANDSOME adjectives (Table 5g). Positive answers for Q9–Q11 suggest in theory that it is not easy to keep apart paradigmatic factors from structural ones in predicting the comparatives of *y*-adjectives. In this regard, findings that address Q9–Q11 can be used to inform a subsequent study of paradigmatic predictors, even if these findings cannot on their own be taken to be conclusive. The structural factors implicated in these findings can be built into a set of relevant paradigmatic hypotheses for further experimental testing, or they can be controlled for in the test design. I will say more about this in 5.5.

If we focus now on just the structural factors, we will get another perspective of comparative alternation in *y*-adjectives. The importance of structural considerations was highlighted in 3.6, and is buttressed by the significant correlations reported in Tables 5c, 5d, 5e and 5g. These correlations implicate, in particular, subsets of comparative *y*-adjective constructions defined by the factors of syntax, morphology and the [\pm voiced] feature of penultimate segments. What is needed therefore is a more fine-grained investigation of these factors for their prediction of the comparatives matched with individual *y*-adjective tokens. It would be ideal to retain as part of this investigation the comparatives of the BEAUTIFUL, HANDSOME, FAT and QUICKLY categories as predictors. This retention is not, however, possible because type counts of *more* and *-er* from these other categories cannot be as easily tagged to specific tokens of comparative *y*-adjective constructions as can structural predictors. Any given token of a comparative *y*-adjective construction may, for instance, be coded for the feature of being found in attribution; if the *y*-adjective base happens to be *lazy*, we can further code it as complex without a final /li/ and with a [+voiced] penultimate segment. However, if in a specified corpus, we decide to consider also the type count of *more* comparatives from the HANDSOME set as a predictor of *more* in a specific token of *more lazy*, we would have no way of coding this type count against the token. This is because the type count would pervade the whole of the corpus from which the token of *more lazy* was obtained and cannot relate just to the token. I cannot therefore include in an investigation based on individual tokens of comparative *y*-adjective constructions a consideration of the comparatives of the BEAUTIFUL, HANDSOME, FAT and QUICKLY categories. The question then is which structural factors actually matter for an account of comparative alternation in *y*-adjectives. To address this, a series of mixed effects models (MEMs) were fitted on the tokens of comparative *y*-adjective constructions gathered from the corpus data. The models were fitted using the glmer function

from the lme4 library (version 1.1-9) (Bates et al., 2015b) in R (version 3.1.3) (R Core Team, 2014). The series of MEMs fitted is reported in 5.4.

5.4 Structural predictors of the comparatives of y-adjectives

The series of MEMs reported in this section were fitted on the 253 tokens of comparative y-adjective constructions gathered from the corpus data. Prior to fitting the MEMs, each token was coded for the following:

- *form* (whether the y-adjective in a token occurred with *more* or with *-er*);
- *period* (the period when a token was found—1 being the earliest 50-year period in the dataset corresponding to period A1 in Figure 5b, and 7 being the latest 50-year period corresponding to period D7 in Figure 5b);
- *syntax* (whether the token occurred in attribution or non-attribution);
- *morphology* (whether the morphology of the y-adjective in a token was complex or simple);
- *plusminusly* (whether the y-adjective in a token had a final /li/ or otherwise);
- *penultvoice* (whether the penultimate segment of the y-adjective in a token was [+voiced] or [-voiced]); and
- *item* (a coding that grouped identical y-adjectives together and kept them apart from other non-identical ones).

In the MEMs fitted, the dependent variable (DV) is *form* (*more*, *er*—coded as 0 and 1, respectively). The independent variables (IVs) are:

- *period* (1–7);
- *syntax* (attributive, non-attributive);
- *morphology* (complex, simple);
- *penultvoice* ([+voiced], [-voiced]); and
- *plusminusly* (plusly, minusly).

Syntax, *morphology*, *penultvoice* and *plusminusly* are treated as binary IVs. *Period* is treated as a continuous IV for the reason that every token of a comparative y-adjective construction can in actuality occur at any point within the 50-year time period to which it is tagged. That is, these tokens can be found in the comedies of any year within a 50-year period, and it is only for the practical reasons outlined in 4.5.2 that they were binned into 50-year periods. Given this, the actual structure of the data specified in terms of *period* would make *period* closer to

being a continuous variable rather than say, an ordinal one. In the MEMs fitted, random intercepts were included for the variable *item*, to allow any fluctuation between *more* and *-er* to be predicted by differences in the lexical forms of *y*-adjectives. This treatment of *item* is aligned with Palmer et al.'s (2002, p. 1583) view that the alternation between *more* and *-er* in disyllabic adjectives, if not specifically in *y*-adjectives, “is very much lexically determined”. In addition, to allow for the possibility that the effect of *period* may be different for each *y*-adjective, parallel models were constructed that included random by-*item* slopes for *period*. At every stage of modelling, the model without these random slopes emerged as a better model. Thus, the MEMs reported in the rest of 5.4 are the ones without these random slopes.

A note is in place in 5.4.1 on how I arrived at the decision to have the morphological features of *y*-adjectives specified by the variable *morphology* instead of two other alternatives referred to as *morphlycomp* and *morphly*. A brief description of how the data were prepared for the first round of model-building is given in 5.4.2. Decisions on which interaction effects to include in model-building are documented in 5.4.3, before the steps that led to a best fit model for the data, together with the best fit model itself, are reported in 5.4.4.

5.4.1 Motivating morphology as a specifier of the morphological feature

Apart from the codes of complex and simple that specify the variable *morphology*, I considered two other ways of specifying the morphological features of *y*-adjectives. One of them follows from the consideration raised in 4.3.2 as to whether the presence of a final /li/ necessarily corresponds to morphological complexity, so that the feature of complexity is in fact captured in a final /li/ in most (if not all) cases of *y*-adjectives where there is a final /li/. This consideration led me to code the *y*-adjectives in my tokens of interest for a feature called *morphlycomp*, i.e. whether the *y*-adjectives were simple, were complex with a final /li/ or were complex without a final /li/. This coding did not account well, however, for the minority of cases where the presence of a final /li/ did not in fact add complexity to the *y*-adjective, e.g. the final /li/ in *silly*. The *y*-adjectives in my tokens of interest were therefore also coded for a feature called *morphly*, i.e. whether the *y*-adjectives were simple with a final /li/, were simple without a final /li/, were complex with a final /li/ or were complex without a final /li/. As *morphology*, *morphlycomp* and *morphly* were all specifying the morphological features of *y*-adjectives, but to varying degrees of granularity, a decision had to be made as to which of these specifications ought to be taken as the variable that best describes the morphological features of the *y*-adjectives in my tokens of interest.

To arrive at this decision, I ran a simple effects model with *syntax*, *penultvoice* and *period*, and then compared this to models with an addition each of one of the three variables of *morphology*, *morphlycomp* and *morphly*. In all of these models, random intercepts were included for *item*, and *plusminusly* was temporarily dropped as a predictor, because the data coded for *plusminusly* would have been subsets of the data coded for *morphly* and *morphlycomp*. The model comparisons were performed using the *anova* function in the *lme4* library (version 1.1-9) (Bates et al., 2015b) in R (version 3.1.3) (R Core Team, 2014). For every comparison made between a model that includes a morphological consideration of the y-adjective bases and the model that excludes this consideration, the former consistently emerges as a better model. Additionally, the best comparison is found where this morphological structure is specified with *morphology* instead of *morphlycomp* or *morphly*; it is with this specification that a significant difference between the models compared is indicated with the smallest p-value (chi-squared=6.423, df=1, p<.05). Therefore, in subsequent MEMs fitted, *morphology*, and not *morphlycomp* or *morphly*, was taken as the predictor that specified the morphology variable.

5.4.2 Data preparation for the first MEM

Before running the first MEM that includes all the IVs (*period*, *syntax*, *morphology*, *penultvoice*, *plusminusly*), a correlation matrix for these IVs was generated in R. Data for the IVs were centered for this purpose because a correlation matrix can only be generated with numeric predictors and centering changes the binary IVs into numeric predictors. The centered data are given the labels of: *periodCenter*; *syntaxCenter*; *morphologyCenter*; *penultvoiceCenter*; and *plusminuslyCenter*. The correlation matrix is presented in Table 5h.

Table 5h. Correlation matrix of all IVs proposed for inclusion in MEMs.

	<i>morphologyCenter</i>	<i>penultvoiceCenter</i>	<i>syntaxCenter</i>	<i>plusminuslyCenter</i>
<i>penultvoiceCenter</i>	0.51056174			
<i>syntaxCenter</i>	-0.12119349	-0.18742053		
<i>plusminuslyCenter</i>	-0.19603204	-0.40053060	0.01902661	
<i>periodCenter</i>	0.01930207	-0.06905245	0.13764838	0.05052487

Table 5h does not show any pair of IVs to be highly correlated, i.e. to have values >0.7; see Clark and Randal (2011, p. 60), who note values >0.7 as indicators of a strong correlation. Although this does not guarantee that there would be no collinearity between these IVs in

subsequent MEMs fitted on my data, the absence of any high correlation in Table 5h suggests that at least in the first MEM fitted, I do not have to consider dropping any of these IVs.

5.4.3 Interaction effects in model-building

In fitting the first MEM, the following three interaction effects were included:

- *period* and *morphology*;
- *plusminusly* and *morphology*; and
- *penultvoice* and *morphology*.

Although *period* cannot be strictly defined as a structural variable in the league of *syntax*, *morphology*, *penultvoice* and *plusminusly*, its inclusion as an IV is justified on grounds of its potential interaction with *morphology* in predicting the DV (or the comparative form found). If what is morphologically complex in earlier periods may become morphologically simple in later ones, e.g. the case of *ugly* (see 4.7.3), the *period* where morphologically-specified y-adjectives are found could escalate/reduce the effects of *morphology* in predicting the comparatives of y-adjectives. It is prudent therefore to include the interaction between *period* and *morphology* as a predictor of the DV, at least in the first MEM fitted.

There are grounds also to believe that *morphology* may interact with *plusminusly* in predicting the DV. These grounds stem from considerations of the extent to which the presence of a final /li/ in y-adjectives also corresponds to morphological complexity, e.g. *lovely* (*love.ly*) (see 4.3.2 and 5.4.1). Since this correspondence has not appeared in the form of a strong correlation between *plusminusly* and *morphology* in Table 5h, it could be realised in the form of an interaction between these variables in the prediction of the comparatives of y-adjectives. A decision was made therefore to include an interaction between *plusminusly* and *morphology* as a predictor of the DV in the first MEM fitted. I would like to point out that it is due to this overlap (in theory) between y-adjectives with a final /li/ and morphological complexity that in the correlational models presented in 5.3, y-adjectives in the tokens of comparatives observed were not further broken down into subsets differentiating between those with a final /li/ and otherwise. It was felt that these subsets would not be drastically different from the morphological ones, and that the latter would therefore be sufficient for the purposes of those correlational models. However, unlike those correlations, which are concerned mainly with paradigmatic predictors of the comparatives of y-adjectives, the MEMs are aimed specifically at evaluating which structural predictors are important for comparative alternation in y-adjectives. Insofar as this goes, and insofar as *plusminusly* is a structural variable, it is

necessary to have *plusminusly* included as an IV, and especially given its potential interaction effect with *morphology*.

The inclusion of the IVs of *penultvoice* and *morphology* in interaction in the first MEM is motivated by a specific observation made in the context of this study and independent of the literature. This is that additional morphological material in complex *y*-adjectives that extend leftwards beyond the word-final position usually do not extend beyond the penultimate position. In *lovely*, for example, the beginning of the additional morphological material, /l/ in *-ly*, does not extend into the word beyond the penultimate position. In *angry*, presumably derived from *anger*, the beginning of the additional morphological material, /i/ in *-y*, does not even extend into the penultimate position. In other words, there could be something about the penultimate segment in *y*-adjectives that may escalate/reduce the effects of *morphology* in predicting the DV. Additionally, since the [\pm voiced] feature is the only feature I have coded for in the penultimate segment of *y*-adjectives (see grounds for this coding in 3.6), it is prudent to include an interaction between *penultvoice* and *morphology* as a predictor of the DV in the first MEM fitted.

5.4.4 Report on MEMs fitted

Using the *glmer* function from the *lme4* library (version 1.1-9) (Bates et al., 2015b) in R (version 3.1.3) (R Core Team, 2014), a series of MEMs were fitted on the corpus data. The *glmer* function is used instead of the *lmer* function because of the binary DV in the model.

The first model fitted (Model 1) included *period*, *morphology*, *penultvoice*, *plusminusly* and *syntax* as simple effects, with two-way interactions of *morphology* with each of *period*, *penultvoice* and *plusminusly*, and with *item* as a random effect. The only effect to approach significance is the interaction of *morphology* and *plusminusly* (estimate=3.318, SE=1.716, $z=1.934$, $p=.053$). Since the two-way interactions of *morphology* with each of *period* and *penultvoice* are not significant, each of these interactions were dropped in turn with the other kept in two subsequent models. This is to determine whether with model simplification, some significant predictors of the DV might emerge. In a subsequent second model which kept the interactions of *morphology* with each of *period* and *plusminusly*, and dropped the interaction between *morphology* and *penultvoice* (Model 2), no effect is found to contribute significantly to the model. In a subsequent third model which kept the interactions of *morphology* with each of *penultvoice* and *plusminusly*, and dropped the interaction between *morphology* and *period* (Model 3), the interaction between *morphology* and *plusminusly* is found to be significant (estimate=3.376, SE=1.703, $z=1.982$, $p<.05$), but not the interaction

between *morphology* and *penultvoice*. Findings from Model 3 shows also the simple effect of *period* to be significant (estimate=0.212, SE=0.089, $z=2.396$, $p<.05$).

Since the interaction between *morphology* and *period*, and between *morphology* and *penultvoice*, are both not significant, respectively in Models 2 and 3, these two interactions were dropped as predictors in a fourth model (Model 4), to check whether further model simplification resulted in a better model. Although the interaction between *morphology* and *plusminusly* was retained in Model 4, the interaction is not found to be significant. Like Model 3 before it however, the simple effect of *period* is found to be significant in Model 4 (estimate=0.225, SE=0.088, $z=2.554$, $p<.05$). A comparison between Models 3 and 4 using the anova function in the lme4 library (version 1.1-9) (Bates et al., 2015b) in R (version 3.1.3) (R Core Team, 2014) does not show the two models to differ (chi-squared=2.680, df=1, $p>.05$). The simpler model with fewer predictors was therefore accepted for further investigation. This is Model 4, which contains *period*, *syntax*, *morphology*, *penultvoice* and *plusminusly* as simple effects, with an interaction between *morphology* and *plusminusly*, and with *item* as a random effect.

Before determining whether further model simplification with the removal of the interaction between *morphology* and *plusminusly* would lead to a better model, collinearities in Model 4 of *plusminusly* with each of *penultvoice* and *morphology* must be addressed. The collinearity between *plusminusly* and *penultvoice* can be accounted for since none of the items coded with a final /li/ in the IV, *plusminusly*, would have a [-voiced] penultimate segment. A cross-tabulation of token counts between the IVs of *morphology* and *plusminusly* in Table 5i shows also that more than half of the tokens with a final /li/ are complex (41 tokens) while less than half of them are simple (13 tokens). This distribution can explain the collinearity between *plusminusly* and *morphology*.

Table 5i. Cross-tabulation of token counts between *morphology* and *plusminusly*.

	minusly	plusly
complex	104	41
simple	95	13

Since the collinearities of *plusminusly* with each of *penultvoice* and *morphology* can be explained, a decision was made to remove *plusminusly* as a predictor of the DV. At the same time, a decision was made to remove *syntax* as a predictor of the DV because for every previous model described, *syntax* is not even marginally significant in its contribution, with its p-value

consistently approaching 1.0. The exclusion of syntax may therefore simplify the model to allow more significant predictors of the DV to emerge. With *plusminusly* and *syntax* excluded as predictors of the DV, a fifth model (Model 5) was fitted. In Model 5, *period*, *morphology* and *penultvoice* were included as simple effects, and *item* was included as a random effect. Findings from Model 5 show *period* (estimate=0.225, SE=0.087, $z=2.598$, $p<.01$) and *morphology* (estimate=1.614, SE=0.632, $z=2.553$, $p<.05$) to be significant predictors of the DV, but not *penultvoice*. Since *penultvoice* is the only variable that is not significant, a sixth model (Model 6) was fitted to check whether a simpler model without *penultvoice* as a predictor would lead to an even better model. In Model 6, only the simple effects of *period* and *morphology* were included as predictors of the DV, with *item* included as a random effect. Findings from Model 6, as in those from Model 5, show *period* and *morphology* to be significant predictors of the DV. An anova comparison between Models 5 and 6 does not show the two models to differ significantly (chi-squared=0.752, $df=1$, $p>.05$). Since Model 6 is simpler than Model 5, given its exclusion of the simple effect of *penultvoice*, it is accepted as the model that best describes the corpus data.

Model 6 is reported in Table 5j. *Period* and *morphology* are significant predictors of the comparatives of y-adjectives in this model.

Table 5j. Best fit model for corpus data, with *period* and *morphology* as predictors of *-er*.

	Estimate	Std. Error	z-value	p-value
(Intercept)	-0.86057	0.47580	-1.809	0.0705.
period	0.21869	0.08643	2.530	0.0114*
morphology	1.61433	0.63410	2.546	0.0109*

. $p<0.1$; * $p<0.05$

In Table 5j, the finding shown for *morphology* is the effect of a change from morphological complexity to simplicity in y-adjective bases on the comparative *-er* form for y-adjectives, while the finding shown for *period* is the effect of every unit increase in *period* on the comparative *-er* form for these adjectives. The positive estimate for *morphology* indicates that morphological simplicity results in an increase in the likelihood that y-adjectives are found with *-er*. The positive estimate for *period* indicates that the passing of time also increases the likelihood that y-adjectives are found with *-er*. Figure 5c plots the significant effects from Table 5j.

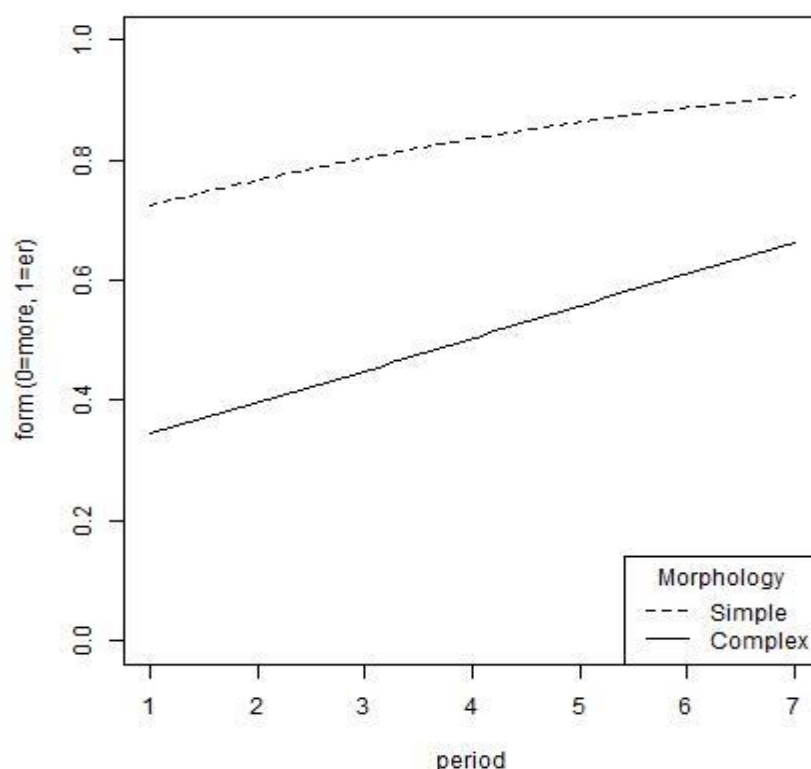


Figure 5c. Graph of best fit model for corpus data.

The type of plot in Figure 5c is usually generated for the purpose of showing significant interactions between the IVs involved. Although I have not found any significant interaction between *period* and *morphology* in predicting the DV, I am still using an interaction graph in Figure 5c for its ease in providing a visual presentation of the findings from Table 5j. The y-axis in Figure 5c indicates the probabilities of *-er* occurrences between the values of zero and one. The figure shows that at every period, there is a higher probability for simple y-adjectives than for complex ones to be paired with *-er*. Figure 5c shows also that the probability of finding y-adjectives in *-er* constructions increases from periods 1 to 7, for both simple and complex y-adjectives.

The MEMs reported in this section provides a more thorough investigation of whether a set of structural features can predict comparative alternation for the y-adjectives in my corpus data. These structural features are: *syntax*, *morphology*, *penultvoice* and *plusminusly*—spelt out by way of Hypotheses 5–8 (H5–8) in 4.3.2 (reproduced here):

Hypothesis 5 (H5)

The syntactic positioning (attributive/non-attributive) of tokens of comparative y-adjective constructions is a significant predictor of the comparative forms in these tokens.

Hypothesis 6 (H6)

The morphology (simple/complex) of y-adjective bases is a significant predictor of their comparatives.

Hypothesis 7 (H7)

The final /li/ (its presence/absence) in y-adjective bases is a significant predictor of their comparatives.

Hypothesis 8 (H8)

The [\pm voiced] feature (whether this is [+voiced] or [-voiced]) of the penultimate segment in y-adjective bases is a significant predictor of their comparatives.

To the set of structural factors referred to in H5–H8, I have added—for reasons noted in 5.4.3—the factor of *period* in my statistical modelling. The MEM eventually accepted as best fit for my corpus data shows *period* and *morphology* to be significant predictors of the comparatives of y-adjectives. Of all the structural features proposed as potential predictors of these comparatives therefore, only *morphology* has emerged as a significant predictor, i.e. only H6 is confirmed. The findings in this section suggest that in an account of comparative alternation in y-adjectives, there are stronger grounds to include a consideration of y-adjective morphology than a consideration of the other structural features spelt out in H5, H7 and H8.

5.5 Implications of corpus findings for the experimental study

The corpus findings reported allow for a series of implications to be drawn for a subsequent experimental study in this thesis. The first is the need to validate whether the morphological structure of y-adjective bases can indeed predict the comparative forms of these adjectives. The MEM accepted as best fit for my corpus data (see 5.4.4) shows the main source of variation between *more* and *-er* in y-adjectives to reside in *morphology* rather than in any other structural factor considered. The indication in this finding is that there is a higher likelihood of finding the *-er* comparative in simple y-adjectives and the *more* comparative in complex ones. It is reasonable therefore to extend a test of morphology as a predictor of the

comparatives of *y*-adjectives to a subsequent experimental study. The nature of an experimental study permits observation, through language processing indicators, of people's receptiveness towards the *more* and *-er* constructions in *y*-adjectives, where 'receptiveness' might be defined as the extent of processing ease people have towards these constructions in the course of reading or otherwise. In line with the corpus findings, we might expect an increased receptiveness towards the *more* construction with complex *y*-adjective bases, and an increased receptiveness towards the *-er* construction with simple *y*-adjective bases.

Based on the corpus findings, there are reasonable grounds also to test whether receptiveness towards the comparatives of *y*-adjectives may be related to the comparatives of HANDSOME adjectives. Three sets of significant correlations are found in my corpus data between the comparatives of HANDSOME adjectives and those of *y*-adjectives (see Tables 5b, 5c and 5g). In comparison, only two sets of significant correlations are found between the QUICKLY adverbs and the *y*-adjectives (see Tables 5b and 5d), and only one significant correlation is found between the FAT adjectives and the *y*-ones (see Table 5e). If we leave aside for now any structural sub-setting of *y*-adjectives implicated in these correlations (I will return to these later), we can note that the number of correlations involving comparatives of the HANDSOME adjectives is higher than those involving comparatives of the QUICKLY adverbs and FAT adjectives. There is reason therefore to suspect that comparatives of HANDSOME adjectives can help predict the comparatives of *y*-adjectives, and on top of that, to a larger extent than what would be predicted by comparatives of the QUICKLY adverbs and those of the FAT adjectives. It follows that in a subsequent experimental study, priority should be given to a test of the predictive effects of the comparatives of HANDSOME adjectives on the comparatives of *y*-adjectives. In particular, we might expect that when exposed to many HANDSOME adjectives paired with a particular comparative form, receptiveness to *y*-adjectives paired with that same form would increase while receptiveness to *y*-adjectives paired with the alternate form would decrease.

The first of these expectations is derived from the significant positive correlations reported between *more*+HANDSOME and *more*+*y*-adjective constructions (see Tables 5b and 5c), while the second is derived from the significant negative correlation reported between *more*+HANDSOME and *y*-adjective+*er* constructions (see Table 5g). It is true that significant correlations of a similar nature were not noted from the corpus data where comparative constructions from the HANDSOME adjectives were *-er* ones rather than *more* ones. This might raise a question in turn as to whether it is necessary to give further empirical pursuit to the predictive effects that HANDSOME+*er* constructions might have on the comparatives of

y-adjectives. While I take this point, the possibility remains that emergence of correlations involving the *-er* constructions of HANDSOME adjectives might be constrained in the corpus data not by the fact that these correlations do not exist, but by the less controlled nature of a corpus study in general. For example, the average type count per period of *more*+HANDSOME in my sample is 33.29, while that of HANDSOME+*er* is only 9.29. This potentially makes it more difficult to find statistically significant correlations involving HANDSOME+*er*. Where experimental testing is concerned, conditions can be better controlled, and we can increase the density of HANDSOME+*er* to a point equivalent to *more*+HANDSOME so that we are in a better empirical position to observe any effect from HANDSOME+*er*. In this respect, it is reasonable to involve both *more* and *-er* constructions of HANDSOME adjectives in an experimental test of the anticipated effects of these comparatives on those of y-adjectives.

The corpus findings suggest moreover that it is worthwhile to include in this test a consideration of whether comparatives of HANDSOME adjectives might enhance or suppress anticipated effects of *morphology* on comparative formation in y-adjectives. As noted earlier, *morphology* is the only structural factor found to significantly predict the comparatives of y-adjectives in the model accepted as best fit for the corpus data (see 5.4.4). It follows that in a subsequent study of the effects of the comparatives of HANDSOME adjectives on the comparatives of y-adjectives, the significant correlations that can best inform this study are those that involve morphological subsets of y-adjectives. I am referring in particular to two sets of significant correlations: the negative correlation in *-er* constructions between the QUICKLY adverbs and complex y-adjectives (see Table 5d); and the negative correlation between the *more*+HANDSOME comparatives and the *-er* constructions of simple y-adjectives (see Table 5g).

In determining what these correlations can mean for a subsequent study, it would help to interpret them with respect to a conceptual question. That is, are these correlations aligned with or do they depart from anticipated morphological effects on comparative formation in y-adjectives? Any drop in the *-er* forms of complex y-adjectives (indicated in Table 5d to correspond with a rise in QUICKLY+*er*) is aligned with the expectation for *-er* to occur with simple y-adjectives rather than complex ones. On the other hand, any drop in the *-er* forms of simple y-adjectives (indicated in Table 5g to correlate with a rise in *more*+HANDSOME comparatives) departs from the expectation for simple y-adjectives to pair up with *-er*. Leaving aside for now the observation that these correlations do not all involve comparatives of the HANDSOME adjectives, I could formulate a set of general hypotheses. They are hypotheses about how effects of morphology on the comparatives of y-adjectives could be enhanced or

suppressed by the comparatives of other items. In particular, *y*-adjectives predicted by their morphology to take a particular comparative form seem to have these predictions enhanced, on the one hand, by the comparatives of other items that also contain this form; on the other hand, the predictions seem to be suppressed by the comparatives of other items that contain the alternate form. In an experimental setting, it seems reasonable therefore to test whether the *more* constructions of HANDSOME adjectives might enhance any supposed morphological effects for *more* in *y*-adjectives; and whether the *-er* constructions of HANDSOME adjectives might enhance any supposed morphological effects for *-er* in *y*-adjectives. At the same time, a test must be undertaken to investigate whether the *more* constructions of HANDSOME adjectives might suppress any supposed morphological effects for *-er* in *y*-adjectives; and whether the *-er* constructions of HANDSOME adjectives might suppress any supposed morphological effects for *more* in *y*-adjectives. Although not indicated in the corpus findings, I am not writing off the possibility that any supposed morphological effects for comparative *more* can be enhanced or suppressed in *y*-adjectives. It may well be that we are not observing these effects because tokens of *y*-adjective *more* comparatives are insufficiently large enough in the corpus data for the relevant observations to be made; the average token count per period of *more+y*-adjective in my sample is 11.43, which is lower than that for *y*-adjective+*-er* at 24.71. It is reasonable therefore to determine whether in an experimental context, where conditions can be controlled so that we are less vulnerable to the kind of frequency imbalances in corpus data, enhancement or suppression of morphological effects for *more* in *y*-adjectives can emerge.

It remains true that in the corpus data, an indication that morphological effects on the comparatives of *y*-adjectives can be enhanced arises from a significant correlation involving QUICKLY adverbs rather than HANDSOME adjectives. The question would necessarily arise as to why I am then proposing an experimental test of this enhancement in relation to HANDSOME adjectives. The answer is that the findings do provide me with grounds to consider suppression effects from the comparatives of HANDSOME adjectives on morphological predictions on the comparatives of *y*-adjectives. The significant negative correlation between HANDSOME *more* comparatives and simple *y*-adjectives paired with *-er* (see Table 5g) suggests that HANDSOME *more* comparatives might suppress any anticipated advantage that simple *y*-adjectives have for *-er*. If I am already testing whether morphological predictions on the comparatives of *y*-adjectives can be suppressed by the comparatives of HANDSOME adjectives, it is a matter of convenience for experimental design that I also test for whether an enhancement of these morphological predictions can be related to the comparatives of the HANDSOME set. In other words, with no compelling reason to decide

otherwise, and with the constraints of time and other resources in a PhD study, it is logistically sound to use the comparatives of HANDSOME adjectives as a point of departure for examining any enhancement of morphological effects on the comparatives of *y*-adjectives.

5.6 Chapter conclusion

This chapter began with an overview of the corpus data showing that *y*-adjectives as a class do alternate between comparatives *more* and *-er*. The overview was followed by a report of the findings obtained from a series of correlational models and MEMs fitted on the corpus data. These findings suggest that *more* constructions from the *y*-adjectives may be related to *more* constructions from the HANDSOME adjectives; that morphological predictions of *more* and *-er* for *y*-adjectives may be enhanced or suppressed by the comparatives of other categories of items; and that the morphology of *y*-adjective bases may be an important factor for understanding the comparatives of these adjectives. In view of these suggestions, a need was highlighted to test, in a subsequent experimental study, whether comparatives of the HANDSOME set can predict the comparatives of *y*-adjectives, with and without implicating the effects of morphology. An experimental test of this nature is described in Chapter 6.

CHAPTER 6

EXPERIMENTAL STUDY

6.1 Chapter overview

This chapter maps out the hypotheses to be tested in the experimental component of this research, and the methodology used for this testing. Section 6.2 notes how and why reading times can serve as indicators of receptiveness to the pairing of *y*-adjectives with particular comparatives. Section 6.3 lists the hypotheses to be tested. Section 6.4 describes the experimental design itself, with information on: the general experimental procedure; the participants; the items of interest tested; the reading and listening tasks used in the testing; and the stages of the experiment. This experimental study has been approved by the Human Ethics Committee of the Victoria University of Wellington (Ethics Approval: 20737).

6.2 Indicators of receptiveness towards the comparatives of *y*-adjectives

The experimental study described in this chapter comprises a series of self-paced reading (SPR) tasks interspersed with a listening task, where reading times (RTs) are taken to be indicators of people's receptiveness towards the comparative *more* and *-er* constructions of *y*-adjectives. The RTs of interest were obtained in the context of comparative *y*-adjective constructions (see more on this in 6.3). These RTs are taken to be a measure of the ease with which people process comparative *y*-adjective constructions, following Fernández and Cairns's (2011, p. 271) note that RTs constitute measures of real time language processing. Since it is reasonable to expect relatively greater ease in processing where constructions are felt to be more natural, the extent of processing ease reflected in the RTs obtained can be taken to indicate the processor's receptiveness towards the pairing of *y*-adjectives with particular comparative forms. In this regard, an increased receptiveness towards the *more* or *-er* constructions from *y*-adjectives is indicated by the relatively shorter RTs obtained in the context of these constructions. Likewise, a reduced receptiveness towards these *more* or *-er* constructions is indicated by the relatively longer RTs obtained in the context of these constructions.

Although I am drawing on the visual manipulation related to reading tasks as indicators of receptiveness towards the pairing of *y*-adjectives with comparatives *more* and *-er*, it might be suggested that indications of receptiveness drawn from spoken manipulation might have

greater ecological validity for my research. This is because the corpus findings underpinning the hypotheses tested in my experimental study are driven by spoken data (or data written to be spoken). In view of this, a range of options that might involve audio presentation were considered; however, I was unable to find a viable way of testing listeners' processing of the comparative forms. On the other hand, in existing studies that focus on investigating ambiguity resolution between the use of alternative forms including that between comparatives *more* and *-er* (Boyd, 2007), and alternative ways of interpreting a form (Holmes et al., 1987; Gibson et al., 1996; Vine & Warren, 2012), it is not uncommon to use measures obtained from visual manipulation as indicators of the effects tested. Accordingly, I decided to design an experiment that captures reading times in response to visual input as indicators of receptiveness towards comparative y-adjective constructions.

It might be suggested further that my test of various effects on the comparatives of y-adjectives with data on receptiveness is problematic in view of the fact that predictions of these effects are informed in part by corpus data, which is essentially productive rather than receptive data. I would like to point out, however, that at the same time that we have a long history of studies on comparative alternation performed on production data in the context of corpora, we are also getting more recent studies that draw on receptive data, e.g. in the context of the judgement and SPR tasks in Boyd (2007). What is worthy of note moreover is that the investigations performed on these receptive data are informed by findings based on production data. The investigative goal in Boyd's (2007) tasks, for instance, are informed by Mondorf's (2003) findings from the BNC; and in fact, the findings from Boyd (2007) are aligned with the relevant conclusions drawn in Mondorf (2003). My point is that it is not unusual in the field of comparative alternation studies to validate conclusions from production data with receptive data. Given this, and added to the fact that we have no reason *a priori* to believe that my hypothesised predictors of comparative alternation in y-adjectives are only valid in the context of production and not reception, we should not be overly concerned that I am investigating potential effects on the comparatives of y-adjectives based on people's receptiveness when the motivation to test for these effects is informed by people's productions.

6.3 Hypotheses

The goal of my experimental study is to test a number of hypotheses, where RTs serve as measures for their confirmation or otherwise. The hypotheses tested consider specifically: predictive effects of y-adjective morphology on the comparatives of these adjectives; predictive effects of the comparatives of HANDSOME adjectives on the comparatives of y-adjectives;

and predictive effects of the comparatives of HANDSOME adjectives on the comparatives of morphological subsets of *y*-adjectives. The hypotheses are informed by the corpus findings reported in Chapter 5 (see, in particular, 5.5).

Before spelling out these hypotheses, it should be noted that the predictions in them are measured through the RTs of the second word following the comparative *y*-adjective constructions. The RTs of these words are to be taken as proxies for the RTs of the comparative *y*-adjective constructions. There are two reasons for using RTs of words following the comparative. First, the comparative *y*-adjective construction is sometimes one word (*y*-adjective+*er*) and sometimes two (*more*+*y*-adjective), and so a direct comparison of RTs obtained from them would necessarily be confounded by differences in the number of words in these constructions. Second, any processing ease/difficulty caused by one word/region during reading typically surfaces when the following words/regions are read, where ‘region’ refers to a partitioning of what is read into groups of words or just singular words so that the RTs used for further investigation are those drawn from each partition. The use of RTs of words after the target as a measure of RTs for the target is based on prior research. It is due to differences in the number of words involved between comparatives formed with *more* and those formed with *-er*, for instance, that in Boyd’s (2007, p. 30) study, analysis is performed “on the infinitival maker *to*” immediately following the comparative constructions.

In addition, the use of RTs for the second (rather than first) word after the comparative construction is motivated as follows. Firstly, research such as that of Gibson et al. (1996, p. 30) has shown, in a study on relative clause disambiguation in Spanish, that the processing effects of a target might be found as late as two regions after the target. The suggestion that processing effects tend to emerge in items beyond one region after the target is also found in Holmes et al.’s (1987, p. 285) study on the processing of sentences with a complement clause structure. The disambiguation effects tested in Holmes et al.’s study were expected to be found beyond one word after the onset of disambiguation. Additionally, it is worthy of note that in their study on category ambiguity for the word *like*, Vine and Warren (2012, p. 244) found the relevant experimental effect to emerge only two words after the ambiguous region. In view of these previous studies, all of which suggest that it is reasonable to examine the RTs of items that lie at least two regions after the target for any processing effect related to the target, I made the decision to take RTs of the second word after the comparative *y*-adjective constructions as indicators of any experimental effects on these comparatives. When I write therefore about a facilitation in reading in comparative *y*-adjective constructions, either in my hypotheses for the experimental study or in my subsequent discussion of the findings from this study, my measure

of this facilitation is indirect. That is, I am making inferences about this facilitation from the reading of the second word following the comparative *y*-adjective construction. In the rest of this section, I will describe the hypotheses tested in my experimental study.

6.3.1 *Effects of y-adjective morphology*

The first two hypotheses to be considered relate specifically to the likelihoods of the different comparative constructions in connection with differences in the morphological structure of *y*-adjective bases. As discussed in 5.5, the corpus finding that simple *y*-adjectives have a higher likelihood of occurring with *-er* than complex ones (c.f. Figure 5c in 5.4.4) indicates that the morphological complexity of the base deserves further investigation in an experimental context. Accordingly, I include in my experimental study tests of whether people are indeed more receptive towards: (a) *-er* constructions formed with simple *y*-adjectives than with complex ones; and (b) *more* constructions formed with complex *y*-adjectives than with simple ones. These tests are couched in the following two hypotheses.

Hypothesis 13 (H13)

For comparatives formed with *-er*, there will be facilitation in reading where the *y*-adjective bases are simple compared to where they are complex.

Hypothesis 14 (H14)

For comparatives formed with *more*, there will be facilitation in reading where the *y*-adjective bases are complex compared to where they are simple.

6.3.2 *Effects of the comparatives of HANDSOME adjectives*

In addition to suggesting that the choice of comparative construction for *y*-adjectives might be influenced by the morphological structure of *y*-adjective bases, the corpus data also suggest that the comparatives of HANDSOME adjectives could contribute to this account. As noted in 5.5, one implication of the corpus study is that with more HANDSOME adjectives occurring with a specific comparative form, we might expect to find more *y*-adjectives with that same comparative form and fewer *y*-adjectives with the alternate comparative form. In a follow-up experimental test of this, we might expect an increased receptiveness to the *more* constructions of *y*-adjectives and a reduced receptiveness to the *-er* ones when people are exposed to many HANDSOME adjectives paired with *more*. On the flip side, when they are exposed to many HANDSOME adjectives paired with *-er*, we might expect an increased

receptiveness to the *-er* constructions of *y*-adjectives and a reduced receptiveness to the *more* ones.

In the context of an experiment, these expectations may be taken to imply some extent of the kind of priming (or persistence) of a construction in cognition noted in Szmrecsanyi (2005), with reference to comparatives, and in Bock (1986), with respect to syntactic alternation. While I acknowledge this, I will say more in 8.4 about a potential caveat in interpreting my experimental output in terms of priming effects. For now, the following hypotheses frame what I expect to find from my experimental component. All mentions of ‘facilitation’ in these hypotheses relate to decreases in RTs in the post-treatment phase compared with the pre-treatment phase.

Hypothesis 15a (H15a)

For comparative *more* constructions of *y*-adjectives, there will be greater facilitation in reading for participants exposed to an experimental treatment of multiple instances of *more*+HANDSOME than for those exposed to a control condition.

Hypothesis 16a (H16a)

For comparative *more* constructions of *y*-adjectives, there will be weaker facilitation in reading for participants exposed to an experimental treatment of multiple instances of HANDSOME+*er* than for those exposed to a control condition.

Hypothesis 17a (H17a)

For comparative *-er* constructions of *y*-adjectives, there will be greater facilitation in reading for participants exposed to an experimental treatment of multiple instances of HANDSOME+*er* than for those exposed to a control condition.

Hypothesis 18a (H18a)

For comparative *-er* constructions of *y*-adjectives, there will be weaker facilitation in reading for participants exposed to an experimental treatment of multiple instances of *more*+HANDSOME than for those exposed to a control condition.

For the purposes of performing the statistical modelling needed to test these hypotheses (more on these models in 7.5.3), each of the above hypotheses were grouped as one-half of a

pair of hypotheses, which is the reason that they are affixed with ‘a’. Counterparts to each of these hypotheses—ones affixed with ‘b’—are presented in 6.3.3.

6.3.3 Effects of the comparatives of HANDSOME adjectives on morphological subsets

I pointed out in my discussion in 5.5 that there are reasonable grounds to suspect from the corpus findings that effects of the comparatives of HANDSOME adjectives on the comparatives of *y*-adjectives might be realised with respect to morphological subsets of *y*-adjectives. I noted how in the face of many HANDSOME adjectives found with a particular comparative form, we might expect to find in the comparatives of *y*-adjectives an enhancement of the morphological conditioning for that form and a suppression of the morphological conditioning for the alternate form. If we add to this expectations for complex *y*-adjectives to be biased towards *more*, and simple ones to be biased towards *-er* (see H13 and H14 in 6.3.1), we could arrive at a set of predictions for the effects that comparatives of the HANDSOME set might have on the comparatives of morphological subsets of *y*-adjectives. That is, when exposed to many HANDSOME adjectives paired with *more*, people might demonstrate an increased receptiveness to the *more* constructions of complex *y*-adjectives and a reduced receptiveness to the *-er* constructions of simple ones. On the other hand, when exposed to many HANDSOME adjectives paired with *-er*, they might demonstrate an increased receptiveness to the *-er* constructions of simple *y*-adjectives and a reduced receptiveness to the *more* constructions of complex ones. These expectations are worded in the following hypotheses, and as is the case for H15a–H18a above, all mentions of ‘facilitation’ in the hypotheses below relate to decreases in RTs in the post-treatment phase compared with the pre-treatment phase.

Hypothesis 15b (H15b)

Any facilitation in the reading of *more* comparatives resulting from an exposure to multiple instances of *more*+HANDSOME will be greater for complex *y*-adjectives than for simple ones. In contrast, any facilitation in this reading resulting from an exposure to a control condition will be no different between complex and simple *y*-adjectives.

Hypothesis 16b (H16b)

Any facilitation in the reading of *more* comparatives resulting from an exposure to multiple instances of HANDSOME+*er* will be weaker for complex *y*-adjectives than for simple ones. In contrast, any facilitation in this reading resulting from an exposure to a control condition will be no different between complex and simple *y*-adjectives.

Hypothesis 17b (H17b)

Any facilitation in the reading of *-er* comparatives resulting from an exposure to multiple instances of HANDSOME+*er* will be greater for simple y-adjectives than for complex ones. In contrast, any facilitation in this reading resulting from an exposure to a control condition will be no different between complex and simple y-adjectives.

Hypothesis 18b (H18b)

Any facilitation in the reading of *-er* comparatives resulting from an exposure to multiple instances of *more*+HANDSOME will be weaker for simple y-adjectives than for complex ones. In contrast, any facilitation in this reading resulting from an exposure to a control condition will be no different between complex and simple y-adjectives.

6.4 Experimental design*6.4.1 General experimental procedure*

To test the hypotheses mapped out in 6.3, an experiment designed to capture RTs was constructed. RTs were obtained using E-prime (version 2.0) (Psychology Software Tools, 2012). The experiment contains a pre-treatment stage (Stage I) and a post-treatment stage (Stage III), with a treatment stage (Stage II) in between. Each participant took part in all three stages of the experiment. At Stage I, participants performed a SPR task, which involved the silent reading of a story containing a set of comparative y-adjective constructions. At Stage II, they performed a listening task, where they listened either to one of two dialogues or to an instrumental piece of music. The dialogues are the experimental treatments while the music is the control treatment. At Stage III, participants read the same story containing the same set of comparative y-adjective constructions that they read in Stage I.

Participants were not told at any point that this was a study about comparative alternation. They were informed prior to Stage I whether they were going to listen to a piece of dialogue or a piece of music at Stage II. They were not told, however, what the content of the dialogue/music was, and neither were they aware that the listening task for other participants could be the same as or different to theirs. There is a reason for this step of creating awareness in participants of the dialogic/musical nature of the listening task. It is to ensure that in the event that this awareness was sufficient to confound the specific treatment effects on RTs, then it would at least be consistently present across both pre- and post-treatment readings. Any greater/weaker facilitation in reading from pre- to post-treatment can therefore be more

confidently attributed to treatment effects rather than to a post-treatment awareness that a piece of dialogue, or a piece of music, was heard. I accept the point that awareness of an upcoming language-related listening task may prompt more careful reading at pre-treatment that would otherwise not be prompted if awareness is of an upcoming non-language-related listening task; see my method of addressing this potential concern in 7.6. It should be emphasised, however, that if this awareness were to set in only at post-treatment, retrospectively with respect to what was heard, there would be no recourse via experimental procedure to disentangle the awareness effect from the treatment effects of interest.

6.4.2 Participants

A total of 96 native speakers of New Zealand English aged 20–30 participated in this study. At the time of taking part, they had no language disability, had normal/corrected vision and normal hearing. Prior to the study, participants were given an information sheet containing details of the study (see Appendix 6B), which they were asked to read and to keep. They were also given the opportunity to have any of their queries addressed. By signing a relevant form, participants indicated that they were giving informed consent to participate in the study (see Appendix 6C). The study took no more than an hour of each participant's time, and each participant was given a \$20 supermarket voucher in return for their time spent on this study. Of the 96 participants, there are 31 males and 65 females, and 88 right-handers and 8 left-handers.

6.4.3 Items of interest: comparative y-adjective constructions

Comparative y-adjective constructions are the items of interest for the SPR tasks. In these tasks, the constructions were presented with other items in the form of a story to be read on a computer screen. Each story contains 20 comparative y-adjective constructions. The 20 y-adjectives in them are either all morphologically simple or all morphologically complex. These y-adjectives are listed in Appendix 6D (see 6D.1 and 6D.2).

6.4.4 Experimental controls

Some controls were imposed in the design of the stories used in the SPR tasks. The variables under control are those that might predict comparative alternation in y-adjectives, but which I was unable to test for within the limits of a single experimental investigation. By building these variables into my experimental design as controls therefore, I can prevent them from confounding any effect obtained from my actual predictors of interest.

One control imposed is for all comparative *y*-adjective constructions to be read in a predicative and not attributive context. The reasoning for this stems in part from the literature and in part from my corpus findings. As noted in 3.6, there are prior claims in the literature that in attribution, adjectives are conditioned towards forming the comparative with *-er*, while in predication, they are conditioned towards forming it with *more* (Leech & Culpeper, 1997, p. 366; Hilpert, 2008, p. 407). Although I did not find this in my corpus study, I did find a significant correlation between the *more* comparatives of HANDSOME adjectives and the *more* comparatives of *y*-adjectives in attributive contexts. This corpus finding, with the literature, suggests that an attributive versus predicative contrast can confound any test of the independent predictive effects of the comparatives of HANDSOME adjectives on the comparatives of *y*-adjectives (c.f. H15a, H16, H17a and H18a in 6.3.2). Ensuring that all comparative *y*-adjective constructions in my experimental study were read in a predicative context allows me to avoid this confound. A second control imposed in my design of the SPR tasks is for the comparative *y*-adjective constructions to be read without a premodifier. This decision stems from Lindquist's (2000, p. 132) note that premodification "favour[s] periphrastic comparison". There are grounds therefore for me to ensure that no comparative *y*-adjective construction in my experimental study was read with a premodifier, so that I would not get a confounding bias towards *more* in any of these readings. What is more, by implementing together these two controls of having comparative *y*-adjective constructions read in predication and without any premodification, I hope to cancel out any *a priori* bias towards either *more* or *-er*. If a context of predication tilted participant receptiveness towards comparative *y*-adjective constructions in favour of *more*, a context of no premodification would tilt it in favour of *-er*. Presumably then, these controls aid me in arriving at some more neutral ground between *more* and *-er* for comparative *y*-adjective formation, which is a ground ideal for investigating whether my experimental predictors can then bias *y*-adjectives towards either of these forms.

No attempt was made in my study to control for the presence/absence of *than* following the comparative *y*-adjective constructions read. Although it has been hypothesised that a following *than* conditions a bias towards *more* in comparative adjectives, the hypothesis is not confirmed by either Leech and Culpeper (1997, p. 367) or Lindquist (1998, p. 129). In fact Hilpert (2008, p. 408) reports that the bias with a following *than* is towards *-er* rather than *more* and even then it "is not particularly strong". There is no solid evidence from the literature therefore for a bias towards *more* as a consequence of a following *than*. The variant presence

of *than* following the comparative *y*-adjective constructions read in my experimental study is not expected to confound any experimental effects.

6.4.5 Pre-treatment & post-treatment: SPR tasks

The stories read in the SPR tasks were written by me. Of the stories read by any one participant, one was read at Stage I (pre-treatment) and the other at Stage III (post-treatment). The two stories read by each participant do not differ in content, but in the comprehension questions asked about those stories (more on comprehension questions later in this section). Participants were not told beforehand or at any stage of the experiment that comparative *y*-adjective constructions were the items of interest in the stories they were reading.

The SPR tasks took place in a university language laboratory, and were performed on a 19-inch computer monitor, using E-prime (version 2.0) (Psychology Software Tools, 2012). Using an SPR programming script adapted from Warren (2007), the stories were presented to participants in sets of six sentences per screen. Each story contains 16 sets of six sentences (or 16 trials). That makes a total of 96 sentences for each story. The stories were presented in the form of a masked reading task using the moving window condition in the behavioural paradigm (Just et al., 1982, p. 230). For every trial, participants were first presented with a screen containing many series of dashes. Each series of dashes corresponds to a word, and each dash corresponds to a letter in the word. Each time a participant presses a button on the response box, the next word in the story would replace the relevant set of dashes. As each new word appears, the preceding word would be replaced again by a set of dashes. Before performing the actual SPR tasks, participants were given a practice task to familiarise themselves with the procedure. The practice task comprises four practice trials and is also written in the form of a story. In the presentation of the SPR tasks, the moving window condition was chosen in preference to the cumulative condition, where previously read words do not disappear, because my goal is to capture the RT of every word presented. In a cumulative condition, I ran the risk of participants “rapidly pushing the response button three or four times in succession and then reading the group of newly presented words” (Just et al., 1982, p. 230). I would then have been unable to accurately capture the RT of every word read. It is also possible in a cumulative condition for participants to go back to a word and reread it, so that “the time between button presses does not necessarily indicate the time actually spent reading the word that first appeared between those presses” (Just et al., 1982, p. 230).

Each story in the SPR tasks contains 16 ‘yes’ or ‘no’ comprehension questions about the story. Through the information sheet given to them prior to the study (see Appendix 6B),

participants were informed beforehand that they had to answer a set of comprehension questions as part of the SPR tasks. The questions in each story are balanced for the number of 'yes' and 'no' responses. This means that out of the 16 questions asked in a story, if answered correctly, eight would correspond with a 'yes' response, and the other eight with a 'no' response. The questions were interleaved within the story, so that after the reading of every set of six sentences from a story, a question pertaining to the part of the story just read was presented on screen. A 'yes' or 'no' answer to the question had to be given with the push of the relevant button on the response box before participants could proceed with the reading. To familiarise participants with the procedure of answering a 'yes' or 'no' question in between trials, interleaving comprehension questions were included in the practice SPR tasks.

A reason for interleaving comprehension questions within the SPR tasks is to ensure that participants are reading the stories attentively instead of pushing buttons just to get through a story. Another reason is to draw participant attention away from the numerous comparative *y*-adjective constructions embedded in the stories. To maximise the purpose of the comprehension questions in this respect, none of the questions are related to the content of the sentences containing comparative *y*-adjective constructions. The set of comprehension questions given to participants the first time they read a story at Stage I differed from the set they were given the second time they read the same story at Stage III. Before they commenced the SPR task at Stage III, participants were told about this, i.e. they would be reading the same story that they had read before, but the comprehension questions would now be different. The questions at Stage III are kept different from those at Stage I to reduce rehearsal effects in the reading. If participants had to answer comprehension questions at Stage III that were different to those at Stage I, this was expected to motivate a proper reading of the stories again, in the same way that was done at Stage I. If participants were given the same comprehension questions at Stage III as at Stage I, any rehearsal effects might be escalated because instead of rereading the stories attentively, participants could rely on memory to answer those questions. The set of six sentences before any one comprehension question contains one comparative *y*-adjective construction in some cases and two in others. Like the comprehension questions, the purpose of this irregularity is to draw participant attention away from the comparative *y*-adjective constructions. A consistent number of comparative *y*-adjective constructions in every set of sentences might lead to a heightened awareness of these comparatives.

The stories used in the SPR tasks will be referred to below as Stories 1, 2, 3, 4, 5, 6, 7 and 8. These stories differ in terms of at least one of the following features: (a) the morphological simplicity versus complexity (simple versus complex for short) of the

y-adjectives they contain; (b) the comparative form occurring with those y-adjectives (*more* versus *-er*); and (c) the comprehension questions asked (question set A versus question set B). The tick marks in Table 6a indicate how these features rotate across the eight stories.

Table 6a. Features of the stories in the SPR tasks.

Story	Morphology of y-adjectives		Comparative form		Question set	
	simple	complex	<i>-er</i>	<i>more</i>	A	B
1	✓		✓		✓	
2	✓			✓	✓	
3		✓	✓		✓	
4		✓		✓	✓	
5	✓		✓			✓
6	✓			✓		✓
7		✓	✓			✓
8		✓		✓		✓

From Table 6a, we can see that Stories 1 and 5 are identical in all respects except in their interleaving questions, and that the same difference applies for Stories 2 and 6; Stories 3 and 7; and Stories 4 and 8. Stories 1 and 2 have simple y-adjectives and are identical in all respects except that while these adjectives occur with *-er* in Story 1, they occur with *more* in Story 2. This difference holds also between Stories 5 and 6. Stories 3 and 4 have complex y-adjectives and are identical in all respects except that while these adjectives occur with *-er* in Story 3, they occur with *more* in Story 4. The same applies to the difference between Stories 7 and 8.

The storylines in all stories are similar on a general level. They differ only in some specifics at the sentential level, where different sentential contexts (in some cases, not all) had to be crafted to accommodate the meaning of a simple y-adjective as opposed to a complex one, and vice versa. Immediate post-comparative clauses are matched as closely as possible at the sentential level for each simple–complex pair of y-adjectives. This ensures comparability of the processing of comparative y-adjective constructions at around the same points between different stories. The stories used in the SPR tasks are found in Appendix 6E.

6.4.6 Treatment: listening tasks

Following the first SPR task at Stage I, participants performed a listening task at Stage II, which lasted around 2 minutes 5 seconds. Each participant listened to one of the following: a passage of music (referred to as Treatment 0 or T0); a dialogue containing many HANDSOME adjectives paired with *-er* (referred to as Treatment 1 or T1); or a dialogue

containing many HANDSOME adjectives paired with *more* (referred to as Treatment 2 or T2). The dialogues were written by me. T0, the control treatment, is an excerpt from a Japanese instrument piece, *Okuribito*. The general content of the dialogues in T1 and T2 are the same. Each of T1 and T2 contains eight comparatives of HANDSOME adjectives. The HANDSOME adjectives are the same in both treatments, except that in T1 the comparative forms are *-er* and in T2 they are *more*. Appendix 6D (see 6D.3) lists the eight HANDSOME adjectives used in these treatments. The dialogue in the treatments is between two interlocutors—one male, and the other female. Both are in their early 20s, and are native speakers of New Zealand English. Appendix 6F contains a transcript of this dialogue. After listening to the treatment dialogue or music, participants were verbally asked two ‘yes’ or ‘no’ questions about what they had heard. Participants were told verbally beforehand that this was part of the listening task and their verbal consent to answer these questions was sought. The questions asked are documented in Appendix 6G. Their inclusion as part of the listening task is to ensure attentive listening during the task.

In a way, the hypotheses in 6.3.2 and 6.3.3 assume that reasonable parallels can be drawn between experimental and corpus data as to how comparatives of the HANDSOME adjectives might be expected to predict the comparatives of *y*-adjectives. The question remains then as to whether a localised influence of the comparatives of HANDSOME adjectives in an experimental context is comparable to a global influence of this over the lifetimes of playwrights in my corpus data. I will not argue that this influence is different in the experimental and corpus contexts. What I have done, however, is to narrow that difference by ensuring that the eight comparatives of HANDSOME adjectives in each of Treatments 1 and 2 are sufficient to replicate the quantity of HANDSOME *more* and *-er* comparatives from the corpus data. In Table 6b, we find the type count per 1000 words for the comparatives of HANDSOME adjectives in each treatment dialogue, and in each corpus in my set of seven corpora.

Table 6b. Type count per 1000 words for comparatives of the HANDSOME adjectives.

	HANDSOME adjectives	
	<i>more</i> comparatives	<i>-er</i> comparatives
<i>Experimental study</i>		
Treatment dialogues	20.35623	20.77922
<i>Corpus study</i>		
A1 (1601–1650)	0.11452	0.04164
A2 (1651–1700)	0.14221	0.03469
B3(1701–1750)	0.13177	0.02427
B4 (1751–1800)	0.12492	0.02776
C5 (1801–1850)	0.12493	0.03817
C6 (1851–1900)	0.10066	0.03471
D7 (1901–1950)	0.06940	0.02429

We can see from this table that the type count of *more* comparatives per 1000 words for the HANDSOME adjectives is at least 140 times larger in the treatment dialogue than in each corpus, and the type count of *-er* comparatives per 1000 words is at least 498 times larger. There are grounds to claim therefore that comparative constructions of HANDSOME adjectives in the treatment dialogues are not any fewer, proportionally speaking, than those in the corpus data. Having described the nature of the SPR and listening tasks used in the experimental study, I will focus in the rest of this chapter on describing each of the three experimental stages.

6.4.7 Experiment stages

The goal of the SPR tasks at Stage I of the experiment is to test two hypotheses. One is whether reading is facilitated in simple *y*-adjectives paired with *-er* compared to complex *y*-adjectives paired with *-er* (c.f. H13 in 6.3.1). The other is whether it is facilitated in complex *y*-adjectives paired with *more* compared to simple *y*-adjectives paired with *more* (c.f. H14 in 6.3.1). Stage I in the experiment comprises a two-by-two design with four conditions. Each condition differs from another in at least one of the following: (a) the morphology of *y*-adjectives to be read; and (b) the comparative forms read with the *y*-adjectives. Returning to Table 6a earlier in this chapter, we can note that the condition of simple *y*-adjectives read with *-er* is found in Stories 1 and 5; the condition of simple *y*-adjectives read with *more* is found in Stories 2 and 6; the condition of complex *y*-adjectives read with *-er* is found in Stories 3 and 7; and the condition of complex *y*-adjectives read with *more* is found in Stories 4 and 8.

At Stage I, four groups of participants were each assigned to one of these four conditions. For ease of exposition, I will refer to them as Groups J, K, L, M. There are 24

participants in each group. Twelve of those in Group J read Story 1, while the other 12 read Story 5. Since Stories 1 and 5 are identical except for their interleaving ‘yes’ or ‘no’ questions, assigning half of the participants in Group J to read Story 1 and the other half to read Story 5 pseudo-randomises participants for the comprehension questions asked at Stage I. Any skewing of RTs arising from these comprehension questions is therefore minimised. By the same reasoning, half of the 24 participants in Group K read Story 2, while the other half read Story 6; half of those in Group L read Story 3, while the other half read Story 7; and half of those in Group M read Story 4, while the other half read Story 8.

After performing the SPR task at Stage I of the experiment, participants went on to perform a listening task at Stage II. Stage II consists of either an experimental treatment, involving exposure to multiple instances of the comparatives of HANDSOME adjectives, or a control treatment, involving exposure to music. This stage is needed as a means of testing whether a greater/weaker pre-to-post-treatment facilitation in reading in comparative *y*-adjective constructions could arise from the experimental treatments (c.f. hypotheses in 6.3.2 and 6.3.3). The four participant groups of J, K, L and M established at Stage I permit already a measure of RTs in different permutations of *y*-adjective morphology and comparative form. What is needed at Stage III is a measure of RTs in different permutations of *y*-adjective morphology, comparative form and type of treatment undergone. To achieve this, eight of the 24 participants in each of the groups J, K, L and M were assigned to listening task T0 (control treatment of music), eight to listening task T1 (multiple instances of HANDSOME *-er* comparatives), and eight to listening task T2 (multiple instances of HANDSOME *more* comparatives). This results in 32 participants being assigned to each of the treatment conditions T0, T1 and T2. In each treatment condition, 16 participants answered the two questions following a treatment (see Questions A and B in Appendix 6G) in one order, i.e. Question A followed by Question B, while the other 16 answered them in the reverse order, i.e. Question B followed by Question A. The reason that participants were pseudo-randomised for the order in which listening task questions were asked is to minimise any confounding of treatment effect on RTs by this ordering. Participants who answered the listening task questions in the A-B order were also the ones who answered SPR task question set A at pre-treatment (Stage I) followed by SPR task question set B at post-treatment (Stage III); likewise, participants who answered the listening task questions in the B-A order were also the ones who answered SPR task question set B at pre-treatment (Stage I) followed by SPR task question set A at post-treatment (Stage III). I have already noted in 6.4.5 the reason that at post-treatment participants were asked a set of SPR task questions different than what they were asked at pre-treatment.

After the listening task at Stage II, participants repeated the SPR task at Stage III. RTs obtained from the post-treatment (Stage III) SPR task serve as a means of evaluating whether the reading of comparative *y*-adjective constructions were influenced by the treatment conditions as hypothesised (c.f. hypotheses in 6.3.2 and 6.3.3). Following the assignment of eight participants each from the Stage I groups of J, K, L and M to each treatment condition of T0, T1 and T2 at Stage II, the experimental design at Stage III is a two-by-two-by-three design with 12 conditions. Each condition differs from another in at least one of the following: (a) the morphology of *y*-adjectives to be read; (b) the comparative forms read with the *y*-adjectives; and (c) whether the participants reading the *y*-adjectives had undergone T0, T1 or T2. As a result of the three treatment conditions, the four participant groups at Stage I (referred to as Groups J, K, L and M) were further divided into 12 participant groups at Stage III. I will refer to these 12 participant groups as: Jc, Kc, Lc and Mc (for those who underwent T0, and where ‘c’ is a mnemonic for control treatment); Je, Ke, Le and Me (for those who underwent T1, and where ‘e’ is a mnemonic for treatment with multiple instances of *-er* from the HANDSOME adjectives); and Jm, Km, Lm and Mm (for those who underwent T2, and where ‘m’ is a mnemonic for treatment of multiple instance of *more* from the HANDSOME adjectives). Table 6c presents an overview of the experimental design with its three stages, and the condition groups and participant numbers at each stage for each treatment.

Table 6c. Overview of experimental design.

→ → → → → Experimental chronology → → → → →							
Groups		Permutation of <i>y</i> -adjective morphology & comparative form	Stage I		Stage II	Stage III	
Grp	Size		Story	Comp. question set	Treatment	Story	Comp. question set
Jc	8	simple+ <i>er</i>	1/5	A/B	T0	5/1	B/A
Kc	8	<i>more</i> +simple	2/6	A/B	T0	6/2	B/A
Lc	8	complex+ <i>er</i>	3/7	A/B	T0	7/3	B/A
Mc	8	<i>more</i> +complex	4/8	A/B	T0	8/4	B/A
Je	8	simple+ <i>er</i>	1/5	A/B	T1	5/1	B/A
Ke	8	<i>more</i> +simple	2/6	A/B	T1	6/2	B/A
Le	8	complex+ <i>er</i>	3/7	A/B	T1	7/3	B/A
Me	8	<i>more</i> +complex	4/8	A/B	T1	8/4	B/A
Jm	8	simple+ <i>er</i>	1/5	A/B	T2	5/1	B/A
Km	8	<i>more</i> +simple	2/6	A/B	T2	6/2	B/A
Lm	8	complex+ <i>er</i>	3/7	A/B	T2	7/3	B/A
Mm	8	<i>more</i> +complex	4/8	A/B	T2	8/4	B/A

Notes:

T0: control treatment of music.

T1: exposure to multiple instances of *-er* with HANDSOME adjectives.T2: exposure to multiple instances of *more* with HANDSOME adjectives.

Table 6c shows that the SPR tasks presented to the various condition groups are: Stories 1 and 5 (containing simple *y*-adjectives+*er*) for Groups Jc, Je and Jm; Stories 2 and 6 (containing *more*+simple *y*-adjectives) for Groups Kc, Ke and Km; Stories 3 and 7 (containing complex *y*-adjectives+*er*) for Groups Lc, Le and Lm; and Stories 4 and 8 (containing *more*+complex *y*-adjectives) for Groups Mc, Me and Mm. We can note that story numbers 1, 2, 3 and 4 always appear on the same side of the slash as comprehension question set A; and story numbers 5, 6, 7 and 8 always appear on the same side of the slash as comprehension question set B. This indicates that Stories 1, 2, 3 and 4 are interleaved with question set A, while Stories 5, 6, 7 and 8 are interleaved with question set B. Story numbers that appear on both sides of the same slash are stories that are identical except for their interleaving questions; for example ‘1/5’ and also ‘5/1’ indicates that Stories 1 and 5 are identical except for their comprehension questions. Within each group of eight participants indicated in Table 6c, four would have read one of a pair of identical stories at Stage I, and the other story from the same pair at Stage III. The other four participants in the same group would also have read the same pair of stories, but flipped around in ordering between Stages I and III. For example, the first four participants in Group Jc would have read Story 1 (with question set A) at Stage I and the identical Story 5 (with question set B) at Stage III, while the next four participants would have read Story 5 (with question set B) at Stage I and the identical Story 1 (with question set A) at Stage III.

6.5 Chapter conclusion

This chapter has set the stage for how empirical evidence was gathered to investigate the validity of a number of hypotheses, where RTs serve as indicators of people’s receptiveness towards the pairing of *y*-adjectives with particular comparative forms. I documented the hypotheses to be tested, the experimental tasks and procedures implemented to test them, and information on the participants involved. In Chapter 7, I report on the findings obtained from this experimental study.

CHAPTER 7

EXPERIMENTAL FINDINGS

7.1 Chapter overview

This chapter reports on the findings from the experimental part of the research. The data comprise reading times (RTs) collected from a series of self-paced reading (SPR) tasks performed under different experimental conditions. Section 7.2 explains how the data were prepared prior to analysis. Section 7.3 contains a brief note on how and why the data were analysed via a two-stage modelling process. A documentation of the variables included, the procedures employed and the findings generated at Stage 1 is given in 7.4. A documentation of a similar nature for Stage 2 is given in 7.5; as I present the findings in this section, I will relate them back to the relevant hypotheses. It should be pointed out that I am referring to the stages of the statistical modelling with Arabic numerals as a means to distinguish them from the experimental stages, for which I have referred to using Roman numerals. Section 7.6 addresses a potential concern with the dataset that might arise from my statistical analysis. Section 7.7 points out some key conclusions we may draw, from my experimental findings in concert with my corpus findings, about comparative alternation in y-adjectives.

7.2 Data preparation

Prior to analysis, raw RTs that are unrealistically long or short were removed from my data following which the remaining RTs for all words obtained from the SPR tasks were transformed so that they approximated a normal distribution. Although the removal and transformation processes are based on the distribution of RTs for all words read, distributions of subsets of RTs used in subsequent data analyses have the same overall shape. Inspection of the distribution of the raw RTs reveal that RTs at the higher end begin to scatter from around 2500 milliseconds (ms), and that there is some abnormality in the shape of the data where observations fall below 125ms. In view of this, RTs above 2500ms and below 125ms were removed. My upper-end cut-off of 2500ms is aligned with Hofmeister (2011, p. 382), who deems RTs of more than 2500ms “unrealistic”, and my lower-end cut-off of 125ms is close to Wallot and Van Orden’s (2011, p. 254) lower-end cut-off of 100ms in the analysis of their SPR data. My lower-end cut-off of 125ms also ensures the removal of problematically short RTs; that is, this cut-off is above the short RTs of 5ms deemed “physically impossible” in Baayen

and Milin (2010, p. 15), and above the 100ms indicative of “erroneous key presses” in Fedorenko et al. (2006, p. 546).

It might be suggested that my decisions on the lower- and upper-end cut-offs for data removal could have been made based on observations that lie a certain number of standard deviations away from the RT mean by participant, item and/or item sequencing, as in Boland (1997, p. 599) and Fedorenko et al. (2006, p. 546). However, recent research by Baayen and Milin (2010, p. 17) suggests that a reliance on standard deviations could result in a relatively higher percentage of data loss. Baayen and Milin (2010) notes also Ratcliff’s (1993) advice that “cutoffs should be selected as a function of the proportion of responses removed”, and that “[u]p to 15 [per cent] of the data can be removed...if there is no thick right tail” (Baayen & Milin, 2010, p. 16). My removal of RT values above 2500ms and below 125ms led to the removal of about 2.45 per cent of my data, which is below the five per cent exclusion rate noted in Ratcliff (1993). My procedures are aligned therefore with Baayen and Milin’s (2010, p. 12) advocacy of “minimal a-priori” data trimming with the advent of mixed-effects modelling (MEM)—more later in 7.4 and 7.5 on the fitting of MEMs for my two-stage modelling process.

After the removal of RTs above and below the selected cut-offs, the RTs remaining were transformed to approximate a normal distribution. A number of transformation options, namely, inverse normal, log-normal and inverse square root transformations, were considered. The best fit to a normal distribution is provided by the inverse square root ($r=-0.996$). Therefore, RTs were subjected to an inverse square root transform prior to analysis.

In addition to RTs as the dependent variable (DV), other continuous variables were included as independent variables (IVs) in the subsequent analyses. These IVs include the token frequencies of items (or words) in the SPR tasks (or item frequencies for short). Since my study was performed on native speakers of New Zealand English (NZE), these frequencies were aggregated from counts of the relevant items in the spoken and written components of the Wellington Corpora (Bauer, 1986–1992; Holmes et al., 1988–1994), and the written component of the International Corpus of English–New Zealand (ICE–NZ) (School of Linguistics and Applied Language Studies, 1989–1994). There are overlaps between the spoken components of the Wellington Corpora and ICE–NZ, which was the reason that counts from the spoken component of ICE–NZ were excluded in these frequency aggregates. The item frequency aggregates were log-transformed to approximate a normal distribution. Before the transformation, a value of 1 was added to each of them because some of these aggregates contain values of 0 and log transformations cannot be performed on values of 0. Whenever the term *item frequency* is used henceforth, it refers to transformed item frequencies. Apart from

item frequencies, item length is another continuous variable. Item length indicates the number of letters for each item in the SPR tasks. No transformations were performed on the values of item length because the data for this appear to be quite normally distributed.

7.3 Two-stage modelling

In analysing the experimental data, statistical modelling was performed in two stages. As some of the variation in transformed RTs could be related to factors like *item frequency* and *item length*, which are not of interest in my experimental study, these were regressed out at Stage 1 (see 7.4.1 for the relevant factors at Stage 1). The variance that remains unaccounted for after Stage 1, known as the residuals of the transformed RTs, were then investigated at Stage 2 for whether they can be accounted for by the predictors of experimental interest (see 7.5.1 for the relevant predictors at Stage 2). *Residuals* in statistical modelling may be thought of as the parts of data ‘leftover’, and that remain to be explained, after other parts have been explained.

My adoption of a two-stage modelling procedure in data analyses draws on Hofmeister (2011, p. 384) and Jaeger (2008). One justification for this two-stage process, as noted in Hofmeister (2011, p. 384), is that it reduces the potential for collinearity between predictors of RTs that are non-experimental and “the primary experimental manipulation”. Further, by ensuring that I am getting the maximal amount of variance in the DV explained by the non-experimental factors at Stage 1 before I attempt to explain whatever variance left in terms of the experimental factors at Stage 2, I am narrowing down the scope of variance left available for explanation by my experimental factors. If despite this, my experimental factors are still found to account for this variance, then the robustness of the account is improved.

7.4 Stage 1 statistical modelling

7.4.1 Predictors at Stage 1

As noted in 7.3, the DV at Stage 1 is transformed RTs. The non-experimental predictors of these transformed RTs are a set of item and participant factors. The item factors are:

- *item frequency*;
- *item length*;
- the position of an item within a sentence in an SPR task (or *item position*); and
- the position within each story of a sentence where an item is found (or *sentence position*).

The participant factors are:

- *age*;
- *gender* (i.e. biological sex); and
- *hand* (whether the participant is left- or right-handed).

Item, which differentiates between lexical forms in the SPRs tasks, is treated as a random effect, and so is *participant*, which differentiates between individual participants.

Where the item factors are concerned, *item frequency* was included as a predictor of transformed RTs because of the widely-held view that “more frequent words are responded to faster” (Fernández & Cairns, 2011, p. 190) and low-frequency words are looked at longer (Rayner & Balota, 1989, p. 271)—see also Forster and Chambers (1973, p. 627) and Forster (1981, p. 191) on the “classical frequency effect”. The inclusion of *item length* as an IV stems from studies that have shown reading times to “increase with longer word length” (Hofmeister, 2011, p. 383). *Item position* and *sentence position* were included as IVs to explain any variance in transformed RTs that could have stemmed from factors inherent in “the large-scale flow of the experiment” (Baayen & Milin, 2010, p. 19), namely, “learning (latencies becoming shorter) or fatigue (latencies becoming longer as the experiment proceeds)” (Baayen & Milin, 2010, p. 19). In my experiment, *item position* serves as a local measure of any learning and/or fatigue effects, while *sentence position* serves as a global measure of these effects over the span of the entire story in each SPR task. Where the participant factors are concerned, the inclusion of *age*, *gender* and *hand* as predictors of the DV at Stage 1 draws largely on Baayen and Milin (2010, p. 2), who specify that these participant characteristics “may also influence RTs”.

7.4.2 Statistical procedures and findings at Stage 1

Using the lme4 library (version 1.1-9) (Bates et al., 2015b) in R (version 3.1.3) (R Core Team, 2014), a series of mixed effects models (MEMs) with transformed RTs (see 7.2), namely, models lme1a, lme1b and lme1c, were fitted and compared. All item factors described in 7.4.1 are continuous IVs in these models, with *item position* being integers ranging from 1 to 29, and *sentence position* being integers ranging from 1 to 96. *Age*, indicating the age of each participant, was included as a continuous IV of values from 20 to 30. *Gender* (coded either as F for females or M for males) and *hand* (coded either as L for left or R for right) were included as binary IVs.

In the first model, i.e. lme1a, *item position*, *sentence position*, *item frequency*, *item length*, *age*, *gender* and *hand* were included as simple effects without any prior transformations

to *item position* and *sentence position*. Random intercepts were included for *participant* and *item*. By-*participant* slopes were included for *item frequency* to reduce the assumption that the effect of *item frequency* on the DV was identical for all participants. Prior to lme1a, an initial attempt was made to include, in addition to by-*participant* slopes for *item frequency*, by-*participant* slopes for *item position*, *sentence position* and *item length*, and by-*item* slopes for *age* and *gender*. These random slopes are supposed to reduce the assumption (Baayen & Milin, 2010, p. 21) that the effect of *item position*, *sentence position* and *item length* on the DV is identical for all participants, and that the effect of *age* and *gender* on the DV is identical for all items. However, I was unable to generate an output in R with the inclusion of these random slopes because the model became overly complex. As noted in Bates et al. (2015a, p. 2), the recommendation to “build ‘maximal’ models with all possible random effect components included” may result in “fitting a model that is too complex to be properly supported by the data”. In fact, I was unable to get around this problem of over-complexity until I reduced the number of random slopes to just that of the by-*participant* slope for *item frequency* in lme1a.

It might be suggested with lme1a, and subsequently with lme1b and lme1c, that because of the potential for collinearity between *item frequency* and *item length* given Zipf’s Law (Zipf, 1935), I should not be including both of these IVs in the same model. Their inclusion may be justified nonetheless by my specific goal for the statistical modelling at Stage 1, which is to explain as much of the variance in the dataset as possible with a set of non-experimental item and participant factors. Insofar as this goal holds, it is prudent to ensure that *item frequency* is included whenever *item length* is, and vice versa, in any modelling at Stage 1. If I remove either of these IVs when their collinearity suggests precisely that the variance of the DV can be accounted for by some overlap between them, then I cannot ensure that I am getting the maximal amount of variance in the DV explained by the non-experimental factors. The alternative to keeping both *item length* and *item frequency* in the modelling is to residualise one against the other, or vice versa, at some point. However, residualisation for the purpose of dealing with collinearity has been claimed in Wurm and Fisicaro (2014) to present issues and so is not an option considered here.

For the purpose of model comparisons to arrive at a model that best describes my data, models lme1b and lme1c were fitted. Model lme1b is identical to lme1a except that the random by-*participant* slopes for *item frequency* were omitted. Using the anova function in the lme4 library (Bates et al., 2015b), model comparison was performed between lme1a and lme1b. This comparison shows lme1a to be a better model than lme1b (chi-square $\chi^2=1107$, $df=2$, $p<.001$).

The same set of predictors and random effects in *lme1a* were also included in *lme1c*, but with *item position* and *sentence position* restricted cubic spline (rcs)-transformed. Rcs transformations are performed when non-linearities in the raw data take the form of many bends (Baayen, 2008, pp. 176–179; Hofmeister, 2011, p. 383), where the transformation then permits different estimates to be generated at different points of the bends. Non-linearities of this nature are observed for transformed RTs in my data for *item position* and for *sentence position* (see Figures 7a and 7b—plotted based on raw RTs for greater clarity). It seems appropriate therefore to consider rcs transformations for *item position* and *sentence position* in *lme1c*.

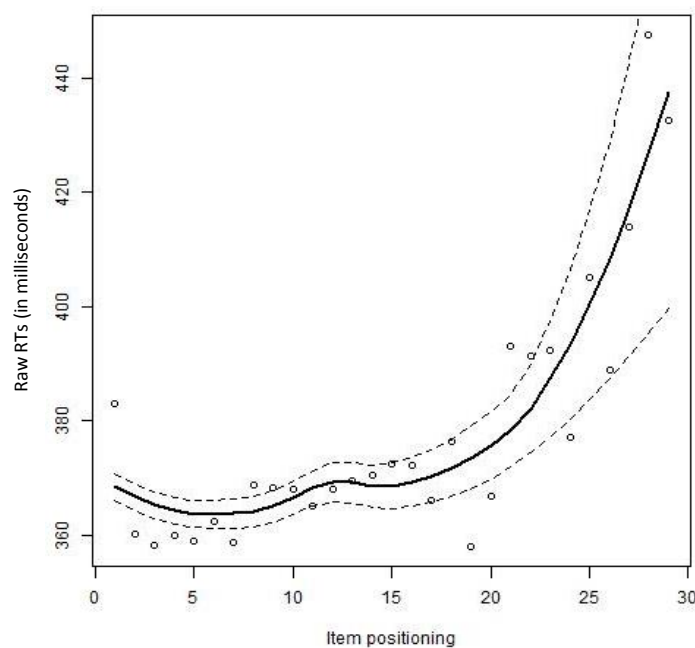


Figure 7a. Non-linearities between raw RTs and *item position*.

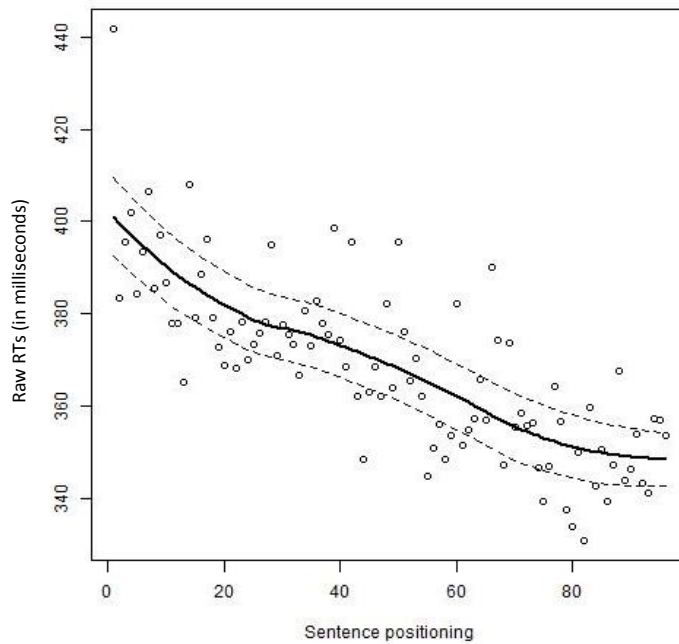


Figure 7b. Non-linearities between raw RTs and *sentence position*.

Model lme1c contains rcs transformations of five knots for *item position* and seven knots for *sentence position*. A decision on the number of knots to be used was reached after model comparison involving several variants of lme1c. These variants of lme1c contain different permutations on the number of knots—between three and seven following Baayen (2008, pp. 176–179)—for rcs transformations of *item position* and *sentence position*.

As a test of whether the rcs transformations of *item position* and *sentence position* contributed more to the regression model than the untransformed versions of those variables, models with and without either or both of the transformations were compared. These comparisons confirm that the model with both a five-knot rcs for *item position* and a seven-knot rcs for *sentence position*, i.e. lme1c, provides the best fit for the data. Model lme1c was therefore accepted as best fit at Stage 1. The output of lme1c is presented in Table 7a. The t-values beyond ± 2 in this model show *item position*, *sentence position*, *item length* and *age* to be significant predictors of transformed RTs.

Table 7a. Model lme1c with *item position*, *sentence position*, *item length* and *age* as significant predictors of transformed RTs.

	Estimate	Std. Error	t-value
(Intercept)	-0.04026736	0.00549731	-7.32
rcs(Item position, 5)Item position	-0.00040963	0.00004553	-9.00
rcs(Item position, 5)Item position'	0.00314041	0.00051206	6.13
rcs(Item position, 5)Item position"	-0.00661887	0.00129933	-5.09
rcs(Item position, 5)Item position'''	0.00381663	0.00107119	3.56
rcs(Sentence position, 7)Sentence position	-0.00014537	0.00000996	-14.59
rcs(Sentence position, 7)Sentence position'	0.00158240	0.00013641	11.60
rcs(Sentence position, 7)Sentence position"	-0.00423654	0.00038257	-11.07
rcs(Sentence position, 7)Sentence position'''	0.00538695	0.00059180	9.10
rcs(Sentence position, 7)Sentence position''''	-0.00400926	0.00056755	-7.06
rcs(Sentence position, 7)Sentence position'''''	0.00294853	0.00044869	6.57
Item frequency	0.00001445	0.00003880	0.37
Item length	0.00029370	0.00004322	6.80
Age	-0.00049638	0.00023307	-2.13
Gender	-0.00191507	0.00107109	-1.79
Hand	-0.00050921	0.00181412	-0.28

Note:

T-values in bold indicate the factors that are significant predictors of transformed RTs.

The mix of positive and negative estimates in Table 7a for each of *item position* and *sentence position* reflects the non-linear relationships between these variables and reading times that are shown in Figures 7a and 7b, i.e. where subsequent positions sometimes result in a speeding up of reading and sometimes in a slowing down. The positive estimate for *item length* indicates shorter transformed RTs for shorter items than for longer ones, and the negative estimate for *age* indicates shorter transformed RTs with an increase in age. The findings on position and length effects here are not of primary interest in my experimental study, but clearly such effects need to be accounted for in this Stage 1 model so that the variance they contribute does not interfere with the experimental effects tested in Stage 2.

With the acceptance of lme1c as the final model in Stage 1, residuals of the transformed RTs were obtained from lme1c using the resid function in R (R Core Team, 2014). These residuals are parts of the DV that remain unaccounted for by the non-experimental factors in lme1c. The variable, transformed RT residuals, was then used as the DV in the statistical modelling performed at Stage 2 for the actual testing of my experimental hypotheses.

7.5 Stage 2 statistical modelling

In this section, I describe the statistical modelling performed at Stage 2. This stage of data modelling tests the hypotheses mapped out in 6.3. I first describe in 7.5.1 the predictors

included in this stage. Following this, I detail in 7.5.2 the statistical procedures and findings for the structural hypotheses (formulated in 6.3.1). The statistical procedures and findings for the paradigmatic hypotheses with and without structural implications (formulated, respectively, in 6.3.2 and 6.3.3) are detailed in 7.5.3.

7.5.1 Predictors at Stage 2

As noted in 7.4.2, the DV at Stage 2 are the residuals of transformed RTs obtained from the best fit model lme1c at Stage 1. For ease of exposition, when I refer to RTs henceforth, I am referring to these residuals of transformed RTs. There are three experimental factors or IVs considered at Stage 2. Depending on the hypotheses tested, some of the statistical models fitted at this stage include all three of these IVs, while others include only some of them. The three IVs are:

- the morphology of *y*-adjectives (simple or complex) or *morphology* for short;
- the treatment that participants were subjected to between the pre- and post-treatment SPR tasks (T0, T1 or T2) or *treatment* for short; and
- an indicator of whether the SPR task was performed prior to or after treatment (pre or post) or *PrePost* for short.

For the factor of *treatment*, T0 (or Treatment 0) refers to the control treatment of music. T1 (or Treatment 1) refers to the experimental treatment where participants were exposed to a dialogue containing multiple instances of HANDSOME adjectives paired with *-er*. T2 (or Treatment 2) refers to the experimental treatment where participants were exposed to a dialogue containing multiple instances of HANDSOME adjectives paired with *more*. *Item*, which differentiates between lexical forms, and *participant*, which differentiates between individual participants, are considered as random effects.

For ease of reference, the hypotheses from 6.3 are reproduced along with the statistical models fitted to address them in 7.5.2 and 7.5.3. As noted in the methodology, comprehension questions were asked after each text segment in the SPR tasks. Incorrect answers to these questions were taken to indicate that the participant had not fully processed the text, and the RT data corresponding with these incorrect answers were excluded from the models described in 7.5.2 and 7.5.3. The percentage of data excluded depends on the subset of data used to test each hypothesis, and is reported with the relevant models in subsequent sections.

7.5.2 Statistical procedures & findings at Stage 2: Testing the structural hypotheses

The structural hypotheses tested at Stage 2 are Hypotheses 13 and 14 (H13–H14) from 6.3.1. These hypotheses relate to receptiveness towards the pairing of *y*-adjectives with particular comparatives in ways that depend on the morphological structure of these adjectives. The hypotheses are reproduced here as follows.

Hypothesis 13 (H13)

For comparatives formed with *-er*, there will be facilitation in reading where the *y*-adjective bases are simple compared to where they are complex.

Hypothesis 14 (H14)

For comparatives formed with *more*, there will be facilitation in reading where the *y*-adjective bases are complex compared to where they are simple.

As noted in 6.3, the RTs considered for H13 and H14 are those of the second word following the comparative *y*-adjective constructions, so that the ‘facilitation’ referred to in these hypotheses are inferred from the RTs of those words. For any possibility of confirming H13 and H14, two of the Stage 2 experimental predictors (see 7.5.1), i.e. *morphology* and *comparative*, must have a significant interaction effect on the DV.

To test for this interaction effect, an MEM was fitted using the lme4 library (version 1.1-9) (Bates et al., 2015b) in R (version 3.1.3) (R Core Team, 2014). The MEM tests for both H13 and H14 together. Before it was fitted, 6.23 per cent of the dataset (or 117 observations) were excluded because of their association with incorrect comprehension answers in the SPR tasks. As H13 and H14 relate only to RTs prior to treatment, the DV comprises only RTs obtained from the pre-treatment SPR tasks (or *pre-RTs*). The categorical IVs of *comparative* (*more*, *-er*) and *morphology* (simple, complex) were included, together with their interaction, as predictors of these *pre-RTs*. Random intercepts were included for *participant* and *item*. Given that RTs of the second word following the comparative *y*-adjective constructions constitute the DV, *item* here refers to the lexical forms of these words. However, the RTs of these words were taken as proxies for RTs of the comparative *y*-adjective constructions (see 6.3); for example, in the sentence, *The cake was mintier than we expected*, the RT of *we* was taken as a proxy for the RT of *mintier*. Given this, the *y*-adjective associated with each token of an item, in this case *minty* as opposed to say, *pushy*, was included as a random intercept. This variable is referred to as *item-y*; and its inclusion accounts for the possibility that different

y-adjectives may have different effects on RTs. Due to the collinearity found between the IVs of *comparative* and *morphology*, these IVs were centered, following Jaeger (2009), before they were included in the MEM.

In the MEM fitted with these centered IVs, the interaction between *morphology* and *comparative* in predicting RTs is not found to be significant. When this model was compared to a counterpart with the interaction term between *morphology* and *comparative* dropped and with these IVs included only as simple effects, the model without the interaction term emerges as a better model. The output of this model is reported in Table 7b.

Table 7b. Best fit model at the pre-treatment phase.

Hypotheses		Estimate	Std. Error	t-value
H13	(Intercept)	0.002462	0.000251	9.80
H14	comparative	-0.000230	0.000411	-0.56
	morphology	-0.000015	0.000411	-0.04

The fact that I did not find a significant interaction between *comparative* and *morphology* indicates that there is no difference between complex and simple y-adjective bases in their effects on RTs in the context of y-adjectives read with *-er*; and neither was there any difference between complex and simple y-adjective bases in their effects on RTs in the context of y-adjectives read with *more*. There is no support therefore in my pre-treatment data for the hypothesis that reading is facilitated in simple y-adjectives paired with *-er* in comparison to complex y-adjectives paired with *-er* (H13). There is also no support for the hypothesis that reading is facilitated in complex y-adjectives paired with *more* in comparison to simple y-adjectives paired with *more* (H14). I do not have support therefore from my experimental data for either the claim of a bias towards *-er* in simple y-adjective bases, or a bias towards *more* in complex y-adjective bases.

7.5.3 Statistical procedures & findings at Stage 2: Testing the paradigmatic hypotheses

In 6.3.2, it was suggested that the comparatives of HANDSOME adjectives might predict the comparatives of y-adjectives. It was further suggested in 6.3.3 that effects of morphology on the comparatives of y-adjectives might be enhanced and/or suppressed by the comparatives of HANDSOME adjectives. The parallel to these suggestions in my experimental context were the effects that exposure to different treatments of the comparatives of HANDSOME adjectives were expected to have on subsequent processing of the comparatives

of y-adjectives. These expectations are captured in Hypotheses 15–18, reproduced here from 6.3.2 and 6.3.3; as noted, all mentions of ‘facilitation’ in these hypotheses relate to decreases in RTs in the post-treatment phase compared with the pre-treatment phase.

Hypothesis 15a (H15a)

For comparative *more* constructions of y-adjectives, there will be greater facilitation in reading for participants exposed to an experimental treatment of multiple instances of *more*+HANDSOME (T2) than for those exposed to a control condition (T0).

Hypothesis 15b (H15b)

Any facilitation in the reading of *more* comparatives resulting from an exposure to multiple instances of *more*+HANDSOME (T2) will be greater for complex y-adjectives than for simple ones. In contrast, any facilitation in this reading resulting from an exposure to a control condition (T0) will be no different between complex and simple y-adjectives.

Hypothesis 16a (H16a)

For comparative *more* constructions of y-adjectives, there will be weaker facilitation in reading for participants exposed to an experimental treatment of multiple instances of HANDSOME+*er* (T1) than for those exposed to a control condition (T0).

Hypothesis 16b (H16b)

Any facilitation in the reading of *more* comparatives resulting from an exposure to multiple instances of HANDSOME+*er* (T1) will be weaker for complex y-adjectives than for simple ones. In contrast, any facilitation in this reading resulting from an exposure to a control condition (T0) will be no different between complex and simple y-adjectives.

Hypothesis 17a (H17a)

For comparative *-er* constructions of y-adjectives, there will be greater facilitation in reading for participants exposed to an experimental treatment of multiple instances of HANDSOME+*er* (T1) than for those exposed to a control condition (T0).

Hypothesis 17b (H17b)

Any facilitation in the reading of *-er* comparatives resulting from an exposure to multiple instances of HANDSOME+*er* (T1) will be greater for simple y-adjectives than for complex

ones. In contrast, any facilitation in this reading resulting from an exposure to a control condition (T0) will be no different between complex and simple y-adjectives.

Hypothesis 18a (H18a)

For comparative *-er* constructions of y-adjectives, there will be weaker facilitation in reading for participants exposed to an experimental treatment of multiple instances of *more+HANDSOME* (T2) than for those exposed to a control condition (T0).

Hypothesis 18b (H18b)

Any facilitation in the reading of *-er* comparatives resulting from an exposure to multiple instances of *more+HANDSOME* (T2) will be weaker for simple y-adjectives than for complex ones. In contrast, any facilitation in this reading resulting from an exposure to a control condition (T0) will be no different between complex and simple y-adjectives.

Like in the case of H13 and H14, the RTs considered for H15–H18 are those of the second word following the comparative y-adjective constructions. Accordingly, the ‘facilitation’ referred to in these hypotheses are inferred from the RTs of those words (see 6.3). Table 7c shows that for every condition relevant to H15–H18, mean RTs from the post-treatment SPR tasks are shorter than those from the pre-treatment ones.

Table 7c. Mean residuals of transformed RTs in pre- and post-treatment SPR tasks, by *treatment* and *morphology*.

	Pre	Post
T0	0.002049	-0.002057
T0 (complex)	0.002174	-0.002171
T0 (simple)	0.001924	-0.001942
T1	0.002420	-0.002427
T1 (complex)	0.002158	-0.002168
T1 (simple)	0.002684	-0.002687
T2	0.002361	-0.002366
T2 (complex)	0.002643	-0.002679
T2 (simple)	0.002079	-0.002059

Note:

Negative residuals mean that reading times were faster than predicted by the Stage 1 statistical model.

A series of MEMs was fitted to test for the H15–H18 pairs of hypotheses, with separate MEMs fitted for each pair. The MEMs for H15a and 15b, and for H16a and H16b, were fitted

on RTs obtained from the context of *y*-adjectives read with *more*. In the MEM for H15a and H15b, the RTs were from participants subjected to T0 and T2, and in the MEM for H16a and 16b, they were from participants subjected to T0 and T1. The MEMs for H17a and 17b, and for H18a and H18b, were fitted on RTs obtained from the context of *y*-adjectives read with *-er*. In the MEM for H17a and H17b, the RTs were from participants subjected to T0 and T1, and in the MEM for H18a and 18b, they were from participants subjected to T0 and T2. There is a reason that the data had to be partitioned to test for each pair of hypotheses in H15–H18 in separate MEMs. While I am able to make predictions about the effects of T2 in contrast to T0, and the effects of T1 in contrast to T0, on the comparatives of *y*-adjectives, I have no reasons *a priori* to make any such predictions about the effects of T1 in contrast to T2. If I did not partition my data and instead tested all of H15–H18 in one single MEM, the resultant model would incorporate an unmotivated analysis of the effects of T1 in contrast to T2 and vice versa.

It might be suggested that instead of partitioning my data into four subsets to build four separate MEMs, I could have partitioned it into two subsets—one testing for pairs of hypotheses in H15 and H18, and the other testing for pairs of hypotheses in H16 and H17. In this case, I could still keep the data for T0 and T2 in one subset without implicating T1, and the data for T0 and T1 in another subset without implicating T2. The problem with this two-way partitioning is its inclusion of both *more* and *-er* comparatives of *y*-adjectives within any one subset. In data analyses, this might force an assumption that the effect an experimental treatment had on one comparative alternative, say, *more*+*y*-adjective, would necessarily contrast with the effect it had on the other alternative, in this case, *y*-adjective+*-er*. This assumption remains questionable in view of the corpus findings, where it is shown that a significant positive correlation in *more* comparatives between the HANDSOME adjectives and the *y*-adjectives does not implicate a significant negative correlation between the *more* comparatives of the HANDSOME set and the *-er* comparatives of the *y*-adjectives. I have no grounds to assume therefore that the *more* and *-er* comparatives of *y*-adjectives would contrast in the face of a specific treatment, which would make it invalid to fit a model where this assumption had to be held by way of data partitioning.

For any possibility of confirming H15a, H16a, H17a and H18a, two experimental predictors (see 7.5.1) must have a significant interaction effect. These predictors are:

- the treatments to which participants were subjected (*treatment*); and
- whether the SPR task was performed prior to or after treatment (*PrePost*).

H15a, H16a, H17a and H18a implicate an interaction between *treatment* and *PrePost* because each of these hypotheses investigates the extent to which post-treatment reading will be facilitated, relative to pre-treatment reading, by an experimental treatment (T1 or T2) relative to a control one (T0). For any possibility of confirming H15b, H16b, H17b and H18b, three experimental predictors (see 7.5.1) must have a significant interaction effect. These predictors are the morphology of the y-adjectives (*morphology*), the treatments participants were subjected to (*treatment*), and whether the SPR task was performed prior to or after treatment (*PrePost*). H15b, H16b, H17b and H18b implicate a three-way interaction between *morphology*, *treatment* and *PrePost* because each of these hypotheses investigates not only the extent to which post-treatment reading will be facilitated, relative to pre-treatment reading, by an experimental treatment (T1 or T2) relative to a control one (T0), but whether the facilitation differs between morphological subsets of y-adjectives. In all the MEMs for H15–H18, the categorical IVs of *morphology* (simple, complex), *treatment* (T0 and T1, or T0 and T2) and *PrePost* (pre, post) were included, together with a three-way interaction between them, in predicting the DV. To ease the process of model comparisons, I also generated an output for all possible two-way interactions between these IVs, together with the simple effects of the IVs. Random intercepts were included for *participant* and *item* (see 7.5.1 for what these variables indicate) and *item-y* (see 7.5.2 for what this variable indicates).

In the initial set of MEMs fitted, collinearity is noted between the IVs *PrePost*, *morphology* and *treatment*. The IVs were therefore centered, following Jaeger (2009), before a subsequent set of MEMs were fitted for H15–H18. The subsequent set of MEMs were accepted as best fits for their respective sets of data. Table 7d lists the percentage of data excluded in the best fit models for each pair of hypotheses in H15–H18; these data were excluded due to their association with incorrect comprehension answers in the SPR tasks.

Table 7d. Percentage of data excluded in the MEMs for each pair of hypotheses in H15–H18.

Hypotheses	Data excluded (%)
H15a H15b	4.43
H16a H16b	5.23
H17a H17b	3.78
H18a H18b	3.48

For each model built to address each pair of hypotheses in Table 7d, the interaction terms of interest are the two-way interaction between *PrePost* and *treatment*, and the three-way interaction between *PrePost*, *morphology* and *treatment*. These interaction terms were retained in the models even when the interactions themselves prove to be non-significant. This is because if there are reasons *a priori* (see 5.5, 6.3.2 and 6.3.3) that led me to the hypotheses that are supposed to surface in these interactions, then those same reasons ought to justify the retention of these interactions. I will now report the models accepted to address the pairs of hypotheses noted in Table 7d, together with any relevant post-hoc analyses of the findings in these models. These models basically led to a confirmation of three of the H15–H18 pairs of hypotheses, i.e. H15a, H16b and H18b.

Multiple significant effects are obtained from each of the models accepted for the H15 and H16 hypotheses, with the lower-order effects contained within higher-order ones. Given this, the significance of the different factors and of the interactions in these models were tested with the Anova function in the phia library (De Rosario-Martinez et al., 2015) in R (version 3.1.3) (R Core Team, 2014). According to De Rosario-Martinez (2015, p. 6), “the main effects of factors with non-null interactions should not be interpreted”, with “the same warning apply[ing] to interactions that are themselves contained in interactions of higher order”. In this regard, an Anova test was applied to the best fit models for the H15 and H16 hypotheses in order to determine whether the lower-order effects in these models required analysis.

Table 7e summaries the results of these tests, with a preamble on the details of the H15 and H16 hypotheses for ease of reference.

Table 7e. Test for contribution of higher-order interactions over lower-order ones for MEMs accepted for the H15 and H16 hypotheses.

H15a:	For comparative <i>more</i> constructions of y-adjectives, there will be greater facilitation in reading for participants exposed to an experimental treatment of multiple instances of <i>more</i> +HANDSOME (T2) than for those exposed to a control condition (T0).					
H15b:	Any facilitation in the reading of <i>more</i> comparatives resulting from an exposure to multiple instances of <i>more</i> +HANDSOME (T2) will be greater for complex y-adjectives than for simple ones. In contrast, any facilitation in this reading resulting from an exposure to a control condition (T0) will be no different between complex and simple y-adjectives.					
H16a:	For comparative <i>more</i> constructions of y-adjectives, there will be weaker facilitation in reading for participants exposed to an experimental treatment of multiple instances of HANDSOME+ <i>er</i> (T1) than for those exposed to a control condition (T0).					
H16b:	Any facilitation in the reading of <i>more</i> comparatives resulting from an exposure to multiple instances of HANDSOME+ <i>er</i> (T1) will be weaker for complex y-adjectives than for simple ones. In contrast, any facilitation in this reading resulting from an exposure to a control condition (T0) will be no different between complex and simple y-adjectives.					

Hypotheses	Treatment	Comparative form of y-adjective		Analysis of Deviance Table (Type II Wald chi-square tests)		
				Chi-square	df	Pr (>Chi-square)
H15a	T2 & T0	<i>more</i>	<i>Simple effects</i>			
H15b			PrePost	155.81	1	<0.001
			Morphology	0.03	1	0.8565
			Treatment	1.81	1	0.1784
			<i>2-way interaction effects</i>			
			PrePost:Morphology	2.62	1	0.1058
			PrePost:Treatment	15.12	1	<0.001
			Morphology:Treatment	0.49	1	0.4859
			<i>3-way interaction effects</i>			
			PrePost:Morphology:Treatment	1.39	1	0.2381
H16a	T1 & T0	<i>more</i>	<i>Simple effects</i>			
H16b			PrePost	124.12	1	<0.001
			Morphology	0.72	1	0.39727
			Treatment	1.93	1	0.16502
			<i>2-way interaction effects</i>			
			PrePost:Morphology	0.32	1	0.56991
			PrePost:Treatment	7.65	1	<0.01
			Morphology:Treatment	1.94	1	0.16321
			<i>3-way interaction effects</i>			
			PrePost:Morphology:Treatment	10.98	1	<0.001

Notes:

T0: control treatment of music.

T1: exposure to instances of *-er* with HANDSOME adjectives.T2: exposure to instances of *more* with HANDSOME adjectives.

Based on Table 7e, a significant two-way interaction between *PrePost* and *treatment* (chi-square=15.12, df=1, $p<.001$) is found in the model for the H15 hypotheses. A significant three-way interaction between *PrePost*, *morphology* and *treatment* (chi-square=10.98, df=1, $p<.001$) is found in the model for the H16 hypotheses. No further pursuit of the lower-order effects within these interactions is therefore necessary. I will now explore in turn each of the models for the H15 and H16 hypotheses.

The significant two-way interaction between *PrePost* and *treatment* in the model for the H15 hypotheses indicates a difference between T2 and T0 in their effects on RTs in the context of y-adjectives read with *more*. H15a, which requires this difference, can therefore be further investigated. The non-significant three-way interaction between *PrePost*, *morphology* and *treatment* (chi-square=1.39, df=1, $p=0.238$) in the model for the H15 hypotheses indicates, however, that there is no effect of T2 on any difference in RTs between the contexts of complex y-adjectives read with *more* and simple y-adjectives read with *more*; there are no grounds therefore to further pursue H15b, which requires this effect. Returning to a description of H15a in Table 7e, we can note that this hypothesis predicts a greater facilitation in reading in y-adjective *more* comparatives after exposure to instances of *more*+HANDSOME (T2) than after the control treatment (T0). To confirm this, a post-hoc analysis of the significant two-way interaction between *PrePost* and *treatment* in the model for the H15 hypotheses was performed (see output in Table 7f). It was performed using the `testInteractions` function in the `phia` library (De Rosario-Martinez et al., 2015) in R (version 3.1.3) (R Core Team, 2014), which allows a test of the relative size of the differences between pre- and post-treatment RTs when treatment levels are contrasted.

Table 7f. Contrast between T2 and T0 for pre-to-post-treatment changes in RTs in the context of y-adjective *more* comparatives.

Levels contrasted	Value	df	Chi-square test	
			P-value adjustment method: holm	
			Chi-square	Pr (>Chi-square)
T0-T2	-0.00304	1	15.3	<0.001

Notes:

Output obtained from the uncentered equivalent of the model for the H15 hypotheses.

T0: control treatment of music.

T2: exposure to instances of *more* with HANDSOME adjectives.

The output in Table 7f was generated from an equivalent of the model for the H15 hypotheses where the IVs were kept uncentered. This had to be done because centering changes

all categorical IVs into numeric predictors, which the `testInteractions` function cannot work with. We can note from Table 7f that any pre-to-post-treatment facilitation in reading is significantly different when the *treatment* levels of T2 and T0 are contrasted. The negative value of -0.00304 indicates that pre–post differences in RTs are greater with T2 than with T0. This is graphed in Figure 7c, which visualises the pre-to-post decreases in RTs in the context of y-adjective *more* comparatives to be greater in T2 than in T0.

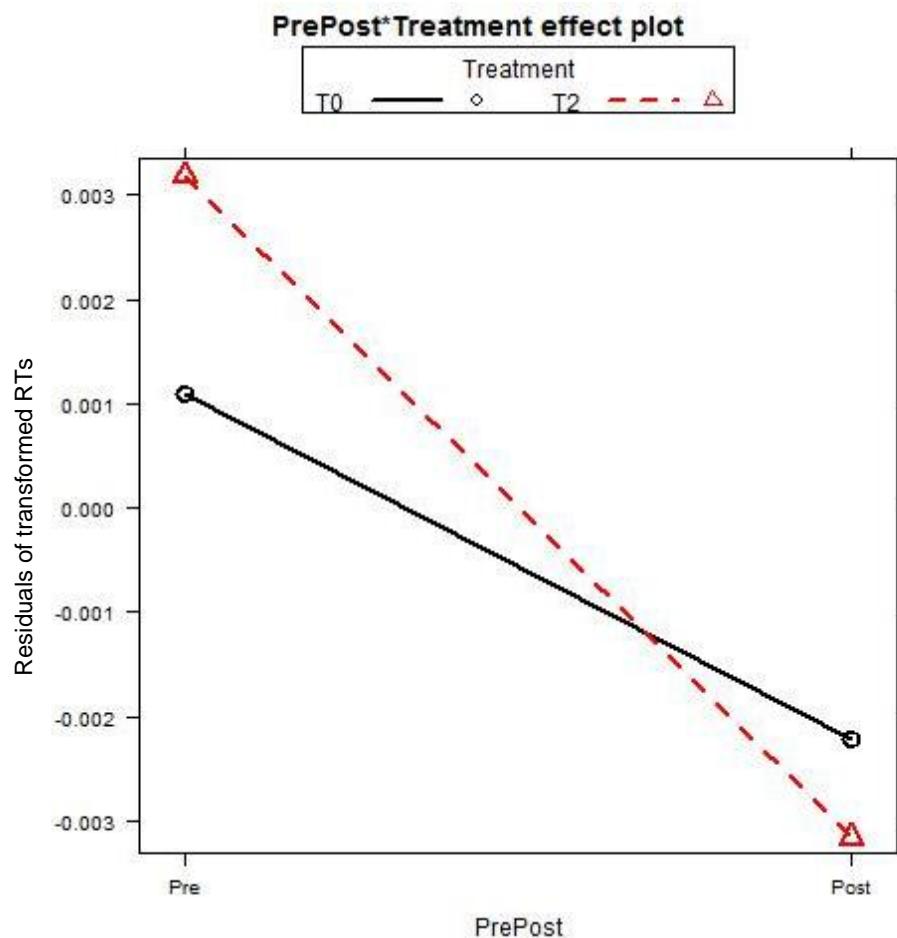


Figure 7c. Mean values showing pre-to-post treatment facilitation effect for T2 and T0 for RTs in the context of y-adjective *more* comparatives.

Notes:

Graph plotted from an equivalent of the model for the H15 hypotheses where IVs are kept uncentered. Residuals of transformed RTs (or reading times) provide the dependent variable used in the statistical models. The mean raw reading times (in milliseconds or ms) for the conditions shown in Figure 7c are:

- 387.6 (Pre) and 334.9 (Post) for T0 (change of 52.7ms); and
- 390.8 (Pre) and 330.1 (Post) for T2 (change of 60.7ms).

The indication in Figure 7c is that reading in *y*-adjective *more* comparatives is facilitated to a greater extent in T2 than in T0, thereby confirming H15a. Since T2 refers to an exposure to instances of *more*+HANDSOME, the implication is that an exposure to multiple instances of *more*+HANDSOME biases *y*-adjectives towards the *more* construction.

If we now return to Table 7e to explore in detail the model for the H16 hypotheses, we can note that the significant three-way interaction between *PrePost*, *morphology* and *treatment* indicates that there is an effect of T1 on any difference in RTs between the contexts of complex *y*-adjectives read with *more* and simple *y*-adjectives read with *more*. H16b, which requires this effect, can therefore be further investigated. H16b predicts that after exposure to instances of HANDSOME+*er* (T1), we will get a weaker facilitation in reading in complex *y*-adjectives paired with *more* than in simple *y*-adjectives paired with *more*; the corroborative evidence for this is that any pre-to-post-treatment facilitation in reading in *y*-adjective *more* comparatives should not differ between morphological groups of *y*-adjectives in the control condition (T0). To confirm this, a post-hoc analysis of the significant three-way interaction between *PrePost*, *morphology* and *treatment* in the model for the H16 hypotheses was performed. In this analysis, *treatment* was kept fixed separately at T0 and T1, and the two levels of *morphology* (simple, complex) in the *y*-adjective bases were contrasted. Table 7g presents the results of the analysis.

Table 7g. Contrast between complex and simple conditions for pre-to-post-treatment changes in RTs in the context of *y*-adjective *more* comparatives.

Levels contrasted	Levels fixed	Value	df	Chi-square test	
				P-value adjustment method: holm	
complex-simple	T0	0.00218	1	3.8	0.051
complex-simple	T1	-0.00306	1	7.5	<0.05

Notes:

Output obtained from the uncentered equivalent of the model for the H16 hypotheses.

T0: control treatment of music.

T1: exposure to instances of *-er* with HANDSOME adjectives.

Table 7g indicates that with T1, there is a significant difference between the contexts of complex *y*-adjective read with *more* and simple *y*-adjectives read with *more* in pre-post-treatment changes in RTs (chi-square=7.5, df=1, $p<.05$). With T0, the difference is nearing significance (chi-square=3.8, df=1, $p=.051$). Insofar as this goes, we do have corroborative evidence from a control condition that T1 facilitates reading in *y*-adjective *more* comparatives differently for different morphological subsets of *y*-adjectives. The negative value of -0.00306 in Table 7g indicates that with T1, pre-post differences in RTs are weaker

in the context of complex y-adjectives than in the context of simple y-adjectives. This is graphed in Figure 7d (see right panel), which visualises how with T1, pre-to-post decreases in RTs are less in the context of complex y-adjectives read with *more* than in the context of simple y-adjectives read with *more*.

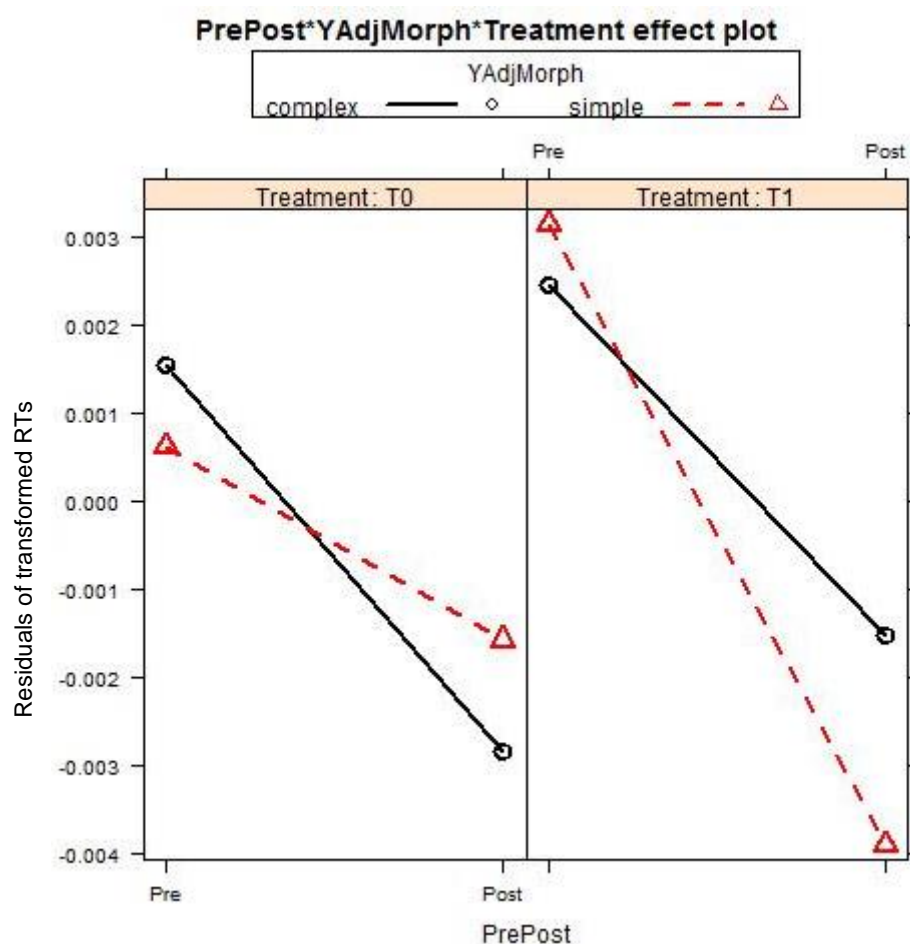


Figure 7d. Mean values showing pre-to-post-treatment facilitation effects for T0 (left panel) and T1 (right panel) for RTs in the context of y-adjective *more* comparatives under different morphological conditions of y-adjective bases. Facilitation effects for T0 are non-significant, while those for T1 are significant, as shown in Table 7g.

Notes:

Graphs plotted from an equivalent of the model for the H16 hypotheses where IVs are kept uncentered.

Residuals of transformed RTs (or reading times) provide the dependent variable used in the statistical models.

The mean raw reading times (in milliseconds or ms) for the conditions shown in Figure 7d are:

- 373 (Pre) and 309.9 (Post) for complex with T0 (change of 63.1ms);
- 402.1 (Pre) and 359.8 (Post) for simple with T0 (change of 42.3ms);
- 414 (Pre) and 345.8 (Post) for complex with T1 (change of 68.2ms); and
- 389.5 (Pre) and 310 (Post) for simple with T1 (change of 79.5ms).

The indication in Figure 7d is that with T1, pre-to-post-treatment facilitation in reading in y-adjective *more* comparatives is weaker in the condition of complex y-adjective bases than

in the condition of simple *y*-adjective bases. H16b, which predicts this, is therefore confirmed. Since T1 refers to an exposure to instances of HANDSOME+*er*, the implication in this confirmation is that an exposure to multiple instances of HANDSOME+*er* seems to dissipate any advantage that complex *y*-adjectives have for *more* to the extent that there is instead a greater chance of finding simple *y*-adjectives with *more*.

The findings reported thus far relate to a test of the H15 and H16 pairs of hypotheses, where *y*-adjectives were encountered in the *more* comparative. I will now report on the findings related to a test of the H17 and H18 pairs of hypotheses, where *y*-adjectives were encountered in the *-er* comparative. The model accepted for the H17 hypotheses shows neither a two-way interaction between *PrePost* and *treatment* (chi-square=2.85, df=1, p=0.092) nor a three-way interaction between *PrePost*, *morphology* and *treatment* (chi-square=2.16, df=1, p=0.141). There is therefore no convincing case for pursuing the prediction in H17a, which requires a difference between T1 (HANDSOME+*er* exposure) and T0 (control exposure) in their effects on RTs in the context of *y*-adjectives read with *-er*. The non-significant three-way interaction between *PrePost*, *morphology* and *treatment* in the model for the H17 hypotheses indicates that there is no effect of T1 (HANDSOME+*er* exposure) on any difference in RTs between the contexts of complex *y*-adjectives read with *-er* and simple *y*-adjectives read with *-er*; there are no grounds therefore to further pursue H17b, which requires this effect.

Given the multiple significant effects from the model accepted for the H18 hypotheses, the Anova function in the phia library (De Rosario-Martinez et al., 2015) in R (version 3.1.3) (R Core Team, 2014) was applied to test the significance of the different factors and of the interactions. Table 7h summarises the results of this test, with a preamble on the details of the H18 hypotheses for ease of reference.

Table 7h. Test for contribution of higher-order interactions over lower-order ones for the MEM accepted for the H18 hypotheses.

H18a:	For comparative <i>-er</i> constructions of <i>y</i> -adjectives, there will be weaker facilitation in reading for participants exposed to an experimental treatment of multiple instances of <i>more</i> +HANDSOME (T2) than for those exposed to a control condition (T0).					
H18b:	Any facilitation in the reading of <i>-er</i> comparatives resulting from an exposure to multiple instances of <i>more</i> +HANDSOME (T2) will be weaker for simple <i>y</i> -adjectives than for complex ones. In contrast, any facilitation in this reading resulting from an exposure to a control condition (T0) will be no different between complex and simple <i>y</i> -adjectives.					
Hypotheses	Treatment	Comparative form of <i>y</i> -adjective	Analysis of Deviance Table (Type II Wald chi-square tests)			
			Chi-square	df	Pr (>Chi-square)	
H18a	T2 & T0	<i>er</i>	<i>Simple effects</i>			
H18b			PrePost	159.40	1	<0.001
			Morphology	0.01	1	0.9375
			Treatment	0.00	1	0.9651
			<i>2-way interaction effects</i>			
			PrePost:Morphology	0.02	1	0.8746
			PrePost:Treatment	3.58	1	0.0585
			Morphology:Treatment	0.15	1	0.7002
			<i>3-way interaction effects</i>			
			PrePost:Morphology:Treatment	9.93	1	<0.01

Notes:

T0: control treatment of music.

T2: exposure to instances of *more* with HANDSOME adjectives.

We can observe from Table 7h the finding of a significant three-way interaction between *PrePost*, *morphology* and *treatment* (chi-square=9.93, df=1, $p<.01$). This means that the interaction contributes to explaining the data over and above the significant simple effect of *PrePost* (chi-square=159.40, df=1, $p<.001$).

The significant three-way interaction between *PrePost*, *morphology* and *treatment* in Table 7h indicates that there is an effect of T2 on any difference in RTs between the contexts of complex *y*-adjectives read with *-er* and simple *y*-adjectives read with *-er*. H18b, which requires this effect, can therefore be further investigated. The non-significant two-way interaction between *PrePost* and *treatment* (chi-square=3.58, df=1, $p=0.0585$) indicates, however, that without considerations of the *morphology* of *y*-adjective bases, there is no difference between T2 and T0 in their effects on RTs in the context of *y*-adjectives read with *-er*. As a result, H18a, which requires this difference, cannot be further pursued. Returning to a description of H18b in Table 7h, we can note that this hypothesis predicts that after exposure

to instances of *more*+HANDSOME (T2), we will get a weaker facilitation in reading in simple y-adjectives paired with *-er* than in complex y-adjectives paired with *-er*; the corroborative evidence for this is that any pre-to-post-treatment facilitation in reading in y-adjective *-er* comparatives should not differ between morphological groups of y-adjectives in the control condition (T0). To confirm this hypothesis, a post-hoc analysis of the significant three-way interaction between *PrePost*, *morphology* and *treatment* in the model accepted for the H18 hypotheses was performed. Table 7i presents its output, which shows the effects on RTs of a change from pre- to post-treatment. *Treatment* was kept fixed at T0 and T2, and the two levels of *morphology* (simple, complex) in the y-adjectives were contrasted.

Table 7i. Contrast between complex and simple conditions for pre- to post-treatment changes in RTs in the context of y-adjective *-er* comparatives.

				Chi-square test P-value adjustment method: holm	
Levels contrasted	Levels fixed	Value	df	Chi-square	Pr (>Chi-square)
complex-simple	T0	-0.00242	1	5.47	<0.05
complex-simple	T2	0.00219	1	4.48	<0.05

Notes:

Output obtained from the uncentered equivalent of the model for the H18 hypotheses.

T0: control treatment of music.

T2: exposure to multiple instances of *more* with HANDSOME adjectives.

Table 7i indicates that with T2, pre-to-post-treatment changes in RTs are significantly different between the contexts of complex y-adjectives read with *-er* and simple y-adjectives read with *-er* (chi-square=4.48, df=1, p<.05). The positive value of 0.00219 indicates that with T2, pre-post differences in RTs are weaker in the context of simple y-adjectives than in the context of complex y-adjectives. Although with T0, pre-to-post-treatment changes in RTs are also significantly different between the contexts of complex y-adjectives read with *-er* and simple y-adjectives read with *-er* (chi-square=5.47, df=1, p<.05), the pattern of difference is opposite to that found with T2. The negative value of -0.00242 indicates that with T0, pre-post differences in RTs are weaker in the context of complex y-adjectives than in the context of simple y-adjectives. The observations noted are graphed in Figure 7e. In this visualisation, we can see how with T2 (see right panel), pre-to-post decreases in RTs are less in the context of simple y-adjectives read with *-er* than in the context of complex y-adjectives read with *-er*. We can also see how with T0 (see left panel), the pattern is reversed, where pre-to-post decreases in RTs are less in the context of complex y-adjectives read with *-er* than in the context of simple y-adjectives read with *-er*.

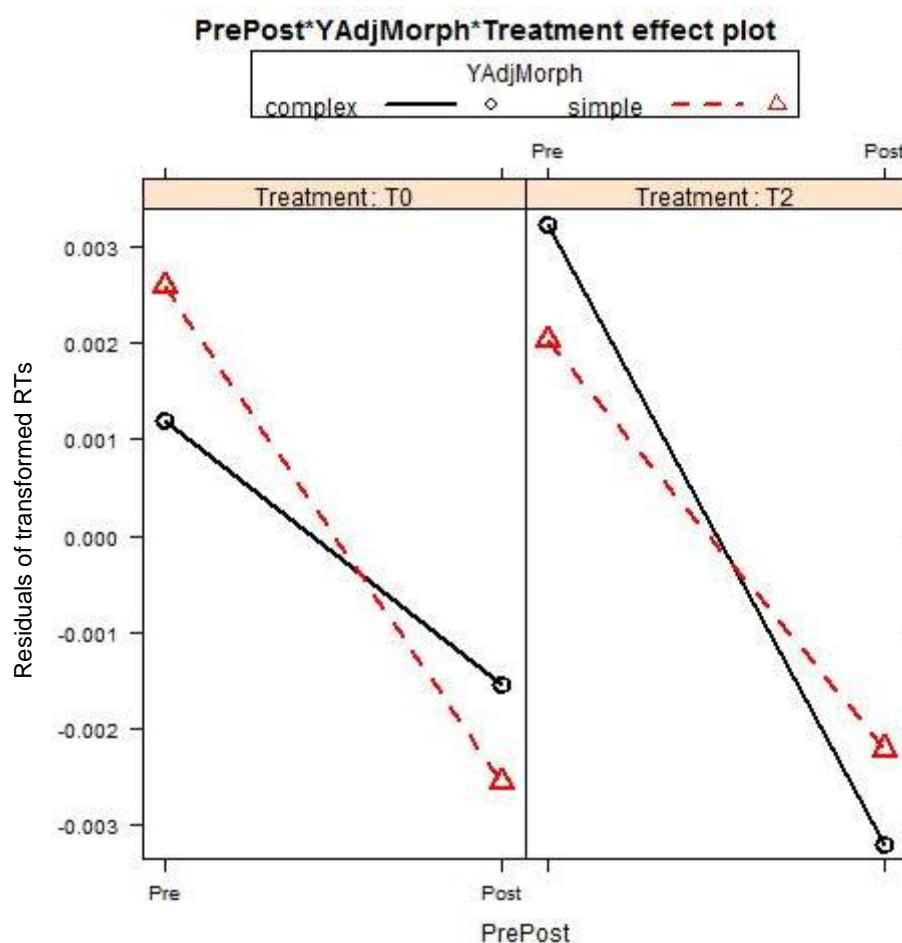


Figure 7e. Mean values showing pre-to-post-treatment facilitation effects for T0 (left panel) and T2 (right panel) for RTs in the context of y-adjective *-er* comparatives under different morphological conditions of y-adjective bases. Note that there is a stronger facilitation effect for simple than for complex morphological types in T0, but a stronger facilitation effect for complex for T2.

Notes:

Plotted from an equivalent of the model for the H18 hypotheses where IVs are kept uncentered.

Residuals of transformed RTs (or reading times) provide the dependent variable used in the statistical models.

The mean raw reading times (in milliseconds or ms) for the conditions shown in Figure 7e are:

- 443.3 (Pre) and 391.5 (Post) for complex with T0 (change of 51.8ms);
- 411.8 (Pre) and 330.3 (Post) for simple with T0 (change of 81.5ms);
- 390 (Pre) and 331.7 (Post) for complex with T2 (change of 58.3ms); and
- 371.7 (Pre) and 317.1 (Post) for simple with T2 (change of 54.6ms).

The indication in Figure 7e is that with T2, pre-to-post-treatment facilitation in reading in y-adjective *-er* comparatives is weaker in the condition of simple y-adjective bases than in the condition of complex y-adjective bases. H18b, which predicts this, is therefore supported. Although not in the manner anticipated, we have corroborative support for this prediction from the control condition, since with T0, pre-to-post-treatment facilitation in reading in

y-adjective *-er* comparatives is weaker in the condition of complex y-adjective bases than in the condition of simple y-adjective bases, rather than vice versa like with T2. Since T2 refers to an exposure to instances of *more+HANDSOME*, the implication in the findings here is that an exposure to multiple instances of *more+HANDSOME* seems to dissipate any advantage that simple y-adjectives have for *-er* to the extent that there is instead a greater chance of finding complex y-adjectives with *-er*.

7.6 Potential data concerns

The plots in Figures 7c, 7d and 7e present one concern. That is, participants randomly assigned to T0 seem in general to have shorter pre-treatment RTs than those randomly assigned to T1 and T2. This could have stemmed from the fact that prior to the pre-treatment SPR task, participants assigned to T0 were told that the second task for them was to listen to a piece of music whereas those assigned to T1 and T2 were told that the second task for them was to listen to a piece of dialogue. In other words, my attempt to create a consistent awareness between pre- and post-treatment conditions of the dialogic/musical nature of the listening task (see 6.4.1) might have had an unexpected consequence. That is, participants anticipating an upcoming language-related listening task might expect their reading task to be related to such a listening task and therefore they might have paid more attention to what they were reading than participants anticipating a listening task that did not involve language. This would explain why the latter group of participants were quicker in their reading at pre-treatment than the former group. A consequence of this would be that any variation in RTs found as an effect of *treatment* could have been confounded by a variation in awareness of the nature of an upcoming task. I will refer to this as ‘task awareness’ in the rest of this section.

A post-hoc procedure of fitting a series of MEMs on just the pre-treatment data suggests, however, that any confound of task awareness in my *treatment* effects remains questionable. This post-hoc procedure was performed right from the data preparation stage (see 7.2) through to the two-stage modelling process (see 7.3, 7.4 and 7.5). The general principles governing decisions on the transformations to apply and the models to accept for the pre-treatment data do not depart from those employed for the dataset as a whole (see 7.2–7.5 for a documentation of these principles). It turns out that the series of transformations and model comparisons that best suited the dataset as a whole are also ones that best suited the pre-treatment data.

The MEMs accepted based on just the pre-treatment data are presented in Table 7j.

Table 7j. Test for contribution of higher-order interactions over lower-order ones for MEMs based on pre-treatment data accepted for the H15, H16 and H18 hypotheses.

Hypotheses	Treatment	Comparative form of y-adjective		Analysis of Deviance Table (Type II Wald chi-square tests)		
				Chi-square	Df	Pr (>Chi-square)
H15a H15b	T2 & T0	<i>more</i>	<i>Simple effects</i>			
			Morphology	0.12	1	0.7265
			Treatment	8.91	1	<0.01
			<i>2-way interaction effects</i>			
			Morphology:Treatment	0.01	1	0.9262
H16a H16b	T1 & T0	<i>more</i>	<i>Simple effects</i>			
			Morphology	0.00	1	0.997
			Treatment	4.01	1	<0.05
			<i>2-way interaction effects</i>			
			Morphology:Treatment	0.19	1	0.666
H18a H18b	T2 & T0	<i>er</i>	<i>Simple effects</i>			
			Morphology	0.16	1	0.69
			Treatment	1.67	1	0.20
			<i>2-way interaction effects</i>			
			Morphology:Treatment	1.14	1	0.29

Notes:

Treatment is hypothetical, not actual.

T0: control treatment of music.

T1: exposure to multiple instances of *-er* with HANDSOME adjectives.T2: exposure to multiple instances of *more* with HANDSOME adjectives.

The factor of *treatment* in these models is of course hypothetical rather than actual, since the RTs that constitute the data for these models were collected prior to any treatment. The hypothetical *treatment* factor serves to differentiate between participants with the awareness that an upcoming listening task is non-language-related, i.e. those who were subsequently subjected to T0, and those with the awareness that this task is language-related, i.e. those who were subsequently subjected to T1 or T2. The factor of *PrePost* is non-existent in these models, since the data on which these models are based are only those obtained at pre-treatment. The models in Table 7j were all built with the centering of hypothetical *treatment*, *morphology* and *comparative*; this centering became necessary to remove the collinearity between these factors.

It is perhaps unsurprising by now that a hypothetical *treatment* effect is indeed found in some of the models in Table 7j. Of greatest concern is perhaps the presence of this effect in the model for the H15 hypotheses (chi-square=8.91, df=1, $p<.01$). Its presence suggests that participants subjected to T2 differ already from participants subjected to T0 at the pre-treatment phase. If so, then there is the risk that a pre-to-post-treatment facilitation in reading found for

y-adjective *more* comparatives might not in fact be attributable to *treatment* itself. It might be related instead to participant awareness of an upcoming task, and how the experimental and control treatment groups differ in this awareness even at pre-treatment. There are grounds, however, for us not to be overly concerned with this risk. The first is the observation that the simple effect of *treatment* is not found in all models reported in Table 7j to be consistently significant. In particular, it is found to be far from conventional significance in the model for the H18 hypotheses (chi-square=1.67, df=1, p=0.20). If RTs were indeed strongly influenced by task awareness, then we ought to see in the pre-treatment data a consistent simple effect of *treatment* for every model that implicates the factor of a variation in task awareness between participants; this would be all the models reported in Table 7j. Since there remains one model in this table where a variation in task awareness at pre-treatment is not accompanied by a simple effect of *treatment*, we cannot say for sure that any subsequent effect of actual treatment is confounded by task awareness.

It might be suggested that we need to consider nonetheless whether effects of *treatment* may be invalidated by task awareness in conditions involving morphological subsets of comparative y-adjective constructions. In this respect, two sets of findings reported from the models fitted on the whole dataset could be of concern: one indicating that the facilitation effect of T1 on the reading of y-adjective *more* comparatives is weaker in complex y-adjectives than in simple y-adjectives; and the other indicating that the facilitation effect of T2 on the reading of y-adjective *-er* comparatives is weaker in simple y-adjectives than in complex y-adjectives. There is no evidence from Table 7j to suggest, however, that these *treatment* effects involving morphological subsets of comparative y-adjective constructions ran the risk of being confounded by task awareness. This is because if the risk existed, we should find it already in the pre-treatment data, where this awareness would have been present; we should find, in other words, a significant interaction between hypothetical *treatment* and *morphology* in the models reported in Table 7j. This significant interaction is not found, however, in any of the models in Table 7j. We have no evidence therefore even from pre-treatment data that task awareness can affect variation in RTs in the context of morphological subsets of comparative y-adjective constructions. Given this, it is hard to claim that effects of actual treatment found for these subsets are confounded by task awareness. This is especially since any task awareness should presumably be less salient in post-treatment than in pre-treatment readings, since this awareness was built in prior to pre-treatment, and would not be anything out of the ordinary by the time participants get to post-treatment.

7.7 Some conclusions about comparative alternation in y-adjectives

Based on the findings reported in this chapter, a few conclusions may be drawn. One is that there is no consistent evidence from my investigations that the morphological structure of y-adjectives on its own predicts the comparatives of y-adjectives. Although my corpus data has shown *morphology* to be a significant predictor of the comparatives of y-adjectives (see 5.4.4), with a bias towards *-er* for simple y-adjectives and a bias towards *more* for complex ones, these biases are not indicated in my experimental data. There is no support for my experimental prediction that reading is facilitated with the *-er* constructions of simple y-adjectives when compared to the *-er* constructions of complex y-adjectives; neither is there support for the prediction that reading is facilitated with the *more* constructions of complex y-adjectives when compared to the *more* constructions of simple y-adjectives (see 7.5.2).

On the other hand, both the experimental and corpus data converge in indicating that *more* comparatives of HANDSOME adjectives can bias y-adjectives towards *more*. The experimental data show that even without considering the morphology of y-adjective bases, reading is facilitated in y-adjective *more* comparatives by an exposure to multiple instances of *more*+HANDSOME. This finding is aligned with the significant positive correlation found in the corpus data between the *more* constructions of HANDSOME adjectives and the *more* constructions of y-adjectives. With respect to *-er* constructions, I did not find either in my experimental or corpus data that *-er* comparatives of y-adjectives can be influenced by the *-er* comparatives of HANDSOME adjectives. There is no support for my experimental prediction that reading is facilitated in y-adjective *-er* comparatives by an exposure to multiple instances of HANDSOME+*er*. This lack of support occurs also in the corpus data, where I did not find a significant positive correlation between the *-er* constructions of HANDSOME adjectives and the *-er* constructions of y-adjectives.

Without implicating the morphology of y-adjective bases, I did not find evidence that the *more* constructions of y-adjectives can be suppressed by the *-er* constructions of the HANDSOME adjectives; or that the *-er* constructions of y-adjectives can be suppressed by the *more* constructions of the HANDSOME set. I have no support in this regard for either of the following experimental predictions: that exposure to multiple instances of HANDSOME+*er* will weaken facilitation in reading in y-adjective *more* comparatives; or that exposure to multiple instances of *more*+HANDSOME will weaken facilitation in reading in y-adjective *-er* comparatives. Along lines similar to these, I did not find in my corpus data an anticipated significant negative correlation between the *more* constructions of y-adjectives and the *-er* constructions of HANDSOME adjectives; or an anticipated significant negative correlation

between the *-er* constructions of *y*-adjectives and the *more* constructions of HANDSOME adjectives.

What is worthy of note, however, is that anticipated suppressive effects from comparatives of the HANDSOME set on the comparatives of *y*-adjectives can be observed when we take into consideration the morphological structure of *y*-adjective bases. Without introducing the comparatives of the HANDSOME set, we would in theory expect the *more* form to be predicted by complex *y*-adjectives and the *-er* form to be predicted by simple ones. However, I have evidence suggesting that these supposed morphological biases can be dissipated. In particular, the *-er* comparatives of HANDSOME adjectives can dissipate any advantage that complex *y*-adjectives have for *more* to the extent that there is a greater chance of finding simple *y*-adjectives with *more*. Likewise, the *more* comparatives of HANDSOME adjectives can dissipate any advantage that simple *y*-adjectives have for *-er* to the extent that there is a greater chance of finding complex *y*-adjectives with *-er*. Support for these conclusions are found in a confirmation of two of my experimental predictions. One is the prediction that with an exposure to multiple instances of HANDSOME+*er*, a facilitation in reading is weaker in complex *y*-adjectives read with *more* than in simple *y*-adjectives read with *more*. A second is the prediction that with an exposure to multiple instances of *more*+HANDSOME, a facilitation in reading is weaker in simple *y*-adjectives read with *-er* than in complex *y*-adjectives read with *-er*. A confirmation of the second prediction is moreover aligned with my corpus finding of a significant negative correlation between the *-er* constructions of simple *y*-adjectives and the *more* constructions of HANDSOME adjectives.

Although I have evidence that morphological effects on the comparatives of *y*-adjectives can be suppressed, I have little evidence these morphological effects can be enhanced. I do not have evidence supporting the prediction that with an exposure to multiple instances of *more*+HANDSOME, facilitation in reading is greater in complex *y*-adjectives read with *more* than in simple *y*-adjectives read with *more*. Likewise, I did not find evidence that with an exposure to multiple instances of HANDSOME+*er*, facilitation in reading is greater in simple *y*-adjectives read with *-er* than in complex *y*-adjectives read with *-er*. It seems therefore that any advantage that complex *y*-adjectives have for *more* cannot be enhanced by *more* constructions from the HANDSOME set; and any advantage that simple *y*-adjectives have for *-er* cannot be enhanced by *-er* constructions from the HANDSOME set. These conclusions are not aligned with expectations based on the corpus findings that morphological effects can be enhanced (see 5.5). Nonetheless, we keep in mind that these expectations were based on significant correlations involving the comparatives of QUICKLY adverbs rather than those of

HANDSOME adjectives. The possibility remains therefore that morphological effects on the comparatives of *y*-adjectives can be enhanced only by the comparatives of QUICKLY adverbs.

Observations from both my corpus and experimental data point to three main conclusions important for our understanding of comparative alternation in *y*-adjectives. One is that the pairing of *y*-adjectives with *more* can be accounted for by the *more* comparatives of HANDSOME adjectives. The second conclusion is that any bias in complex *y*-adjectives for *more* might be suppressed by the *-er* comparatives of HANDSOME adjectives; and the third is that any bias in simple *y*-adjectives for *-er* might be suppressed by the *more* comparatives of HANDSOME adjectives. These conclusions together indicate that comparative alternation in *y*-adjectives cannot be understood independently of either the comparatives of HANDSOME adjectives or the morphology of *y*-adjective bases.

7.8 Chapter conclusion

This chapter has reported on how the experimental data were prepared prior to analyses right through to how the data were analysed using a two-stage modelling process. Findings obtained at various stages of the modelling were presented and where relevant, with reference to the hypotheses they tested. These findings show a confirmation of three of the hypotheses tested. A number of conclusions we may draw from my experimental and corpus findings were pointed out. In Chapter 8, I take a discussion of my findings further, this time with reference to the central theme of this thesis, i.e. an account of comparative alternation in *y*-adjectives must incorporate both considerations from a paradigm of comparatives and morphological considerations.

CHAPTER 8

DISCUSSION

8.1 Chapter overview

This chapter highlights how an understanding of the comparatives of *y*-adjectives cannot be independent of either a paradigm of comparatives or morphological considerations. The importance of the paradigm for this understanding, as indicated directly from my findings, is put forward in 8.2. Section 8.3 includes a discussion on how a paradigm of comparatives informs an understanding of how morphological biases of *y*-adjectives towards particular comparatives might be suppressed. In 8.4, I show how even the unanticipated findings in my studies can be interpreted in ways that do not contradict paradigmatic and morphological perspectives to comparative alternation in *y*-adjectives.

8.2 The importance of a paradigm of comparative constructions

A paradigm of comparative constructions has been defined in this thesis as a multitude of *more* and *-er* constructions that share the grammatical function of the comparative (see 1.2). Membership in this paradigm includes the *more* and *-er* constructions not only of *y*-adjectives, but also of the BEAUTIFUL, HANDSOME and FAT sets of adjectives, and the QUICKLY adverbs. My attempt to understand the comparatives of *y*-adjectives in terms of a paradigm of comparatives is motivated in the first instance by the observation that while potential predictors of a structural nature have been extensively studied in accounts of comparative alternation, potential predictors derived from a more paradigmatic perspective have not been explored as extensively (see 2.7). In particular, paradigms constituted solely by comparative constructions have not been drawn upon in existing accounts. By examining therefore the extent to which a paradigm of comparatives can explain the comparatives of *y*-adjectives, I am investigating paradigmatic factors beyond what has been done in the literature on comparative alternation.

As shown in my findings, this investigation has proved rewarding. I have evidence to show that even without taking into account structural considerations, comparative *more* constructions of *y*-adjectives cannot be treated independently of those of the HANDSOME adjectives. Higher or lower counts of *more* constructions from *y*-adjectives are noted in my corpus study to correspond, respectively, with higher or lower counts of these constructions

from the HANDSOME adjectives. Further to this, an exposure to multiple instances of HANDSOME adjectives paired with *more* is shown to facilitate reading in y-adjective *more* comparatives. These empirical observations have an important repercussion. If the association between the comparatives of HANDSOME adjectives and the comparatives of y-adjectives is important in predicting the comparative forms of y-adjectives, and if this association is underpinned by a paradigm of comparatives, the importance of this paradigm for an account of comparative alternation in y-adjectives cannot be denied. This importance has larger implications by showing how paradigms in general may be a very useful tool for accounts of comparative alternation. We may view my findings on frequency effects grounded in a paradigm of comparatives in concert with other frequency effects documented to explain comparative alternation, i.e. relative frequencies of adjectival bases and ratio of comparatives to their positives. As pointed out in 2.7, these other frequency effects lend themselves easily to being grounded in various other paradigms. If we then draw together all frequency effects related to comparative alternation, including those that I found in this work, what we have is the promising thought that theoretical coherence between the different frequency effects may in fact reside in the construct of paradigms.

8.3 Paradigmatic and morphological takes on the issue of suppression

It is not only in how the *more* constructions of HANDSOME adjectives are found to relate to the *more* constructions of y-adjectives that we see the relevance of a paradigm of comparatives for an account of comparative alternation in y-adjectives. We see this also in how the *-er* constructions of HANDSOME adjectives relate to the *more* constructions of complex y-adjectives, and how the *more* constructions of HANDSOME adjectives relate to the *-er* constructions of simple y-adjectives. It is in these relations that we can observe at the same time the contributions of morphological considerations to an understanding of the comparatives of y-adjectives. The investigations that led to these findings are motivated largely by my review of the literature.

To elaborate on this, let us return to a question raised in 2.6. That is, what might enhance or suppress the susceptibility of y-adjectives to the structural conditioning for a comparative form? As noted in 2.5 and 2.6, this question is motivated by three observations. The first is that comparative alternation in y-adjectives cannot be neatly explained by structural accounts (see 2.5). The second is that y-adjectives seem to take relatively longer to adhere to structural motivators for comparative formation (see 2.6). The third is that there are grounds to believe that shifts from one comparative alternative to the other for y-adjectives could be different at

different time periods. The first two observations prompt my belief that something could be suppressing the susceptibility of *y*-adjectives to the structural conditionings for a particular comparative, so that it is important to address the question of what is suppressing this susceptibility. At the same time, the third observation suggests that *y*-adjectives are regularising towards different forms at different periods (see 2.6), so that it makes sense to ask what might be pushing *y*-adjectives towards the structural motivations for any one particular comparative.

A structural factor that I have given much attention to in the course of this empirical work is the morphology of *y*-adjectives. At this point, I do not have empirical evidence that any effect of morphology in predicting the comparatives of *y*-adjectives can be enhanced. However, I do have evidence that such effects can be suppressed. Given what was established in 3.6, we would expect complex *y*-adjectives to be biased towards *more* and simple ones towards *-er*. With the significant negative correlation found between the *-er* constructions of simple *y*-adjectives and the *more* constructions of HANDSOME adjectives in my corpus data, we have a preliminary indication that anticipated effects of morphological simplicity in biasing *y*-adjectives towards *-er* might be reduced by the *more* constructions of HANDSOME adjectives. This indication is confirmed in the experimental data, which shows that with exposure to multiple instances of *more* from the HANDSOME adjectives, we get a weaker facilitation in reading in simple *y*-adjectives paired with *-er* than in complex *y*-adjectives paired with *-er*. The data also shows that with exposure to multiple instances of *-er* from the HANDSOME set, we get a weaker facilitation in reading in complex *y*-adjectives paired with *more* than in simple *y*-adjectives paired with *more*. If we now relate these findings to the question of what might be suppressing the susceptibility of *y*-adjectives to the structural conditioning for a comparative form, one answer specifically with respect to morphological conditioning would be the comparatives of HANDSOME adjectives. In particular, the suppression works by way of contrastive comparative constructions. That is, the *more* constructions from the HANDSOME set seem to suppress the influence of morphological simplicity in *y*-adjectives for the *-er* form. On the other hand, the *-er* constructions from the HANDSOME set seem to suppress the influence of morphological complexity in *y*-adjectives for the *more* form.

In this view of my findings, it is clear that the introduction of a paradigm of comparatives, in addition to morphological considerations, is important in informing our understanding of comparative alternation in *y*-adjectives. Influences on this alternation from the comparatives of HANDSOME adjectives have to be contextualised within a paradigm of comparatives. Without this contextualisation, we have few theoretical grounds to consider, in

the first instance, any effect of HANDSOME+*er* constructions on the *more* constructions of *y*-adjectives, and any effect of *more*+HANDSOME constructions on the *-er* constructions of *y*-adjectives. Insofar as these effects are not found to be independent of the morphology of *y*-adjectives, morphological considerations, which have a long history of being studied in the literature on comparative alternation, retains their importance for an understanding of the comparatives of *y*-adjectives.

Thus far, I have focused on suppressive effects that the comparatives of HANDSOME adjectives might have on morphological predictions of the comparatives of *y*-adjectives. As noted, I did not find evidence that the comparatives of HANDSOME adjectives might also enhance these morphological predictions. In particular, I did not find the exposure to multiple instances of HANDSOME+*er* to facilitate reading in simple *y*-adjectives paired with *-er*. Neither did I find the exposure to multiple instances of *more*+HANDSOME to facilitate reading in complex *y*-adjectives paired with *more*. A consequence is that I still do not have an answer to the question, arising from my review of the literature, of what might enhance the susceptibility of *y*-adjectives to the structural conditioning for a particular comparative. This lack of evidence does not, however, undermine any stance I have thus far taken on the contribution of a paradigm of comparatives to informing our understanding of the comparatives of *y*-adjectives. The fact remains that there is a hint in my corpus data that morphological predictions of the comparatives of *y*-adjectives can be enhanced. I did find in this data a significant negative correlation between the *-er* constructions of QUICKLY adverbs and the *-er* constructions of complex *y*-adjectives; as noted in 5.5, higher or lower counts of *-er* forms from complex *y*-adjectives correspond with the reverse for counts of *-er* forms from the QUICKLY adverbs. Since any lower count of the *-er* form from complex *y*-adjectives corresponding to a higher count of this form from QUICKLY adverbs is indirectly aligned with the expectation for *-er* to occur with simple *y*-adjectives rather than complex ones, I was prompted to suggest that it would be worthwhile to investigate whether morphological predictions of the comparatives of *y*-adjectives can be enhanced by the comparatives of other categories of items. Insofar that hints are present in my corpus data that the comparatives of QUICKLY adverbs might have some influence on the comparatives of *y*-adjectives, and insofar that hints of such influences have to be contextualised within a conceptual paradigm of comparatives, it is fair to keep a consideration of this paradigm on the radar for any account of comparative alternation in *y*-adjectives.

A caveat in this regard is of course the fact that for reasons related to experimental design, I tested in the experimental study for an enhancement of morphological effects on the

comparatives of *y*-adjectives with respect to the comparatives of the HANDSOME adjectives rather than those of the QUICKLY adverbs. One explanation therefore as to why these anticipated enhancements were not found is that they can only emerge in a condition involving the comparatives of the QUICKLY adverbs. If indeed the case, this merely suggests that in understanding how morphological effects on the comparatives of *y*-adjectives can be enhanced, the introduction of a paradigm of comparatives is useful with respect only to the comparatives of the QUICKLY adverbs, but not those of the HANDSOME adjectives. This does not undermine any importance I have put forward on the contribution of a paradigm of comparatives to an account of comparative alternation in *y*-adjectives.

8.4 Where paradigmatic and morphological perspectives appear questionable

Although the *more* constructions of HANDSOME adjectives are found in my empirical work to bias *y*-adjectives towards *more*, the fact is that I did not find the *-er* constructions of the HANDSOME set to have any influence on the *-er* constructions of *y*-adjectives. I did not find a significant positive correlation between counts of *y*-adjective+*er* and counts of HANDSOME+*er*; neither did I find that reading is facilitated in *y*-adjective *-er* comparatives by an exposure to multiple instances of HANDSOME+*er*. All of this might suggest limits of the paradigm of comparatives for an account of comparative alternation in *y*-adjectives. We could speculate, however, that relevant counts of the *-er* constructions of HANDSOME adjectives in the empirical components of this work might have been insufficient for them to influence the *-er* constructions of *y*-adjectives. Borrowing Marchman and Bates's (1994) terminology, the number of HANDSOME+*er* constructions did not reach some 'critical mass' needed to push the *y*-adjectives towards *-er*.

This speculation brings an understanding of comparative alternation in *y*-adjectives back to a matter of frequency, which is not at all surprising since frequency matters are prevalent in most discussions on comparative alternation from the time of Braun (1982) and Quirk et al. (1985) right through to Hilpert (2008) (see 2.7). There is support for this speculation moreover if we consider my findings in terms of additional perspectives from psychological views of language. In brief, most of these views take connections to hold (Elman, 1989; Schreuder & d'Arcais, 1989; Lamb, 1998), in the form of an expanded network (Hudson, 2007; Kreyer, 2014), between different linguistic elements, from the phoneme, to a concatenation of the phonemes in a word (Kreyer, 2014, p. 3), to grammatical categories such as 'verb' and grammatical functions such as 'singular' (Kreyer, 2014, p. 5). What is worthy of note in these views is the role of frequency in the activation of connections between linguistic elements

(Baayen, 2003, p. 249; Kreyer, 2014, p. 2). There are various mechanics as to how frequency is theorised to operate in these activations, but let us refer, for ease of illustration, to threshold models where it is proposed that connections between linguistic elements get activated when certain frequency thresholds are crossed (Lamb, 1998; Baayen, 2003; Hudson, 2007; Kreyer, 2014). In this regard, if a paradigm of comparatives allows the conception of an association between HANDSOME+*er* and *y*-adjective+*er* constructions, what a psychological view of language additionally suggest is that in order for any such association to be activated, a certain frequency threshold has to be crossed. Therefore, where I had anticipated, for various theoretical reasons (see 3.4), that the type frequency of HANDSOME+*er* might predict the -*er* constructions of *y*-adjectives and this prediction is somehow not met, there is an alternative possibility that the relevant frequency of HANDSOME+*er* was not sufficiently high enough in my empirical contexts to realise the prediction.

This belief does not make defunct any posited association between the constructions of HANDSOME+*er* and *y*-adjective+*er*, or the paradigm that supports it. It just adds a level of qualification to the frequency conditions that might be needed for this association to reliably predict the comparative -*er* for *y*-adjectives. With respect to my corpus data, this qualification is sensible. As noted in 2.4, out of the three categories of disyllabic adjectives outside of the *y*-adjectival group studied in Kytö and Romaine (1997, p. 344), two are noted to stabilise at 100 per cent from the period of Early Modern English. The first period of data in my corpora, i.e. 1601–1650, is precisely the end of the Early Modern English period, where we should be starting to find more of at least two categories of HANDSOME adjectives in the *more* than in the -*er* construction. It is unsurprising therefore if the type frequency of HANDSOME+*er* is insufficiently high enough to predict the -*er* comparatives of *y*-adjectives.

It might be suggested that my speculation as to why the -*er* constructions of HANDSOME adjectives were not found to predict the -*er* constructions of *y*-adjectives is problematic. That is, by focusing on the frequency levels needed to realise this prediction rather than questioning the association between the constructions of HANDSOME+*er* and *y*-adjective+*er*, I am making the importance of a paradigm of comparatives for an account of comparative alternation in *y*-adjectives non-falsifiable. I would agree with this if I did not find any evidence at all that comparatives of *y*-adjectives can be influenced by those of the HANDSOME adjectives. I did find this evidence though. It seems fair therefore to first question whether there are frequency levels that need to be crossed to observe the effects of HANDSOME+*er* on *y*-adjective+*er* before we begin to view the absence of these effects as a

problem with understanding the comparatives of *y*-adjectives in terms of a paradigm of comparatives.

Instead of interpreting the absence of these effects from the perspective of frequency thresholds, we might choose to interpret them from a priming perspective, since priming is somewhat implicit in my experimental component (see 6.3.2). A theory commonly evoked in the priming literature is the idea of inverse frequency. That is, “less frequent structures tend to prime more strongly” (Jaeger & Snider, 2013, p. 60) than their more frequent alternatives; see also Bock (1986), Hartsuiker and Kolk (1998), Ferreira (2003), Scheepers (2003) and Kaschak et al. (2011). In Jaeger and Snider (2013, p. 62), this is known as the effect of prime surprisal or expectation adaptation, where on presentation of alternative structures, people tend to show greater adaptation to the less conventional alternative than the more conventional one. We may suggest therefore that effects of HANDSOME+*er* on *y*-adjectives+*er* are not apparent because the comparative *-er* construction is relatively more frequent (or more conventional) for *y*-adjectives, so that it is the *more* construction that gets primed more strongly on these adjectives than the *-er* ones. Indeed, this interpretation would be coherent with the corpus finding that shows the *-er* forms of *y*-adjectives to be on the rise over time.

An interpretation along these lines has to be taken with a small caveat, however. This is because in the condition where participants read *more*+*y*-adjective and were subsequently treated with *more*+HANDSOME, we should expect the *more* construction to be quite high in cumulative frequency or conventionalised by the post-treatment stage even it was not so prior to pre-treatment. The question then is whether we should still be expecting to see a prime surprisal effect related to *more*. This is a question worth asking since it has been found that the emergence of prime surprisal effects is as much dependent on recent experience with a structure as on prior experience (Jaeger & Snider, 2013, p. 71). If I cannot be certain that the effect of *more*+HANDSOME on *more*+*y*-adjective is strictly a priming effect, then I cannot also be certain that the absence of a parallel effect in the condition where participants read *y*-adjective+*er* and were treated with HANDSOME+*er* is really an issue of *more* being more susceptible to being primed than *-er* is. It seems therefore that an interpretation of my findings in terms of frequency thresholds that were met or otherwise, and that then determine whether treatment effects were observed, puts me in a position where I am less likely to encounter the challenges that would arise with the adoption of a clear-cut priming-related interpretation.

The notion that there is a threshold defined by frequency that needs to be crossed in order for any association between linguistic elements to be activated (Baayen, 2003, p. 249; Kreyer, 2014, p. 2) aids not only a speculation as to why not all anticipated paradigmatic effects

are found in my empirical data. It also aids a speculation as to why the independent morphological effects found in my corpus data are not replicated in the experimental data. In my corpus data, the morphological structure of *y*-adjectives is found to have a significant independent effect on the comparatives of these adjectives, and in the way of an anticipated bias for *more* in complex *y*-adjectives and a bias for *-er* in simple *y*-adjectives (see 5.4.4). This finding is not, however, supported in my pre-treatment experimental data; the morphology of *y*-adjectives is not found to have any significant independent effect in facilitating reading in comparative *y*-adjective constructions (see 7.5.2). A potential interpretation of these discrepant findings is that morphological considerations are questionable in terms of their validity for an account of comparative alternation in *y*-adjectives. I would like to propose, however, that contrary to this, their validity can be sustained if we introduce the notion of frequency thresholds that need to be crossed for any independent effect of morphology to emerge. The structural hypotheses of an anticipated bias for *more* in complex *y*-adjectives and for *-er* in simple *y*-adjectives allow us to conceive, with the aid of conceptualisations from psychological viewpoints, of some cognitive association between the *more* form and forms of complex *y*-adjectives, and also between the *-er* form and forms of simple *y*-adjectives. If it has been theorised that associations between linguistic elements are activated by the crossing of thresholds related to frequency, then one possibility as to why anticipated independent effects of morphology in accounting for the comparatives of *y*-adjectives are not found in my pre-treatment experimental data is that some critical levels of frequency were not met. In particular, we might speculate that frequencies of comparative *more* might not have been sufficiently high enough in people's cognition to activate any association between *more* and complex *y*-adjectives; and likewise, frequencies of comparative *-er* might not have been sufficiently high enough to activate any association between *-er* and simple *y*-adjectives.

These are not empty speculations if we return to the evidence indicating that: *-er* constructions from the HANDSOME adjectives can suppress the influence of morphological complexity in *y*-adjectives for the *more* form; and *more* constructions from the HANDSOME adjectives can suppress the influence of morphological simplicity in *y*-adjectives for the *-er* form. The evidence of no bias for *more* in complex *y*-adjectives with the introduction of HANDSOME+*er* suggests that a cognitive accumulation of *more* comparatives can be lowered to a point where morphological complexity does not predict *more*. Likewise, the evidence of no bias for *-er* in simple *y*-adjectives with the introduction of *more*+HANDSOME suggests that a cognitive accumulation of *-er* comparatives can be lowered to a point where morphological simplicity does not predict *-er*. In view of this, where I did not find in the pre-

treatment data a bias for *more* in complex *y*-adjectives and a bias for *-er* in simple *y*-adjectives, it is reasonable to propose that relevant frequencies of *more* and *-er* constructions in people's cognition could have been insufficient to realise these biases, even without having to have these frequencies artificially lowered with some experimental treatment. As Henderson (1989, p. 383) notes, processes generic to mental models may be the key to accounting for phenomena that are "deviation[s] from the rules", and in this case, they are the morphological rules for comparative formation. None of this tears apart my claim about the importance of morphological considerations for an account of comparative alternation in *y*-adjectives. On the contrary, we need to accept this claim before we can consider the frequency-related conditions under which morphological predictions of the comparatives of *y*-adjectives might be dampened.

The tricky bit to what I suggest about morphological effects is the question of how we might then reconcile this with the fact that independent effects of morphology on the comparatives of *y*-adjectives are found in my corpus data. We might ask whether frequencies of *more* and *-er* constructions in the corpus data might have crossed the critical frequency thresholds needed for the realisation of these morphological effects. The answer may well be a positive when we compare the nature of corpus data with an experimental setting. If the introduction of HANDSOME+*er* can reduce a cognitive accumulation of *more* comparatives, and likewise, the introduction of *more*+HANDSOME can reduce a cognitive accumulation of *-er* comparatives, we might expect chances of these reductions to be lower in a corpus setting than in an experimental one. The data in a corpus setting can be taken to comprise 'snapshots' of language use that do not, in theory, directly reflect people's online processing of comparative *y*-adjective constructions in relation to their cognitive store of HANDSOME adjectives. These 'snapshots' might therefore underestimate the extent to which the HANDSOME adjectives have the power to influence the comparative *y*-adjective constructions. It follows that these constructions would have more room to accumulate to a point where they cross the critical thresholds of frequency needed for a reliable prediction of a bias for *more* with complex *y*-adjectives, and a bias for *-er* with simple ones. Indeed, it is worthy of note that existing claims on these biases (Leech & Culpeper, 1997; Mondorf, 2003; Hilpert, 2008) are all corpus-driven. In this proposal as to how we might reconcile the discrepancy between my corpus and experimental data in what they indicate about independent morphological effects, I have again not undermined my prior claim about the importance of morphological considerations for an account of comparative alternation in *y*-adjectives. My proposal merely adds a level of qualification to the frequency conditions needed for the anticipated morphological effects to

emerge, and questions perhaps on whether these conditions might be better met in a corpus setting than in an experimental one.

8.5 Chapter conclusion

In this chapter, I have highlighted the importance of both a paradigm of comparatives and morphological considerations for understanding comparative alternation in *y*-adjectives. This importance is validated in my findings as they stand, and in how these findings aid in addressing some questions arising from my review of the literature. I have also proposed an alternative way of describing some of my findings where paradigmatic and morphological perspectives to understanding them do not appear to be directly supported. I have shown how this description is nonetheless coherent with considerations from a paradigm of comparatives and from morphology. It moreover introduces avenues for potential ways of qualifying these considerations, and for reconciling discrepancies about the predictive role of morphology on the comparatives of *y*-adjectives. I will discuss what these avenues afford for further research as I conclude this thesis in Chapter 9.

CHAPTER 9

CONCLUSION

9.1 Chapter overview

This chapter draws the thesis to a close. Section 9.2 notes the key contributions of this thesis to the field of comparative alternation, and to the potential of what paradigms can afford for studies of alternation between linguistic forms. Constraints faced in the current work, together with some threads of investigation for future work, are noted in 9.3.

9.2 Key contributions

This work originates from a simple observation, i.e. comparative alternation in *y*-adjectives has not been neatly explained by available structural accounts. This observation subsequently drew me into a number of prospective ways of understanding the comparatives of *y*-adjectives. I was led to theorise about how a diachronic view of things might shed light on the reason that *y*-adjectives do not sometimes adhere to the structural motivations for particular comparatives. I was further led to investigate whether paradigmatic associations between the comparatives of *y*-adjectives and those of other English forms could explain comparative alternation in *y*-adjectives. As part of this investigation, I sought to consider whether predictions of the comparatives of *y*-adjectives made on the basis of structural considerations could be suppressed and/or enhanced with considerations from a paradigm of comparatives. This part of the investigation was undertaken to determine what their findings might mean, in theory, for the relatively longer time that *y*-adjectives seem to take to align with a particular comparative or for the possible shifts of *y*-adjectives towards different comparative forms at different time periods. The strategy employed throughout this work therefore is to construct a picture of comparative alternation in *y*-adjectives by exploring precisely the areas where different perspectives to the alternation can complement one another. This strategy of understanding comparatives has never before been employed. One contribution of this thesis therefore to the field of comparative alternation is in how it approaches an understanding of this alternation.

Although the eventual picture I ended up with is not a completely neat one, the approach I have adopted helps us appreciate why an understanding of the comparatives of *y*-adjectives

has to move beyond structural considerations, and why, in particular, it has to implicate a paradigm of comparatives. Perhaps in unanticipated ways, this work allows an appreciation also of why comparative alternation in *y*-adjectives is so challenging to available structural accounts. We know, as a result of this work, that we are unable to neatly explain comparative *y*-adjective constructions in terms of structural accounts for quite a long time now. Out of the four structural factors considered in my analysis of the diachronic corpus data, only the factor of morphology is found to be an independent predictor of the comparatives of *y*-adjectives. We know further that any independent effect that the morphological structure of *y*-adjectives has on the comparatives of these adjectives may be suppressed in individual language users. In particular, we have evidence indicating the source of the suppression to be the comparatives of HANDSOME adjectives. By introducing the psychological notion of frequency thresholds to our understanding of the findings, we have good reasons moreover to suggest that an independent morphological conditioning of the comparatives of *y*-adjectives can be realised only if the full extent of the comparatives of HANDSOME adjectives accumulated in any one individual's cognition is not brought to bear in suppressing this conditioning. My further suggestion that the nature of corpus data provides an appropriate context for the realisation of this morphological conditioning is not tantamount to saying that this conditioning is unreal or is a corpus artefact. It is to say simply that any independent effect of morphology on the comparatives of *y*-adjectives might remain latent unless the effect of comparatives from the HANDSOME set is so weak that it cannot suppress the effects of morphology.

In the account of comparative alternation in *y*-adjectives obtained from this thesis, it is clear therefore that while morphological considerations are important to this alternation, the comparatives of the HANDSOME adjectives permeate so many aspects of the alternation that we can no longer think of the comparatives of *y*-adjectives independently of the *more* and *-er* constructions of HANDSOME adjectives. This is where the thesis makes its second contribution to the field of comparative alternation. It shows how much of an impact the comparatives of English forms outside of the *y*-adjectival group can have on the comparatives of *y*-adjectives. By doing so, it foregrounds the need to consider a paradigm of comparatives in any study of comparative alternation in *y*-adjectives. It is true that not all of the comparative constructions (outside of those of the *y*-adjectives) are found in this thesis to contribute to an account of the comparatives of *y*-adjectives. However, it remains true as well that out of four categories of comparative constructions considered in the corpus study, namely those of the FAT, the HANDSOME and the BEAUTIFUL adjectives, and those of the QUICKLY adverbs, three of these categories, i.e. the comparatives of the FAT, HANDSOME and QUICKLY set,

are found to correlate significantly with the comparatives of *y*-adjectives. There was just insufficient time and resources to take up the relationships implicating the FAT and QUICKLY set and investigate them to the same extent as the relationships between the comparatives of the HANDSOME adjectives and those of the *y*-adjectives. The point is that there is evidence from my corpus study that non-*y*-adjectival members of a paradigm of comparatives beyond those of the HANDSOME set can potentially contribute to an understanding of the comparatives of *y*-adjectives. The importance of the paradigm for an account of comparative alternation in *y*-adjectives is therefore emphasised.

An understanding of the comparatives of *y*-adjectives in terms of a paradigm of comparatives may be novel. An understanding of plural noun formation in terms of a paradigm of plural constructions is certainly not. As noted in 3.5, there has to be some implicit notion in Bybee and Newman (1995) of a paradigm of plural constructions. I noted, in particular, that without this notion, type frequencies of various plural formation processes cannot then be sensibly compared as a means of assessing their potential application to novel nouns. What I have done in this thesis is basically to examine whether the notion of a paradigm of constructions can shed light on comparative alternation in *y*-adjectives, in the same way that it has shed light on plural noun formation. The answer as a result of my work is that it can. A paradigm, in this case of comparative constructions rather than plural ones, can enhance our understanding of the comparatives of *y*-adjectives by giving us an avenue to think of these comparatives in terms related to the comparatives of HANDSOME adjectives. My work has thus expanded the scope of linguistic phenomenon explainable by a conceptual paradigm of constructions, and in this respect, its contribution lies beyond the field of comparative alternation. It is hoped that as a consequence of this work, it is reasonable now to ask whether the idea of a paradigm of constructions can be useful also for explaining other instances of alternation associated with a grammatical function. An example is the alternation between the English genitive *-s*, *David's dog*, and a post-modifier PP, e.g. *the dog of David*. Like comparative alternation in *y*-adjectives, genitive alternation, as suggested in Ehret et al. (2014, p. 264), has persisted for centuries with no clear sign of a stabilisation towards one or the other alternative.

9.3 Current constraints & future research

The focus for a large part of this thesis is on how the comparatives of *y*-adjectives can be predicted by the comparatives of HANDSOME adjectives. It is quite unlikely, however, that an account of comparative alternation in *y*-adjectives can be informed only by the comparatives

of HANDSOME adjectives. As noted in 9.2.1, I did find in my corpus study significant correlations between the comparatives of y-adjectives and those of the FAT adjectives, and between the comparatives of y-adjectives and those of the QUICKLY adverbs. In particular, the *more* constructions of FAT adjectives are found to correlate significantly with those of the y-adjectives with a [-voiced] penultimate segment, and the *-er* constructions of QUICKLY adverbs are found to correlate significantly with those of the complex y-adjectives. These correlations suggest, in theory, that potential predictors of the comparatives of y-adjectives can implicate the [\pm voiced] feature of penultimate segments in y-adjectives, as well as the comparatives of the FAT and QUICKLY set of English forms. Although I was unable to take an investigation of these predictors beyond the corpus study because of the constraints of time and other resources, there are grounds to keep these predictors on the radar for future work on comparative alternation in y-adjectives.

Where structural predictors are concerned, I wanted to ensure that at least one structural predictor from each of the main linguistic components of syntax, morphology and phonology was represented in my corpus study. The contrasts examined were: the attributive versus non-attributive contexts of comparative y-adjective constructions; the morphological complexity versus simplicity of the y-adjectives in those constructions; the presence versus absence of a final /li/ in these y-adjectives; and the [\pm voiced] feature of the penultimate segment in these y-adjectives. What I was unable to achieve in the corpus study was the examination of every single structural factor that could potentially predict the comparatives of y-adjectives. A large part of this is attributable to the relatively small number of tokens of comparative y-adjective constructions available for investigation. This small number of tokens is in part a consequence of my division of the data into seven periods of study. In this regard, the downside of a small sample of comparative y-adjective constructions for my corpus study has to be tolerated in order for us to obtain an empirical understanding of the comparatives of y-adjectives from a diachronic perspective. The small sample, however, means that there are limitations as to how many structural factors I can examine with my corpus data while ensuring the reliability of subsequent findings, especially if additional structural factors are ones that could skew my investigation towards factors associated with any one linguistic component of syntax, morphology or phonology. The additional structural factors that I would have examined, given a larger number of comparative y-adjective constructions, are ones associated with syntax, i.e. the presence of a following *than* clause, an infinitival *to* complement or a pre-modifier. It should be noted that in studies where these other structural factors are investigated in addition to the ones investigated in this thesis, e.g. in Hilpert (2008), the analysis of comparative

constructions is not confined to *y*-adjectives, allowing a larger sample of tokens. With a large sample, the risk of unreliable findings that comes with investigating many factors is necessarily reduced. Given my small corpus sample of comparative *y*-adjective constructions, the investigation of any influence on these constructions of additional syntactic factors such as those listed above will have to await the construction of a larger corpus.

With respect to any future work that is an extension of this thesis, it might be worthwhile also to investigate whether the morphological structure of HANDSOME adjectives matters when the comparatives of these adjectives are observed to predict those of *y*-adjectives. I have not built this consideration into the current work because my goal is to establish in the first instance whether paradigmatic associations between the comparatives of HANDSOME adjectives and those of the *y*-adjectives contribute to an account of comparative alternation in *y*-adjectives. Before this is established, I have no reason *a priori* to consider whether any predictive effect of the comparatives of HANDSOME adjectives in this regard may vary with the complexity or simplicity of the HANDSOME bases. It is worth pointing out nonetheless that out of the eight HANDSOME adjectives in my experimental treatment dialogues (see C.3 in APPENDIX C), seven are unambiguously simple in their morphological structure. It is an open question therefore as to whether multiple instances of the comparatives of predominantly complex rather than simple HANDSOME adjectives can also predict the comparatives of *y*-adjectives, and in the same manner observed in the experimental study from this work. This question is now worth asking for a future work given this thesis.

Perhaps the most striking area for future research put forward in this work is the kind of frequency conditions needed for the comparatives of HANDSOME adjectives to reliably predict those of *y*-adjectives. The quantity of *more*+HANDSOME in the relevant experimental treatment seems sufficient for us to observe an increased receptiveness towards comparative *y*-adjective constructions formed with *more*. However, the quantity of HANDSOME+*er* in the relevant treatment did not stimulate an anticipated increase in receptiveness towards comparative *y*-adjective constructions formed with *-er*. In a future study, it may be useful therefore to manipulate computationally the type count of HANDSOME+*er* in a treatment similar to that implemented in my experimental study, if only to determine whether there is indeed no point beyond which this count can start predicting the comparative *-er* form for *y*-adjectives. If this does turn out to be the case, i.e. no matter how the type count of HANDSOME+*er* is manipulated, we can never get HANDSOME+*er* constructions to predict the *-er* form in the comparatives of *y*-adjectives, we will still arrive at a number of interesting questions that can only expand our understanding of these comparatives. One of these would

surely be why the pairing of *-er* with *y*-adjectives cannot be predicted by the *-er* constructions of the HANDSOME adjectives when the pairing of *more* with *y*-adjectives can be predicted by the *more* constructions of the HANDSOME set. Other related questions would be where the limits of a paradigm of comparatives are for an account of comparative alternation in *y*-adjectives, and how important these limits are in questioning what I have claimed about this paradigm in the current work. I am in no position to even ponder the answers to these questions at this stage even if in some future work, these questions turn out to be worth asking. What I hope to demonstrate by mentioning them here is that there remains much to be uncovered about the potentials for understanding the comparatives of *y*-adjectives in terms related to their associations with the comparatives of the HANDSOME adjectives. What is achieved in my thesis with respect to this understanding is very possibly only the tip of the iceberg.

This point is emphasised if we return to my suggestion about the impact that comparatives of the HANDSOME adjectives have on the effects of morphology in comparative *y*-adjective formation. I have suggested that these morphological effects can only emerge in a condition where we do not have the full extent of the comparatives of HANDSOME adjectives accumulated in any one individual's cognition impacting on the data. If work aimed at validating this suggestion is undertaken, we would surely obtain deeper insights into how tied up the comparatives of *y*-adjectives are with those of the HANDSOME adjectives. More importantly, this kind of work is bound to have to address the question of whether an independent morphological prediction of the comparatives of *y*-adjectives can ever appear in individual language use. As long as our focus remains on the individual language user, the full set of comparatives from the HANDSOME adjectives in any one individual's cognition can be expected to bear upon those morphological effects. Would morphological conditioning of the comparatives of *y*-adjectives always remain latent then in individuals? Borrowing Chomskyan terminologies (Chomsky, 1965, p. 4), would it always remain in the realm of competence and never be realised as performance, and because of the comparatives from the HANDSOME adjectives? These are all important and interesting questions that ought to be addressed in some future work. Before we get to these, there is of course the question of whether HANDSOME adjectives might impact morphological effects on the comparatives of *y*-adjectives differently depending on whether the HANDSOME adjectives are predominantly complex or simple (see point made above).

An aspect that this thesis has yet been able to reconcile is why the comparatives of HANDSOME adjectives are not found to enhance anticipated effects of morphology on the comparatives of *y*-adjectives. In the experimental study, the *more* constructions of

HANDSOME adjectives did not facilitate reading in complex *y*-adjectives paired with *more*. Neither did the *-er* constructions of HANDSOME adjectives facilitate reading in simple *y*-adjectives paired with *-er*. It may be the case that comparatives of HANDSOME adjectives can only suppress, but not enhance, morphological effects on the comparatives of *y*-adjectives. The question then is why. Given that any effect from the comparatives of HANDSOME adjectives would be grounded in a paradigm of comparatives, while any effect of morphology would be grounded in theories of structural conditioning, does comparative alternation in *y*-adjectives then present a site where paradigmatic motivations are at odds with structural ones? Are we looking in other words at a site where paradigmatic and structural motivations cancel each other out, and are there theories that purport the possibility of such sites? These are questions that I am unable to discuss within the confines of this work. They are important questions to ask nonetheless, for the field of comparative alternation in *y*-adjectives and beyond, and so should be considered in future work.

9.4 Chapter conclusion

This chapter has highlighted the key contributions of this thesis. Constraints faced in the course of this research have been noted, together with a number of areas that can benefit from future work. Some of this future work are anticipated to have a strong empirical focus, while some are likely to implicate deeper theorisations of what has been found in this research. This thesis has raised more questions than it sets out to answer. Hopefully, these are questions that stimulate our thinking not only about comparative alternation in *y*-adjectives, but about the theoretical frameworks and mental dynamics that contribute towards explaining this interesting phenomenon. As a consequence of this work, we can be certain at least of one thing. Where a choice between *more* and *-er* has to be made for an adjective such as *friendly*, this choice is independent neither of the comparatives of adjectives such as *handsome* nor of the morphological structure of *friendly* itself.

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APPENDIX 4A INFORMATION ON PLAY ENTRIES IN THE CORPUS DATA

4A.1 Entries for 1601–1650 (period A1)

Play entry	Author	Year of (first) publication	Source	Classification	Word count
The honest whore, part i	Dekker, Thomas/ Middleton, Thomas	1604	LION	Drama (comedy)	12,010
The honest whore, part ii	Dekker, Thomas	1630	LION	Drama (comedy)	12,030
Satiro-mastix	Dekker, Thomas	1602	LION	Drama (comedy)	12,018
West-ward hoe	Dekker, Thomas/ Webster, John	1607	LION	Drama (comedy)	12,003
May-day	Chapman, George	1611	LION	Drama (comedy)	12,001
The widdowes teares	Chapman, George	1612	LION	Drama (comedy)	12,001
Sir Gyles Goosecappe: knight	Chapman, George	1606	LION	Drama (comedy)	12,021
Eastward hoe	Chapman, George/ Jonson, Ben/ Marston, John	1605	LION	Drama (comedy)	12,029
The elder brother	Fletcher, John	1679	LION	Drama (comedy)	12,034
Wit without money	Fletcher, John	1679	LION	Drama (comedy)	12,005
The coxcombe	Fletcher, John/ Beaumont, Francis	1647	LION	Drama (comedy)	12,002
The scornful ladie	Fletcher, John/ Beaumont, Francis	1616	LION	Drama (comedy)	12,000
Bartholmew fayre	Jonson, Ben	1640	LION	Drama (comedy)	12,011
Epicoene	Jonson, Ben	1616	LION	Drama (comedy)	12,006
Every man in his humor	Jonson, Ben	1616	LION	Drama (comedy)	12,008
The magnetick lady	Jonson, Ben	1640	LION	Drama (comedy)	4,901
The case is altered	Jonson, Ben	1609	LION	Drama (comedy)	7,070
The schoole of complement	Shirley, James	1631	LION	Drama (comedy)	12,004
The wedding	Shirley, James	1629	LION	Drama (comedy)	6,210
The wittie faire one	Shirley, James	1633	LION	Drama (comedy)	12,009
The bird in a cage	Shirley, James	1633	LION	Drama (comedy)	10,533
The gamester	Shirley, James	1637	LION	Drama (comedy)	3,701
The opportvntie	Shirley, James	1640	LION	Drama (comedy)	3,545
As you like it	Shakespeare, William	1623	LION	Drama (comedy)	12,043
The merry wiues of Windsor	Shakespeare, William	1623	LION	Drama (comedy)	12,003
The Taming of the Shrew	Shakespeare, William	1623	LION	Drama (comedy)	3,472
All's well, that ends well	Shakespeare, William	1623	LION	Drama (comedy)	11,486
Measvre for measure	Shakespeare, William	1623	LION	Drama (comedy)	8,999
Total word count in corpus					288,155

Note: Entries are listed in alphabetical order of the playwright's last name.

4A.2 Entries for 1651–1700 (period A2)

Play entry	Author	Year of (first) publication	Source	Classification	Word count
The Dutch lover	Behn, Aphra	1673	LION	Drama (comedy)	12,004
The false count	Behn, Aphra	1682	LION	Drama (comedy)	12,013
The feign'd curtizans	Behn, Aphra	1679	LION	Drama (comedy)	12,002
The revenge	Behn, Aphra	1680	LION	Drama (comedy)	12,002
Madd couple well matcht	Brome, Richard, d.	1653	LION	Drama (comedy)	12,000
A joviall crew	Brome, Richard, d.	1652	LION	Drama (comedy)	12,008
The city wit	Brome, Richard, d.	1653	LION	Drama (comedy)	12,002
The court begger	Brome, Richard, d.	1653	LION	Drama (comedy)	10,335
The damoiselle	Brome, Richard, d.	1653	LION	Drama (comedy)	1,692
The campaigners	D'Urfey, Thomas	1698	LION	Drama (comedy)	12,021
The intrigues at Versailles	D'Urfey, Thomas	1697	LION	Drama (comedy)	12,028
Love for money	D'Urfey, Thomas	1691	LION	Drama (comedy)	12,011
The Richmond heiress	D'Urfey, Thomas	1693	LION	Drama (comedy)	12,019
An evening's love	Dryden, John	1671	LION	Drama (comedy)	12,013
The kind keeper	Dryden, John	1680	LION	Drama (comedy)	12,001
Sr Martin Mar-all	Dryden, John	1668	LION	Drama (comedy)	12,008
Amphitryon	Dryden, John	1690	LION	Drama (comedy)	12,029
Epsom Wells	Shadwell, Thomas	1673	LION	Drama (comedy)	12,021
The libertine	Shadwell, Thomas	1676	LION	Drama (comedy)	12,005
The scowrs	Shadwell, Thomas	1691	LION	Drama (comedy)	12,014
A true widow	Shadwell, Thomas	1679	LION	Drama (comedy)	12,024
The country wife	Wycherley, William	1675	LION	Drama (comedy)	12,004
The gentleman dancing-master	Wycherley, William	1673	LION	Drama (comedy)	12,000
Love in a wood	Wycherley, William	1672	LION	Drama (comedy)	12,024
The plain-dealer	Wycherley, William	1677	LION	Drama (comedy)	12,023
Total word count in corpus					288,303

Note: Entries are listed in alphabetical order of the playwright's last name.

4A.3 Entries for 1701–1750 (period B3)

Play entry	Author	Year of (first) publication	Source	Classification	Word count
The fine lady's airs	Baker, Thomas, fl.	1708	LION	Drama (comedy)	12,015
Tunbridge-walks	Baker, Thomas, fl.	1703	LION	Drama (comedy)	12,039
The humour of the age	Baker, Thomas, fl.	1701	LION	Drama (comedy)	12,003
An act at Oxford	Baker, Thomas, fl.	1704	LION	Drama (comedy)	12,046
Love makes a man	Cibber, Colley	1702	LION	Drama (comedy)	12,016
The refusal	Cibber, Colley	1721	LION	Drama (comedy)	12,006
She wou'd, and she wou'd not	Cibber, Colley	1703	LION	Drama (comedy)	12,024
The double gallant	Cibber, Colley	1707	LION	Drama (comedy)	12,003
The inconstant	Farquhar, George	1702	LION	Drama (comedy)	12,002
The beaux strategem	Farquhar, George	1707	LION	Drama (comedy)	12,040
Sir Harry Wildair	Farquhar, George	1701	LION	Drama (comedy)	12,001
The twin-rivals	Farquhar, George	1703	LION	Drama (comedy)	12,028
The letter writers	Fielding, Henry	1731	LION	Drama (comedy)	11,675
The miser	Fielding, Henry	1733	LION	Drama (comedy)	12,014
The modern husband	Fielding, Henry	1732	LION	Drama (comedy)	12,004
Rape upon rape	Fielding, Henry	1730	LION	Drama (comedy)	12,001
The wedding day	Fielding, Henry	1743	LION	Drama (comedy)	312
The conscious lovers	Steele, Richard, Sir	1723	LION	Drama (comedy)	12,068
The funeral	Steele, Richard, Sir	1702	LION	Drama (comedy)	12,002
The lying lover	Steele, Richard, Sir	1704	LION	Drama (comedy)	12,051
The tender husband	Steele, Richard, Sir	1705	LION	Drama (comedy)	12,004
The mistake	Vanbrugh, John, Sir	1706	LION	Drama (comedy)	12,001
The country-house	Vanbrugh, John, Sir	1740	LION	Drama (comedy)	6,776
The confederacy	Vanbrugh, John, Sir	1705	LION	Drama (comedy)	12,004
The false friend	Vanbrugh, John, Sir	1702	LION	Drama (comedy)	12,015
A journey to London	Vanbrugh, John, Sir	1728	LION	Drama (comedy)	5,228
Total word count in corpus					288,378

Note: Entries are listed in alphabetical order of the playwright's last name.

4A.4 Entries for 1751–1800 (period B4)

Play entry	Author	Year of (first) publication	Source	Classification	Word count
The man of business	Colman, George	1774	LION	Drama (comedy)	12,041
The English merchant	Colman, George	1767	LION	Drama (comedy)	12,009
The jealous wife	Colman, George	1761	LION	Drama (comedy)	12,018
The battle of Hexham	Colman, George	1790	LION	Drama (comedy)	12,002
How to grow rich	Reynolds, Frederick	1793	LION	Drama (comedy)	12,001
Fortune's fool	Reynolds, Frederick	1796	LION	Drama (comedy)	12,007
Cheap living	Reynolds, Frederick	1797	LION	Drama (comedy)	12,011
The rage	Reynolds, Frederick	1795	LION	Drama (comedy)	12,013
Duplicity	Holcroft, Thomas	1781	LION	Drama (comedy)	12,003
He's much to blame	Holcroft, Thomas	1798	LION	Drama (comedy)	12,006
Seduction	Holcroft, Thomas	1787	LION	Drama (comedy)	12,004
The man of ten thousand	Holcroft, Thomas	1796	LION	Drama (comedy)	12,005
The commissary	Foote, Samuel	1765	LION	Drama (comedy)	12,011
The maid of bath	Foote, Samuel	1778	LION	Drama (comedy)	11,654
The devil upon two sticks	Foote, Samuel	1778	LION	Drama (comedy)	11,879
A trip to Calais	Foote, Samuel	1778	LION	Drama (comedy)	12,015
The lyar	Foote, Samuel	1764	LION	Drama (comedy)	469
No one's enemy but his own	Murphy, Arthur	1764	LION	Drama (comedy)	12,022
The choice	Murphy, Arthur	1786	LION	Drama (comedy)	11,540
Know your own mind	Murphy, Arthur	1778	LION	Drama (comedy)	12,001
The way to keep him	Murphy, Arthur	1760	LION	Drama (comedy)	12,002
All in the wrong	Murphy, Arthur	1761	LION	Drama (comedy)	451
Wild oats	O'Keeffe, John	1792	LION	Drama (comedy)	12,009
Life's vagaries	O'Keeffe, John	1795	LION	Drama (comedy)	12,009
The toy	O'Keeffe, John	1798	LION	Drama (comedy)	12,003
The world in a village	O'Keeffe, John	1793	LION	Drama (comedy)	12,008
Total word count in corpus					288,193

Note: Entries are listed in alphabetical order of the playwright's last name.

4A.5 Entries for 1801–1850 (period C5)

Play entry	Author	Year of (first) publication	Source	Classification	Word count
The alienated manor	Baillie, Joanna	1836	LION	Drama (comedy)	12,001
The country inn	Baillie, Joanna	1804	LION	Drama (comedy)	12,010
Enthusiasm	Baillie, Joanna	1836	LION	Drama (comedy)	12,008
The election (1798 (volume one), 1802 (volume two), 1812 (volume three))	Baillie, Joanna	1798-1812	LION	Drama (comedy)	12,006
The last of the family	Cumberland, Richard	1813	LION	Drama (comedy)	12,031
The Walloons	Cumberland, Richard	1813	LION	Drama (comedy)	12,000
The eccentric lover	Cumberland, Richard	1813	LION	Drama (comedy)	12,023
The passive husband	Cumberland, Richard	1813	LION	Drama (comedy)	12,013
The conquering game	Bernard, William Bayle	1840	LION	Drama (comedy)	5,469
Lucille	Bernard, William Bayle	1836	LION	Drama (comedy)	12,014
The round of wrong	Bernard, William Bayle	1847	LION	Drama (comedy)	12,006
The passing cloud	Bernard, William Bayle	1850	LION	Drama (comedy)	11,774
His last legs: a farce, in two acts	Bernard, William Bayle	1847 [according to google books]	Internet Archive	Drama (farce)	6,737
Patrician and parvenu	Poole, John	1835	LION	Drama (comedy)	12,022
A short reign, and a merry one	Poole, John	1819	LION	Drama (comedy)	10,743
Simpson and co.	Poole, John	1823	LION	Drama (comedy)	9,620
Paul pry: a comedy in three acts	Poole, John	1827 [according to Internet Archive]	LION	Drama (comedy)	12,007
The hole in the wall	Poole, John	1813	LION	Drama (comedy)	3,614
Begone dull care	Reynolds, Frederick	1808	LION	Drama (comedy)	12,028
The blind bargain	Reynolds, Frederick	1805	LION	Drama (comedy)	12,001
Delays and blunders	Reynolds, Frederick	1803	LION	Drama (comedy)	12,016
The delinquent	Reynolds, Frederick	1805	LION	Drama (comedy)	12,006
London assurance	Boucicault, Dion	1841	LION	Drama (comedy)	12,001
Old heads and young hearts	Boucicault, Dion	1845	LION	Drama (comedy)	12,015
A lover by proxy	Boucicault, Dion	184-?	LION	Drama (comedy)	6,991
The Irish heiress	Boucicault, Dion	1842	LION	Drama (comedy)	12,006
Used up	Boucicault, Dion/ Mathews, Charles James	1845	LION	Drama (comedy)	4,992
Total word count in corpus					288,154

Note: Entries are listed in alphabetical order of the playwright's last name.

4A.6 Entries for 1851–1900 (period C6)

Play entry	Author	Year of (first) publication	Source	Classification	Word count
Playing with fire	Brougham, John	1860	LION	Drama (comedy)	12,006
The game of love	Brougham, John	1855	LION	Drama (comedy)	12,008
Romance and reality	Brougham, John	1856	LION	Drama (comedy)	12,005
The game of life	Brougham, John	1856	LION	Drama (comedy)	12,006
Our boys	Bryon, Henry J. (Henry James)	1880	LION	Drama (comedy)	12,003
Cyril's success	Bryon, Henry J. (Henry James)	1871	LION	Drama (comedy)	12,000
Married in haste	Bryon, Henry J. (Henry James)	1879	LION	Drama (comedy)	12,009
Partners for life	Bryon, Henry J. (Henry James)	1878	LION	Drama (comedy)	12,021
The love-knot	Coyne, J. Stirling (Joseph Stirling)	1858	LION	Drama (comedy)	10,771
The hope of the family	Coyne, J. Stirling (Joseph Stirling)	1854	LION	Drama (comedy)	12,002
The secret agent	Coyne, J. Stirling (Joseph Stirling)	1855	LION	Drama (comedy)	12,016
The man of many friends	Coyne, J. Stirling (Joseph Stirling)	1855	LION	Drama (comedy)	12,004
The queer subject	Coyne, J. Stirling (Joseph Stirling)	1837	LION	Drama (farce)	1,213
A fool's paradise	Grundy, Sydney	1899	LION	Drama (comedy)	12,003
A pair of spectacles	Grundy, Sydney	1898	LION	Drama (comedy)	12,015
The silver shield	Grundy, Sydney	1899	LION	Drama (comedy)	12,006
The snow ball	Grundy, Sydney	1893	LION	Drama (farce)	10,097
In honour bound	Grundy, Sydney	1885	LION	Drama (comedy)	1,881
The amazons	Pinero, Arthur Wing, Sir	1895	LION	Drama (comedy)	12,012
The gay Lord Quex	Pinero, Arthur Wing, Sir	1900	LION	Drama (comedy)	12,001
Trelawny of the "wells"	Pinero, Arthur Wing, Sir	1899	LION	Drama (comedy)	12,000
The weaker sex	Pinero, Arthur Wing, Sir	1894	LION	Drama (comedy)	11,303
The magistrate	Pinero, Arthur Wing, Sir	1892	LION	Drama (comedy)	684
Lady Windermere's fan	Wilde, Oscar	1893	LION	Drama (comedy)	12,000
The importance of being earnest	Wilde, Oscar	1899	LION	Drama (comedy)	12,014
A woman of no importance	Wilde, Oscar	1894	LION	Drama (comedy)	12,002
An ideal husband	Wilde, Oscar	1899	LION	Drama (comedy)	12,030
Total word count in corpus					288,112

Note: Entries are listed in alphabetical order of the playwright's last name.

4A.7 Entries for 1901–1950 (period D7)

Play entry	Author	Year of (first) publication	Source	Classification	Word count
A single man	Davies, Hubert Henry	1914	LION	Drama (Comedy)	12,007
Mrs. Gorrings's necklace	Davies, Hubert Henry	1926	LION	Drama (Comedy)	12,047
The mollusc	Davies, Hubert Henry	1914	LION	Drama (Comedy)	12,000
Lady Epping's Lawsuit	Davies, Hubert Henry	1914	LION	Drama (Comedy)	12,002
The law divine	Esmond, H. V.	1922	LION	Drama (comedy)	12,008
One summer's day	Esmond, H. V.	1901?	LION	Drama (comedy)	12,001
When we were twenty-one	Esmond, H. V.	1903	LION	Drama (comedy)	12,018
The wilderness	Esmond, H. V.	1901	LION	Drama (comedy)	12,032
The last of the De Mullins	Hankin, St. John Emile Clavering	1909	LION	Drama (comedy)	12,011
The charity that began at home	Hankin, St. John Emile Clavering	1923	LION	Drama (comedy)	12,003
The Cassilis engagement	Hankin, St. John Emile Clavering	1931	LION	Drama (comedy)	12,000
The return of the prodigal	Hankin, St. John Emile Clavering	1923	LION	Drama (comedy)	12,002
The perfect cure	Houghton, Stanley	1914	LION	Drama (comedy)	12,000
The younger generation	Houghton, Stanley	1914	LION	Drama (comedy)	12,011
The dear departed	Houghton, Stanley	1913	LION	Drama (comedy)	3,309
Phipps	Houghton, Stanley	1913	LION	Drama (farce)	3,106
Fancy free: a fantastic comedy in one act	Houghton, Stanley	1913	LION	Drama (comedy)	2,847
The master of the house	Houghton, Stanley	1913	LION	Drama (comedy)	2,649
The fifth commandment	Houghton, Stanley	1913	LION	Drama (domestic)	94
Independent means	Houghton, Stanley	1914	LION	Drama (comedy)	12,003
The reprobate	James, Henry	1949	LION	Drama (comedy)	12,007
The album	James, Henry	1949	LION	Drama (comedy)	12,002
Disengaged	James, Henry	1949	LION	Drama (comedy)	12,002
The outcry	James, Henry	1949	LION	Drama (comedy)	12,008
A family man	Glasworthy, John	1929	LION	Drama (comedy)	12,012
The foundations	Glasworthy, John	1929	LION	Drama (comedy)	12,002
Windows	Glasworthy, John	1929	LION	Drama (comedy)	12,000
Joy	Glasworthy, John	1929	LION	Drama (comedy)	12,004
Total word count in corpus					288,187

Note: Entries are listed in alphabetical order of the playwright's last name.

APPENDIX 6A ETHICS APPROVAL FOR EXPERIMENTAL STUDY



Phone 0-4-463 5676
Fax 0-4-463 5209
Email Allison.kirkman@vuw.ac.nz

MEMORANDUM

TO	Deborah Chua
COPY TO	Paul Warren
FROM	Dr Allison Kirkman, Convener, Human Ethics Committee
DATE	20 October 2014
PAGES	1
SUBJECT	Ethics Approval: 20737 An Eye-tracking Study on Attentional Focus in Reading

Thank you for your request to amend your ethics approval. This has now been considered and the request granted.

Your application has approval until 1 November 2015. If your data collection is not completed by this date you should apply to the Human Ethics Committee for an extension to this approval.

Best wishes with your research.

Allison Kirkman
Human Ethics Committee

APPENDIX 6B INFORMATION SHEET FOR EXPERIMENTAL STUDY

A Study on Attentional Focus in Reading

Information Sheet

I am a PhD student at the School of Linguistics and Applied Language Studies (LALS) at Victoria University of Wellington. As part of my candidature, I am undertaking a research study leading to a thesis. The aim of this study is to examine how much attention people give to certain words and/or phrases in reading. This study has received approval from the Human Ethics Committee of Victoria University of Wellington.

In this study, you will be requested to perform three tasks. The first task is to read a short passage presented on a computer screen. As the passage will be presented to you in parts rather than as a whole, you will have to push a button to progress from reading one part of the passage to another. There are some comprehension questions interleaved within the passage that you will have to respond to in the course of your reading. The second task requires you to either listen to a passage from a sound file or read it on paper. The third task is of the same format as the first task. The three tasks you will perform in this study are expected to take no more than an hour to complete.

In return for your time spent on this study, you will receive a \$20 supermarket voucher.

Participation in this study is voluntary. Should you decide to withdraw from the study, you may do so without question at any time within a month of your completion of the study by contacting me directly.

All data collected from this study will be accessed only by me and my supervisors, will be kept confidential, and will be used for research purposes only. Only aggregated data from the study will be reported in my PhD thesis, and in any published work and/or conference presentations arising from this study. It will not be possible for you to be identified personally in such works and/or presentations. My thesis will be submitted for marking to the School of Linguistics and Applied Language Studies and deposited in the University Library. It is intended that one or more articles will be submitted for publication in scholarly journals.

Thank you.

Deborah Chua

Researcher contact details: Deborah Chua, deborah.chua@vuw.ac.nz, 0279379641, Room 206, 22 Kelburn Parade.

Supervisor contact details: A/Prof Paul Warren, paul.warren@vuw.ac.nz, 463 5631, Room 320, von Zedlitz Building, Kelburn Parade.

APPENDIX 6C CONSENT FORM FOR EXPERIMENTAL STUDY

A Study on Attentional Focus in Reading

Consent Form

- ❖ I have read the information sheet on this study and I understand fully its content.
- ❖ I have been given the opportunity to have my queries addressed.
- ❖ I agree to participate in this study on a voluntary basis.
- ❖ I understand that if I decide to withdraw from the study, I may do so without question at any time within a month of my completion of the study by contacting the researcher directly.

Name:

Signature:

Date:

Email (if you would like to receive a summary report of the findings when that is available):

.....

APPENDIX 6D ADJECTIVES FOR READING & LISTENING TASKS

6D.1 List of simple y-adjectives for SPR tasks

puny, tardy, snazzy, scrawny, tidy, empty, nasty, shoddy, dingy, petty, dainty, happy, giddy, eerie, flimsy, ugly, queasy, heavy, silly, dizzy

6D.2 List of complex y-adjectives for SPR tasks

minty, pushy, nerdy, toothy, scratchy, swampy, smoggy, stinky, grotty, noseey, yummy, cheery, groggy, freaky, breathy, yucky, pasty, teary, crappy, sludgy

6D.3 List of HANDSOME adjectives for listening tasks

clever, mellow, pleasant, handsome, quiet, common, nimble, stupid

APPENDIX 6E STORIES FOR SPR TASKS

6E.1 Stories 1, 2, 5 & 6: simple y-adjectives in *-er/more* & interleaving questions

Beth turned five last Saturday. We had a birthday party for her at home, and invited some family and friends over. Jack and I got Beth a Himalayan rabbit from the pet shop, *Pets & Such*. The frame of the rabbit was punier/more puny than we expected. We wondered if it had been given proper care before we purchased it. Our experience when getting the rabbit at *Pets & Such* was not too pleasant either.

Question A1: Did Beth turn ten last Saturday? No.

Question B1: Did Beth have her birthday party at McDonald's? No.

Joan, the usual person who served us whenever we visited, was off-duty. She was replaced by someone whose name I cannot recall. This other person was tardier/more tardy in her service. We are now quite disappointed with the service at *Pets & Such*, and I do not suppose we will patronize the establishment again. As I was saying, Jack and I had some folks over for the party on Saturday. There were some from his side of the family, and some from mine.

Question A2: Can the narrator recall the name of the service staff who replaced Joan? No.

Question B2: Were the folks at the party all from Jack's side of the family? No.

I had not seen most of these people for at least five years, so some of those I had known before as children had now become teenagers. Jill, who used to be a nerdish-looking little girl, now wore clothes that were snazzier/more snazzy than one can imagine. It was not only the children who had changed, the adults had too. One of the adults who had was Mike. Mike is a photographer by trade. He does lots of photo shoots of dishes for the new restaurants in town.

Question A3: Were there teenagers at the party? Yes.

Question B3: Is Mike a photographer by trade? Yes.

The best part is, he gets to eat the food after that. As a result of this regular eating associated with the nature of his job, Mike was quite rotund or so I thought. However, when I saw Mike last Saturday, his build seemed to have become scrawnier/more scrawny than I last remembered. It might have to do with his getting fewer work assignments lately. After lunch, we had a game of *Pictionary*. That really put our drawing skills to the test.

Question A4: Was the nature of Mike's job associated with regular eating? Yes.

Question B4: Was Scrabble the game that was played after lunch? No.

I teamed up with my sister, Nat. Her pen strokes were tidier/more tidy than usual when playing the game. This led her to be slow in getting her illustrations out. After many rounds of *Pictionary*, which tired everyone out, the party ended. When all the guests had left, Jack and I decided to take Beth to the fun-fair as an added birthday treat. We took the path from the back of our house.

Question A5: Did Jack and the narrator decide to take Beth to the mall as an added birthday treat? No.

Question B5: Was Ann the name of the narrator's sister? No.

The summer heat had left its mark at various places along the way. The buckets left out for the collection of rainwater were emptier/more empty than usual. The sound of what must be a million crickets from the fields of grass around the path was a soothing distraction from the intense heat. And so was the light breeze. Although the atmospheric conditions were not too pleasant in this part of the country, it was not the worst I had experienced. Where I grew up, the weather was nastier/more nasty than one can imagine.

Question A6: Did the narrator find the sound of crickets a soothing distraction? Yes.

Question B6: Were the atmospheric conditions in this part of the country the worst the narrator had experienced? No.

The tropical rains can keep people indoors for days on end, and the humidity can reach an unbearable level. Just before we turned the corner at the end of the path, we saw the abandoned cottage, which was shoddier/more shoddy than I last remembered. Its exterior had turned a dull grey. I had not ventured in before, but from its appearance on the outside, I can imagine its interiors to be dingier/more dingy than a dungeon. I had told Jack on previous occasions to give the estate management people a call about that cottage. I reminded him of it again.

Question A7: Had the narrator told Jack on previous occasions to give the estate management people a call about the cottage? Yes.

Question B7: Had the exterior of the abandoned cottage turned a dull grey? Yes.

“You should chase up the estate people about that cottage”, I said. Jack paused for a second, and I wondered if he had heard what I said. When he saw that I was displeased with his silence, he gave a reply that was downright annoying. “You have become pettier/more petty about

everything than the person I met eight years ago”, he said. When we arrived at the fun-fair, the first thing we saw was a cupcake stall. There were trays of cupcakes laid out on a foldable table.

Question A8: Was the narrator pleased with Jack’s initial silence to what she asked him to do?
No.

Question B8: Was the table on which the cupcakes were placed a foldable one? Yes.

The cupcakes looked daintier/more dainty than any I had seen before. We got Beth a vanilla-flavoured cupcake. Our next stop was the carousel ride. We could spot the carousel because of its round top. Beth was happier/more happy than ever to see it. She could not wait to get on the carousel.

Question A9: Was the flavour of the cupcake that Jack and the narrator got Beth cinnamon?
No.

Question B9: Did the carousel have a square top? No.

“Just one ride darling, you do not want to get sick from all the spinning”, I told her. I had to restrict Beth to one ride because of her motion sickness. If Beth took too many rounds on a carousel, she would be giddier/more giddy than I would like. I had never been a fan of carousels. So I got Jack to accompany Beth on the ride. Beth opted to ride on a black horse.

Question A10: Did Beth opt to ride on a red horse? No.

Question B10: Does Beth suffer from motion sickness? Yes.

Jack rode on a brown horse beside Beth. I waited for Jack and Beth at a nearby popcorn stand. The smell of freshly-popped corn always reminded me of Friday nights at the movies. While indulging myself in the scents and sights of my surroundings, someone dressed up as some creature sneaked up on me. The sight of it was eerier/more eerie than Frankenstein. It scared the wits out of me initially.

Question A11: Did Jack ride on an orange horse? No.

Question B11: Did Jack ride beside Beth? Yes.

The creature was green. It looked like a character from some comic strip. It had bloodshot eyes, and actually spoke. Now that I think about it, the horror mask worn by the person disguised as the creature was not too convincing. And I must say that the strange mask of his or hers was flimsier/more flimsy than any others I had encountered. I was so preoccupied with this creature

that I did not realise that Jack and Beth had finished their ride, and were standing right beside me.

Question A12: Did the creature that sneaked up on the narrator have bloodshot eyes? Yes.

Question B12: Was the colour of the creature that sneaked up on the narrator yellow? No.

Jack was clearly amused by my encounter with the creature. “I saw that thing approach you”, Jack said. “It looked uglier/more ugly than the one that sneaked up on me the last time”, he added with a sly grin. “If I were you, I would have kicked it”, he said teasingly. It occurred to me that Beth was unusually quiet. When I looked at her, she had gone all pale.

Question A13: Was Jack amused by the narrator’s encounter with the creature? Yes.

Question B13: Was Beth unusually quiet? Yes.

Beth looked like she was about to throw up. She was queasier/more queasy than I had expected. I started to get worried. “How many rounds of that did you take”, I asked Jack. “Two”, he replied. “You know she will get sick if she takes an extra round of it”, I said.

Question A14: Did Jack and Beth take more than one round of the carousel? Yes.

Question B14: Did Beth look like she was about to throw up? Yes.

“Well, she insisted on another one”, he retorted. Jack felt that if he did not give in to Beth, the chances of the mood becoming heavier/more heavy than it already was at that point were quite real. He did not consider how uncomfortable she would feel after a second ride. As I expected, Beth threw up. It looked like she only threw up her vanilla cupcake and not her lunch. I would have stopped them from going on a second round on that carousel if I had not let that creature distract me.

Question A15: Was Beth the one who insisted on taking the carousel a second time? Yes.

Question B15: Did Beth look like she threw up her lunch? No.

That creature thing was sillier/more silly than anything I had seen. We sat Beth down on a bench to give her some relief from the spinning in her head. We were glad to see the colour return to her face. According to Beth, the carousel ride caused all the children to become dizzier/more dizzy than before. She believed that the horses caused the children to be sick. She said that she would ride on a carriage instead of a horse the next time.

Question A16: Did Jack and the narrator sit Beth down on a table? No.

Question B16: Did Beth say she would ride on a carriage instead of a horse the next time? Yes.

6E.2 Stories 3, 4, 7 & 8: complex y-adjectives in -er/more & interleaving questions

Beth turned five last Saturday. We had a birthday party for her at home, and invited some family and friends over. Jack and I ordered Beth a chocolate mint cake from the cake shop, *The Chocolate Box*. The cake was mintier/more minty than we expected. We wondered if the cake was made with a different recipe this time. Our experience when ordering the cake at *The Chocolate Box* was not too pleasant either.

Question A1: Did Beth turn ten last Saturday? No.

Question B1: Did Beth have her birthday party at McDonald's? No.

Joan, the usual person who served us whenever we visited, was off-duty. She was replaced by someone whose name I cannot recall. This other person was pushier/more pushy in her service. We are now quite disappointed with the service at *The Chocolate Box*, and I do not suppose we will patronize the establishment again. As I was saying, Jack and I had some folks over for the party on Saturday. There were some from his side of the family, and some from mine.

Question A2: Can the narrator recall the name of the service staff who replaced Joan? No.

Question B2: Were the folks at the party all from Jack's side of the family? No.

I had not seen most of these people for at least five years, so some of those I had known before as children had now become teenagers. Dill, who used to be *Dennis the Menace* resurrected now wore clothes that were nerdier/more nerdy than one can imagine. It was not only the children who had changed, the adults had too. One of the adults who had was Mike. Mike is a photographer by trade. He does lots of photo shoots of desserts for the new dessert places in town.

Question A3: Were there teenagers at the party? Yes.

Question B3: Is Mike a photographer by trade? Yes.

The best part is, he gets to eat the desserts after that. As a result of this regular eating associated with the nature of his job, Mike had lost some of his teeth or so I thought. However, when I saw Mike last Saturday, his smile seemed to have become toothier/more toothy than I last remembered. It might have to do with his new dentures. After lunch, we had a game of *Pictionary*. That really put our drawing skills to the test.

Question A4: Was the nature of Mike's job associated with regular eating? Yes.

Question B4: Was Scrabble the game that was played after lunch? No.

I teamed up with my sister, Nat. Her pen strokes were scratchier/more scratchy than usual when playing the game. This led her to be quick in getting her illustrations out. After many rounds of *Pictionary*, which tired everyone out, the party ended. When all the guests had left, Jack and I decided to take Beth to the fun-fair as an added birthday treat. We took the path from the back of our house.

Question A5: Did Jack and the narrator decide to take Beth to the mall as an added birthday treat? No.

Question B5: Was Ann the name of the narrator's sister? No.

The rain had left its mark at various places along the way. The ground was swampier/more swampy than usual. The sound of what must be a million crickets from the fields of grass around the path was a soothing distraction from the burnt smell in the air. And so was the light breeze. Although the atmospheric conditions were not too pleasant in this part of the country, it was not the worst I had experienced. Where I grew up, the days were smoggier/more smoggy than one can imagine.

Question A6: Did the narrator find the sound of crickets a soothing distraction? Yes.

Question B6: Were the atmospheric conditions in this part of the country the worst the narrator had experienced? No.

The haze from forest fires can keep people indoors for days on end, and the air pollution can reach an unbearable level. Just before we turned the corner at the end of the path, we saw the abandoned cottage, which was stinkier/more stinky than I last remembered. Its exterior had turned a dull grey. I had not ventured in before, but from its appearance on the outside, I can imagine its interiors to be grottier/more grotty than a dungeon. I had told Jack on previous occasions to give the estate management people a call about that cottage. I reminded him of it again.

Question A7: Had the narrator told Jack on previous occasions to give the estate management people a call about the cottage? Yes.

Question B7: Had the exterior of the abandoned cottage turned a dull grey? Yes.

“You should chase up the estate people about that cottage”, I said. Jack paused for a second, and I wondered if he had heard what I said. When he saw that I was displeased with his silence, he gave a reply that was downright irrelevant. “You have become nosier/more nosey about

everything than the person I met eight years ago”, he said. When we arrived at the fun-fair, the first thing we saw was a cupcake stall. There were trays of cupcakes laid out on a foldable table.

Question A8: Was the narrator pleased with Jack’s initial silence to what she asked him to do?
No.

Question B8: Was the table on which the cupcakes were placed a foldable one? Yes.

The cupcakes looked yummiier/more yummy than any I had seen before. We got Beth a vanilla-flavoured cupcake. Our next stop was the carousel ride. We could spot the carousel because of its round top. Beth was cheerier/more cheery than ever to see it. She could not wait to get on the carousel.

Question A9: Was the flavour of the cupcake that Jack and the narrator got Beth cinnamon?
No.

Question B9: Did the carousel have a square top? No.

“Just one ride darling, you do not want to get sick from all the spinning”, I told her. I had to restrict Beth to one ride because of her motion sickness. If Beth took too many rounds on a carousel, she would be groggier/more groggy than I would like. I had never been a fan of carousels. So I got Jack to accompany Beth on the ride. Beth opted to ride on a black horse.

Question A10: Did Beth opt to ride on a red horse? No.

Question B10: Does Beth suffer from motion sickness? Yes.

Jack rode on a brown horse beside Beth. I waited for Jack and Beth at a nearby popcorn stand. The smell of freshly-popped corn always reminded me of Friday nights at the movies. While indulging myself in the scents and sights of my surroundings, someone dressed up as some creature sneaked up on me. The sight of it was freakier/more freaky than Frankenstein. It scared the wits out of me initially.

Question A11: Did Jack ride on an orange horse? No.

Question B11: Did Jack ride beside Beth? Yes.

The creature was green. It looked like a character from some comic strip. It had bloodshot eyes, and actually spoke. Now that I think about it, the horror mask worn by the person disguised as the creature was not too convincing. But I must say that the faked voice of his or hers was breathier/more breathy than any others I had encountered. I was so preoccupied with this

creature that I did not realise that Jack and Beth had finished their ride, and were standing right beside me.

Question A12: Did the creature that sneaked up on the narrator have bloodshot eyes? Yes.

Question B12: Was the colour of the creature that sneaked up on the narrator yellow? No.

Jack was clearly amused by my encounter with the creature. “I saw that thing approach you”, Jack said. “It looked yuckier/more yucky than the one that sneaked up on me the last time”, he added with a sly grin. “If I were you, I would have kicked it”, he said teasingly. It occurred to me that Beth was unusually quiet. When I looked at her, she had gone all pale.

Question A13: Was Jack amused by the narrator’s encounter with the creature? Yes.

Question B13: Was Beth unusually quiet? Yes.

Beth looked like she was about to throw up. She looked pastier/more pasty than I had expected. I started to get worried. “How many rounds of that did you take”, I asked Jack. “Two”, he replied. “You know she will get sick if she takes an extra round of it”, I said.

Question A14: Did Jack and Beth take more than one round of the carousel? Yes.

Question B14: Did Beth look like she was about to throw up? Yes.

“Well, she insisted on another one”, he retorted. Jack felt that if he did not give in to Beth, the chances of her mood becoming tearier/more teary than it already was at that point were quite real. He did not consider how uncomfortable she would feel after a second ride. As I expected, Beth threw up. It looked like she only threw up her vanilla cupcake and not her lunch. I would have stopped them from going on a second round on that carousel if I had not let that creature distract me.

Question A15: Was Beth the one who insisted on taking the carousel a second time? Yes.

Question B15: Did Beth look like she threw up her lunch? No.

That creature thing was crappier/more crappy than anything I had seen. We sat Beth down on a bench to give her some relief from the spinning in her head. We were glad to see the colour return to her face. According to Beth, the carousel ride caused the ground under her to become sludgier/more sludgy than before. She believed that the horses caused the ground to be soft. She said that she would ride on a carriage instead of a horse the next time.

Question A16: Did Jack and the narrator sit Beth down on a table? No.

Question B16: Did Beth say she would ride on a carriage instead of a horse the next time? Yes.

APPENDIX 6F DIALOGUE FOR LISTENING TASKS

J: Hey.

K: Hi.

J: How's it going?

K: Good, thanks. And you?

J: M' prepping for that bio paper on Friday, not getting enough sleep.

K: I thought you were cleverer/more clever than most of us at spotting questions. Can't you study strategically?

J: I'm losing my touch with question-spotting. How's your studying coming along?

K: Slow. Progressing, at a snail's pace. Oh, by the way, I was in Hawke's Bay over the weekend. We got this lodge that was within cycling distance from the vineyards. And it was awesome!

J: Cool! How many vineyards did you go to?

K: A couple. Had some tastings and bought a few bottles. Oh, and there was this merlot I got. Tried it at one of the cellars and loved it. But when I tried it again at home, it wasn't as good.

J: I had the same experience. The version I had there was mellower/more mellow than what I got out of the bottle I bought. I wonder why?

K: Perhaps our taste buds change when we're at different places.

J: Perhaps. How was the weather in Hawke's Bay?

K: Pleasanter/more pleasant than we expected. Checked MetService the day before, said it would rain, but it was sunny all the way.

J: Yeah, I don't trust those predictions. Hey, you seen Tom lately? He seems...different.

K: I just saw him the other day. Why? Is he handsomer/more handsome than usual?

J: Just noticed he's quieter/more quiet than usual. You know he used to be the social, extroverted kind of guy.

K: He seemed alright to me. But then again, I was preoccupied with something else when I saw him.

J: You think he might be depressed? You know, apparently all this psychotic stuff is getting commoner/more common than the numbers reported. You think we should ask him out sometime?

K: Yeah, sure. Is it gonna be your last paper on Friday? Cos' it's mine. We could chill at some place and ask Tom along.

J: Nope, not my last. But I could do with a chill-out. I'll give Tom a call. What's that you got there? Gosh, are you knitting? Granny stuff!

K: Hey, that's stereotyping! This is therapeutic alright.

J: Yeah, fine, whatever. My Gram's a whiz at knitting. Your fingers are nimbler/more nimble than hers, so you're stellar at it, I imagine.

K: I sense sarcasm.

J: I sense annoyance.

K: Stop being stupider/more stupid than you actually are and get on with your studying!

J: Alright, alright.

APPENDIX 6G: QUESTIONS FOLLOWING LISTENING TASKS

6G.1 Questions following Treatments 1 and 2

Question A: Were there more than two people speaking in this dialogue? No.

Question B: Did the girl in the dialogue visit any vineyards while in Hawke's Bay? Yes.

6G.2 Questions following control treatment

Question A: Was there only one instrument used in this musical piece? No.

Question B: Was a piano used in this musical piece? Yes.