

What's so funny? Using a multidisciplinary approach to understand sitcom success

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DECLARATION

I declare that this thesis is my own account of my research and contains as its main content work that has not been previously submitted for a degree at any tertiary education institution.

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Abstract

The sitcom genre is one of the most enduringly popular, yet we still know surprising little about which of the specific elements of sitcoms keep viewers tuning in. In fact, audiences themselves are not sure why they embrace a particular program, with research indicating behaviour often contradicts intention. Numerous studies have highlighted the problematically intertwined relationships between the physiological, cognitive and affective processing systems that contribute to research shortcomings. Furthermore, sitcom research lacks empirical audience response data. However, we can look to research to identify reliable components using measures from a variety of disciplines to offer insight into complementary audience responses. This study aimed to gather and reduce this information to a combination of key measures that best describe, and potentially predict, the components comprising successful sitcoms.

Audience response data was collected using the current top sitcoms across the four main US networks –*Modern Family* (ABC), *The Office* (NBC), *Family Guy* (FOX), and *Big Bang Theory* (CBS). Relatability of plots and characters were assessed with a post-exposure survey, while a typology of humour techniques provided a timeline of humour events for each program, with which data were correlated. Finally, to address the discrepancy between post-exposure audience report and response, dial data were used to establish real time effects during media exposure. New empirical measures were discovered that were predictive of ratings success, revealing reliable tools that should not only prove useful for industry (broadcasting/production of programs) but also for further social sciences research into the causes and effects of humour.

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Chapter 1 – Introduction

1.1 The US television industry and situation comedies

When it comes to network shows aiming for a broad audience, as a genre, the sitcom is phenomenally successful. In the mid-1950s, the number one hit was the CBS sitcom, *I Love Lucy* (Brooks & Marsh, 2007). When the popularity of Westerns diminished in the 1950s, sitcoms began to dominate ratings in only a matter of seasons (Hamamoto, 1989). Since then, the sitcom has become the widest reaching comedy form, with remarkable popularity and longevity (Mills, 2005). In fact, it is the only genre to make the Top 10 highest rating programs every year since 1949 (Campbell, Martin, & Fabos, 2004). Surprisingly, however, research carried out on sitcoms specifically is scant. A variety of reasons can be seen as contributing to this lack of research. Firstly, and sadly, there is a perception that analysing comedy is too entertaining or simple to be meaningful. In fact, Mills (2005) suggests that the study of sitcoms is not considered complex enough for cultural studies, a sentiment echoed by those in media studies, who tend to focus on serious genres such as drama or documentary.

Secondly, there appears to be apprehension towards studying the mechanics behind sitcom humour for fear that analysis will destroy its effectiveness (Curtis, 1982). For example, Olson (2001) asserts that comedy's power lies in its refusal to be prescriptively understood. American writer E. B. White further exemplifies this idea in a well-known quote: "*Analysing humour is like dissecting a frog. Few people are interested and the frog dies of it*" (cited in Morreall, 2009).

Finally, despite the amount of literature on humour, there is no focused fundamental theory of humour and laughter. This can be attributed to the fact so many different angles have been used to dissect humour. Researchers from fields including psychology, philosophy, sociology, literature and mathematics have put forward equally valid but different descriptions of what makes us laugh (Mills, 2005). Add to this the fact that a sense of humour is a very personal and subjective trait, lending itself to a potentially huge range of experimental responses (Mills, 2005). All in all, there seems to be trepidation in relation to the best way to approach sitcom research.

1.1.1 Why study sitcoms?

There are a number of valuable reasons to study sitcoms in spite of these obstructions. To begin with, from a psychological and sociological perspective, ascertaining things that individuals and groups find funny illuminates interpersonal and intrapersonal aspects of those individuals and groups. Especially when we look at why they find things funny. Specifically in relation to sitcoms, because broadcasting has traditionally taken place within national boundaries, analysing sitcoms can be useful in illuminating aspects of specific nations or cultures (Mills, 2005).

1.2 The sitcom industry

1.2.1 Broadcasting

Another area that stands to benefit enormously from sitcom research is the business sector; or more specifically, the sitcom production and broadcasting industries. Because sitcoms are so wide reaching, sitcom production represents a booming and powerful section of the broadcasting industry with much power bestowed to producers of

popular programs (Gitlin, 1994). A successful sitcom can represent large profits not only through domestic audiences but also through remakes for international markets, as well as reruns (Mills, 2005). In fact, out of the currently displayed Nielsen top 10 syndicated programs in the United States, four of them are sitcoms (2013).

Because of this, making programming decisions of this kind involves high risk. This can see networks more likely to stick to tested and proven programming choices and production teams (Butsch, 2003). As a result, fewer innovative or groundbreaking shows can tend to appear on networks that feel the pressure to match the success of previous shows. In this way, understanding sitcom success could contribute to financial safety for networks in terms of programming choices and global marketing, creative freedom for production teams, and more variety for audiences.

Knowledge of how sitcoms are enjoyed is useful to the broadcasting industry in more ways than simply having a hit show on air. Networks are able to use (and have used) the sitcom as a device to establish a rapport between their channels and specific demographic groups. For example, NBC's popular comedy night—a two-hour slot of back to back sitcoms including *Seinfeld* (1989–1998), *Friends* (1994–2004), *Will and Grace* (1998–2006)—not only rated consistently higher than its competitors, but also helped identify the channel with a hip younger audience (Martin, 2003; Mills, 2005). Similarly, the Fox network kicked off its US broadcasting schedule with an assortment of 'black' comedy programs, such as *In Living Color* (1990–4) and *South Central* (1994), in an effort to stand out from the other networks and gain a niche following (Zook, 1999). Promoting sitcoms with advertising is another way in which channels can create identification with a target audience. For instance, the Comedy Channel's high rotation of

advertising for *South Park* firmly reinforces its connection to a younger audience (Mills, 2005).

Another way broadcasters use sitcoms can be seen at Christmas time. All over the world, special Christmas editions of popular and well-known sitcoms are clustered together during primetime in an effort to promote joyfulness and togetherness (and ratings) during the festive season (Mills, 2005). In summary, these examples display the way broadcasters use sitcoms as an industrial tool to unite audiences with humour, not only with each other, but with the channel as well.

1.2.2 *Production*

The production of sitcoms involves teams of writers, actors, producers, and directors, who often stay within this genre, indicating sitcoms have become highly industrialised (Mills, 2005). This exclusivity allows these teams to be identifiable to broadcasters and audiences, especially in the case of star actors, giving a head start in marketing a program after previous successes (Mills, 2005).

This process explains how sitcoms are made in the US—where producers have creative control of a show and hire a team of writers to work for them. In contrast, UK sitcoms are generally the creation of a writer who hires a producer, and ultimately retains creative control of their own work (Mills, 2005). This could explain why US comedies are considered funnier, as writers there are hired solely to make a script funny. They do not carry the burden of other responsibilities that come with creating a show (Mills, 2005). On the other hand, for the most part UK comedies are said to express more individuality and uniqueness than US comedies (Mills, 2005).

Mills posits that the sitcom genre is primarily an “Anglo-American product, with domestic versions in other countries mostly failing to perform against UK/US imports” (p.60). This certainly is the case in Australia, where US and UK imports dominate prime time, and while the most prominent home-grown sitcom produced of late, *Kath and Kim* (Australian ABC), enjoys success in its own country it fails to make as much impact abroad.

1.3 Prior sitcom research

In media studies, the way characters are portrayed and understood is called representation, and these representations reinforce acceptability of what is and is not considered normal (Mills, 2005). Sitcom content has been the focus of media studies from a variety of angles, mostly to do with representation. Other research has investigated sitcom production techniques, such as the use of the laugh track (Lieberman, Neuendorf, Denny, Skalski, & Wang, 2009).

1.3.1 The trouble with sitcom research

A possible reason for why sitcom research to date is problematic is in its approach—when research is done, it typically addresses one aspect of the process (e.g., business, audience, or content) leaving other equally important parts out of the big picture. Also, and perhaps most importantly, there is a lack of empirical audience response data. By looking at what is being offered in the content of a show, as well as what audiences respond to (or do not respond to), it may be possible to map out future directions. This, in turn, leads naturally into the business side of this industry. In addition,

awareness of the current issues in the business sector feeds into how to proceed from here.

1.4 The present study's research objectives

The aim of the current study is to identify key components of successful sitcoms. Using traditional humour theories, and Berger's four categories of humour (Language, Logic, Identity, and Action), relevant humour techniques, and the way they are executed in successful sitcoms will be investigated. Their effects will be tested by way of physiological and self-report audience measures. It is expected that the use and execution of humour techniques will vary across sitcoms.

1.5 The present study's conceptual framework

Berger (1993) divided humour into four categories to analyse humour techniques contained in jokes. These categories are: Language, Logic, Identity, and Action. Relationships between these categories and traditional humour theories can be identified. Firstly, Freud's *psychoanalytical theory* of humour identifies several Language and Logic techniques, which he called joke-work, and that allowed jokes to have the effect of releasing repressed motives such as aggression or sexuality. Later, *arousal-relief theories* concentrated almost exclusively on the effects side, noting that high emotional arousal increased experienced funniness. Next, *superiority theory*, which dates back to the ancient Greeks, looks at how Identity techniques can have the effect of creating not just high arousal but feelings of joy, at the expense of others. Finally, *incongruity theory*, which like superiority theory has a long history, concentrates on how most humour techniques, but primarily Logic techniques, create humour through unexpected surprises.

1.6 Research design and methodology

The present study comprises two stages. Firstly, a reliable coding instrument will be developed to identify sitcom humour techniques. Secondly, a quantitative analysis of the effects of these humour techniques on two important dependent variables identified by humour research literature, emotional arousal and emotional enjoyment, will be carried out.

1.7 Theoretical and practical contributions

Theoretically, the present study aims to ascertain which traditional humour theories are currently the most influential in successful sitcoms. Also, which of the four humour categories proposed by Berger, and individual humour techniques, are used most widely. Practically, the present study aims to identify the key humour techniques related to sitcom success, as well as the best ways to execute these techniques. Audience measures of their effects will be investigated as a means to identify which measures are useful during the development of successful sitcoms.

1.8 Thesis overview

Television sitcoms are one of the most enduring and popular genres of entertainment, their success due to the enjoyment of humour. Sitcom-specific studies have analysed the effects of various aspects of successful sitcoms, however, the specific components that make a successful sitcom have not been identified. Traditional humour theories were proposed well before the advent of the television industry, and their influences are still seen today in comedy of all forms. Through research, this study aims to reliably identify sitcom humour techniques, and using a variety of audience-response

measures, to investigate which combinations of key audience measures best describe, and potentially predict, the humour techniques associated with successful sitcoms.

In the next chapter, Chapter 2, the humour techniques used most commonly in successful sitcoms will be identified, using Berger's (1976) four humour categories, as well as their theoretical underpinnings.

Chapter 3 describes the various measures of audience response that have been used in previous studies of humour, including responses to television commercials.

In Chapter 4, a sitcom humour coding typology will be developed, containing techniques adapted from Berger (1976) and Buijzen and Valkenburg (2004), as well as sitcom-specific techniques newly developed by this thesis.

Chapter 5 describes the methods used in this thesis, especially the audience response measures used to measure the effects of the humour techniques captured by the typology derived in Chapter 4.

Chapter 6 reports results of quantitative analyses of the effects of sitcom humour techniques on measures of audience response. These results will be compared to actual ratings information for the shows used in the study, to identify the techniques associated with more successful sitcoms, in terms of ratings success.

Finally, Chapter 7 discusses the theoretical and practical implications of the thesis's results for the sitcom industry, with suggestions for future research.

Chapter 2 – Literature Review

2.1 Introduction

Ever since mankind began inquiring into the fundamentals of human nature, humour has been a subject of intrigue and bewilderment. Luminaries such as Aristotle, Hobbes, Kant, Bergson, and Freud, have all attempted to understand and explain the origins and functions of humour, as well as countless others in the fields of philosophy, psychology, anthropology, communications, education, linguistics, literature, medicine, religion, and sociology (Berger, 1987; Buijzen & Valkenburg, 2004; Mulder & Nijholt, 2002; Veatch, 1998). The term humour can be broadly defined as anything said or done that is perceived as being funny and tends to invoke laughter (Martin, 2007). With this definition in mind, it is not surprising to consider that humour is ubiquitous. There is no record of a culture without a sense of humour, and it can be found everywhere in modern society—television, film, newspaper and graffiti (Berger, 1987). Furthermore, no branch of society, modern or otherwise, is immune from being cast over with a humorous eye. In fact, it seems the more serious or sacred the topic, the greater the potential for humour, with politics, business, religion, and sexuality all being common universal targets (Berger, 1987).

In the literature on humour, there are slight variations in the way the traditional theories are grouped; however, the underlying principles driving them appear to be consistent. Most concur there are four basic theories that attempt to explain why we laugh—psychoanalytic, arousal-relief, superiority, and incongruity (Berger, 1987;

Buijzen & Valkenberg, 2004; Meyer, 2000; Mulder & Nijholt, 2002). Historically, the timeline of the theoretical perspectives of humour have echoed the prominent views held in society at the time. For instance, the earliest modern psychological theory, spearheaded by Freud, was the *psychoanalytic* perspective, and this approach dominated humour research in the 1940s and 1950s—a time when Freud’s brand of psychoanalysis was commonly accepted (Martin, 2007). The decline of the popularity of the psychoanalytical movement in the mainstream was reflected by the decline of this approach in humour research, which had mostly disappeared by the 1980s.

In the 1960s and 1970s, when social psychologists began looking into how physiological arousal and cognitive appraisal were involved in the onset of emotions, arousal-based theories of humour began to emerge. The *arousal-relief* perspective saw studies involve physiological measures as well cognitive appraisals in responses to humour. Incidentally, psychoanalytical theory is sometimes combined with arousal-relief theory, as Freud saw laughter as a release (relief) from suppressed emotions. It also does not violate the historical time-line to merge the two theories, as they are in succession. Next, the increase of research into aggression saw superiority theories of humour come to the fore, while the cognitive revolution of the 1970s gave rise to the cognitively oriented incongruity theories of humour, which continue to be popular today (Martin, 2007).

Although no theory is successful in explaining how humour works in all contexts, the best way to gain as full a picture as possible is to take all theories into consideration, as each does contribute a detailed description of some aspect of humour. For this reason, many researchers shy away from relying on one theoretical perspective in favour of drawing from a variety of influences to develop smaller theories that focus on specific

aspects of humour (Martin, 2007). Currently, researchers commonly consider the main traditional theories as complementary in explaining many instances of humour (Berger, 1993; Meyer, 2000; Veatch, 1998).

2.2 Research into understanding sitcom success

As mentioned above in Chapter 1, sitcom content has been the focus of media studies from a variety of angles, mostly to do with representation. Firstly, as with other media genres, characters have been analysed for the way they represent individuals and groups to mass audiences (Mills, 2005). Secondly, characters and storylines have been scrutinised for their role in social boundaries, be it in strengthening and/or transcending them. Finally, sitcom content has been analysed from an international perspective, in terms of what nation-specific humour says about cultural identity. These aspects will now be discussed in more detail.

2.2.1 Content

Situations

According to Grote (1983), the situation comedy is named so because of its focus on situations (usually outlandish) rather than plots. The fact that outlandish situations are commonplace in sitcoms has led to blurred boundaries around what is considered acceptable. It is suggested that sitcoms can be used as a forum for topics that would be considered taboo in other genres, which would explain the acceptability of programs containing deliberately offensive themes such as *Southpark* and *Family Guy*. This also extends to programs containing controversial themes, such as *Will and Grace*, with its depiction of issues to do with sexuality (Mills, 2005). In relation to the depiction of

gender in comedy, Andrews (1998), referring not just to female comediennes but comedy in general, posits:

Comedy has potentially a unique ability to be political in that it operates so frequently by transgressing boundaries [...] Much of the comedy of both stand-up comediennes and in sitcoms owes its existence to saying the unsayable and doing the undoable (p.51).

What makes these topics acceptable in these contexts may be that they are contained within a program intended to be humorous. That is, if we can laugh at issues that may otherwise cause uneasiness, we may find a way to transcend their associated boundaries. In this way, sitcoms can be seen as instrumental in bringing topical taboo issues to light. In fact, Paterson (1998) points out that there is a “remarkable parallel between the themes of successful sitcoms and the social history of modern society” (p. 66). It is interesting to note that due to bigger production teams, US sitcoms are turned around faster in comparison to other nations, allowing them to incorporate topical social issues (Mills, 2005).

2.2.2 *Timeline of US sitcoms*

Looking at the historical timeline of US sitcoms from the 1950s, it is possible to trace a progression of acceptable standards associated with each era’s projection of the benchmark family unit. The 1950s, which Mitz (1980) refers to as the “era of family togetherness” (p.107), contained shows that exemplified the stable family unit such as NBC’s *Father Knows Best*. By the 1960s, 55% of the top 25 television series were comedies (Zillman & Bryant, 1991). Throughout this decade, families were depicted more eccentrically with the likes of ABC’s *Bewitched* and *The Addams Family*, along

with CBS's *Beverly Hillbillies*. The 1980s saw the return of the secure family unit (albeit more realistically than the shows of the 1950s) with NBC's *Family Ties* and *Cosby Show* (Zillman & Bryant, 1991). Also making an appearance were more irreverent family-centred shows such as *Married With Children* (FOX) a trend that moved into the 1990s with ABC's *The Simpsons* and *Roseanne* (Wise, Lee, Lang, Fox, & Grabe, 2008). The mid-90s heralded the rise of sitcoms that revolved around young adults, whose social group could be considered the equivalent of the family unit. NBC's *Friends* and *Seinfeld* epitomise this, with *Will & Grace* (NBC) and *How I Met Your Mother* (CBS) taking this concept into the 2000s. Mills (2005) points out that rather than being seen a critique of society, these shows are more a reflection of what is considered 'normal' in mainstream society.

2.2.3 *Characters*

The situation comedy may be named so because of its crazy situations, but Grote (1983) cites the characters' handling of these situations as "the main thrust" of each episode, suggesting a "significant amount of humour depends on exactly how well the audience knows the characters" (p.60). Thus, on the forefront of sitcom success is the inclusion of relatable characters. Sanes (2011) sites vulnerability and honesty in sitcom characters, despite their often-deceitful behaviour, as providing the parasocial connection:

Like us, the characters we see on the screen are busy suffering and enjoying, and they often have trouble hiding the way they feel. They are self-involved and full of irrational fears and desires, and they get carried away by foolish emotions, often failing to consult their own capacity for insight until late in the story

(Retrieved from <http://www.transparencynow.com/sitcom.htm>).

Mills (2005) speculates that relatability is not the sole function of the character however, as each character's appearance in a program is also framed in such a way that either validates or shuns certain behaviours and circumstances, thus reinforcing or rejecting social norms and stereotypes. Grote (1983) suggests that we share the humour portrayed in sitcoms because we relate to the experience and "we look to learn the socially proper way to respond to the situation" (p.60). However, according to Mills (2005) this may not be the case so much in the UK, where television-programming schedules lighten the burden of social responsibility in comparison to the US where sitcoms tend to appear in clusters during prime time. (Mills posits this as an explanation for why UK sitcoms placed outside prime time are able to be so risqué.)

Indeed, a reflection of normality may be key to the relatability of characters. For instance, even though the situations the characters find themselves in may be outlandish, we go along for the ride because we relate to the characters. In this way, we are able to vicariously live out these unbelievable situations because we find the characters believable. Medhurst and Tuck (1982) explain, "[For comedy] immediacy is imperative, and to find a character immediately funny that character must be a recognisable type, a representative embodiment of a set of ideas or a manifestation of a cliché" (p.51).

This idea could extend to eccentric characters often included in sitcoms as they commonly fit a stereotype and are therefore recognisable types. For example, Kramer (*Seinfeld*), Phoebe (*Friends*), Jack (*Will & Grace*), and Barney (*How I Met Your Mother*) all bring an offbeat zaniness to each show that serves a two-part function. Firstly, their behaviours add to the outlandishness of situations and secondly, these behaviours are offset by the 'normal' characters in the cast. The differences between the responses of the

zany and normal characters highlight what is (and is not) considered normal and acceptable behaviour. In fact, sitcoms containing such characters derive much of their humour from this discrepancy. Interestingly, the popularity of these eccentric characters often prompts production of offshoot programs, but aside from few (e.g., *Frasier* from *Cheers*) these shows rarely meet success (e.g., *Joey* from *Friends*). This suggests it is the dynamic these characters created within the original ensemble cast that is popular rather than the characters on their own.

2.2.4 Group identity

The way representation of characters works to highlight acceptable norms amongst individuals also serves to define groups. In general, younger and more liberal audiences enjoy deliberately offensive shows such as *Southpark* and *The Simpsons* because they offend older, more conservative audiences (Mills, 2005). This illustrates how humour in this context has the power to simultaneously unite and divide. The sitcom is unrivalled in its ability to unite audiences on a mass scale; however, a particular group that a show unites will typically stand opposite another group that it does not want to be identified with (Mills, 2005). Thus, the humour techniques and joke content used to unite one group will commonly offend and distance another. Groups could be social (e.g., middle and upper class), racial (black or white), or cultural (national identity).

Indeed, the success, or failure, of sitcoms in countries other than those from where they originate demonstrates how universal (or not) the concepts and humour they carry are. For example, a show like *Friends* contains humour that has a more widespread appeal, evident in the fact it has been globally successful in its original format (Mills,

2005). On the other hand, Australian sitcom *Mother and Son* (ABC) was deemed offensive by Chinese viewers, because of the way the Chinese culture reveres the elderly (Cunningham & Elizabeth, 1996). Similarly, *Kath and Kim* (ABC) failed to find success in the US, but more because of its ‘Australianisms’ rather than being offensive. Another interesting cultural effect can be seen with *The Office*, whereby the original UK version was adapted for the US audience. Both versions of *The Office* are equally successful, indicating that the themes of the show are universal; however, producers felt a need to repackage the content so a local audience could access it. This is especially important for the mockumentary style of *The Office*, where a large part of the humour is contained in subtleties. As a result, a number of international remakes have followed (e.g., French, German, Chinese).

2.2.5 *Style and structure*

Style

Traditionally, sitcoms have been shot in a style known as the ‘three-headed monster’. Cinematographer Karl Freund originally developed this style for Lucille Ball and Desi Arnaz to shoot the foundational CBS sitcom *I Love Lucy* (Putterman, 1995). The term three-headed monster derives from Freund’s use of three cameras to capture a two-person scene—one to encompass a wide shot, the other two covering a mid-shot of each actor. This allows conversations between characters to be edited in a way that clearly and quickly shows their interaction, including shots of each character’s reactions (Mills, 2009). The importance of the reaction shot in comedy, and specifically the sitcom, is two-fold as firstly, it offers the audience insight into what is considered normal and

abnormal behaviour and secondly, it adds a second laugh to the original joke (Mills, 2009).

This fast editing style is characteristic of many sitcoms. Indeed, the rhythm of editing is particularly fast in contemporary programs such as *Will and Grace*, *Modern Family*, and *The Office*. Split second reaction shots and short lines of dialogue add to the comic nature of these shows. *The Office*, in particular, in both the US and UK versions, derives much of its humour from reaction shots that are supposedly caught unintentionally by cameras that are filming the employees (Mills, 2009). Each episode is made to appear as if it is candidly being filmed for a documentary, that it is unscripted, and that reactions are real. As a result, camerawork is shaky and messy at times when trying to capture 'unexpected' action. *The Office* is considered the "most successful sitcom to herald the beginning of a new era in style" (Mills, 2005).

Modern Family also uses the single-camera mockumentary style of shooting and, similar to *The Office*, footage of the characters speaking candidly to a camera in a quiet room is interspersed throughout the show. This footage typically captures narrative of the characters' real feelings and thoughts towards the other cast members and situations they are portrayed with in the accompanying scenes. This style of shooting may appear to work in the show's favour now, as it is already a great success after only a few seasons, but initially this was not the case. When pitching the show to various networks, CBS was reported to be interested but did not want to take the risk because the network did not consider single-camera shows as a part of their repertoire (Provine, 2000). On the other hand, despite their interest NBC declined because they already had two mockumentary style programs with *The Office* and *Parks and Recreation*.

Laugh track

According to Mills (2005), the trend of abandoning the laugh track is the most significant change in sitcom format to date. Mills cites the removal of the laugh track as risky because audiences may fail to spot jokes or even realise that they are watching a comedy. Rather than being a cue to laugh, Provine (2000) argues that the laugh track represents the unity of the studio audience in finding something funny, therefore reinforcing norms. For this reason, Mills suggests shows that do not contain a laugh track are usually aimed at niche audiences rather than the mainstream. It could be argued that without a laugh track audiences are given no rules or guidelines to dictate what they should find funny, allowing them to find humour freely within the content without ostracism. In this way, the demise of the laugh track could be seen as opening the show to wider audience access.

Another argument for how the laugh track contributes to sitcoms is that it conveys a feeling of 'liveness', especially fitting as sitcoms and stand-up comedy are undisputedly entwined (Bourdon, 2000). This can be seen from the multitude of US sitcoms based around stand-up comedians, such as *The Bob Newhart Show* (CBS), *The Cosby Show* (NBC), *Seinfeld* (NBC), *Roseanne* (ABC), and more recently *Louie* (FX), based on the work of comedian Louie CK. The use of canned laughter originated in the 1940s with radio broadcasts, where it was commonplace for recorded laughter to supplement live audiences (Lieberman et al., 2009). When broadcasts made the transition to television, the trend to include live audiences remained, as did the supplemental laughter recordings. As filmed episodic comedies became more popular in the 1950s, the use of canned

laughter on its own (not as a supplement) became more customary (Lieberman et al., 2009).

Television historian Ben Glenn cites the first television appearance of the laugh track as the little known 1950 NBC sitcom, *The Hank McCune Show* (Sacks, 2010). After the show's debut, *Variety* magazine commended the laugh track as being innovative and the freedom it gave producers, in being able to shoot on location without the need for a studio audience, saw demand for it to be manufactured into a product. Charles Rolland Douglass fulfilled this need, with his pioneering invention, the Laff Box (Lieberman et al., 2009). The first laughs recorded for the Laff Box came from a performance in the mid 1950s by Marcel Marceau (Lieberman et al., 2009). Recording the audience of a mime artist was appropriate, as there are no sounds other than the audience reaction (Sacks, 2010). Since then, various sources have been used for the Laff Box's recordings, and the company Douglass founded, Northridge Electronics, continues to manufacture laugh track equipment today (Lieberman et al., 2009).

To explain the recent strong trend to abandon the laugh track in sitcoms, Mills (2005) puts forward the idea that canned laughter gives a staged artificial feel to a show. This could be especially the case for younger audiences who may see the use of a laugh track as old-fashioned. With this last point in mind, it could simply be time for a change in format, since the laugh track has been used extensively in the genre since the 1950s. Looking to research would help determine these issues but, interestingly, there exists virtually no research of the effects of a laugh track on audiences from an ecologically valid context (Neuendorf & Fennell, 1988).

To address this, Lieberman et al. (2009) investigated how the inclusion of a laugh track affects audiences by having participants watch an episode of the classic US sitcom, *The Andy Griffith Show*, either with or without a laugh track. The experiment included both quantitative and qualitative measurement to test the hypothesis that participants who viewed the program with the laugh track would find it more humorous than those who viewed it without the laugh track.

The quantitative part of the study tested enjoyment. To do this, participants completed a post-test questionnaire related to the episode they had just viewed. The questionnaire measured three aspects; overall perceived funniness, total funniness, and overall reported enjoyment. The qualitative part of the study examined the narrative of each of the episodes using structural and semantic analysis based on the theory of Propp, Barthes, and Greimas. This purpose of this was to establish differences between each episode. Results were used in conjunction for a more complete, multi-dimensional perspective.

What they found was surprising, and counter-intuitive. Of the four episodes tested, one was found to be more funny and enjoyable overall; however, the laugh track on this particular episode had a negative impact on humour ratings when compared to the ratings of those who viewed this episode without the laugh track. When analysing the narrative of this particular episode, the researchers found that it contained more involved themes than a typical episode from this series, and the other episodes used in the study. They concluded that in general, laugh tracks could increase the humour ratings of a show, but only under certain conditions. These conditions pertain to the complexity of the

narrative, with a negative correlation occurring between humour ratings and the complexity of the program's themes.

On a final note, the researchers of this study endorsed that sitcom episodes be analysed separately, rather than as a series, based on the large inter-episodic differences they found in their narrative analyses. They assert that the traditional models used to study whole sitcoms based on analysing a single exemplifying episode are erroneous in that they do not take into consideration the “artistic, stylistic, and audience response differences inherent in the narrative and execution of the individual TV episode” (p.512). Furthermore they claim this approach wrongly undervalues the merit of the individual episode. As a result they suggested that for future studies researchers bear this in mind and compare audience responses between episodes of a sitcom.

Narrative structure of sitcoms

The core components of the sitcom are a recurring cast, and as already mentioned, zany and complicated situations. Although these situations are crazy, there is an accepted structure they follow:

- A situation is established
- A problem crops up creating chaos and confusion
- Attempts are made to untangle the problem
- Everything returns to as it was before

(Campbell et al., 2004; Grote, 1983; Zillman & Bryant, 1991). This structure has been represented by Marc (1997) as:

Familiar status quo ⇒ *Ritual error made* ⇒ *Ritual error learned* ⇒ *Familiar status quo* (p.190).

Zillman and Bryant (1991) use a similar but simplified lay out for what they call the macro-structure of situation comedies: *Confusion—Dilemma—Untangling* (p.264). These sentiments are echoed by Grote (1983), who asserts nothing will ever happen within an episode that carries over into the next episode of the show. This explains how it is possible to enjoy many programs' episodes out of chronological order, as each episode is self-contained at the same time as being part of a series. Many sitcoms today will have more than one of these storylines happening simultaneously (e. g. *Modern Family*).

Grote (1983) observes that changes in the foundational status quo of a program generally happen when the expectations of the programmers and producers are not being met. Indeed, these changes can often be a sign that ratings are down. Ironically, “any sitcom that has tried to alter an established format has died a quick ratings death” (p.70). This is exemplified by the popular series *Get Smart*. When ratings started to drop, after a long time courting, Max and Agent 99 got married. Despite this, ratings continued to drop, suggesting that changing the familiar status quo of the show was not what viewers wanted to see. In fact, if anything, these changes usually alert the audience to the producers' desperation to keep their loyalties.

Interestingly, when it comes to the aforementioned problem of changing a program's foundational status quo, one program stands out as being a hugely successful exception to the rule. In fact, Grote (1983) sites *M*A*S*H* as being “the only sitcom in American television history to make not just one but several major cast changes and still retain its ratings” (p.75). Not only were there cast changes, but also character

development. Major Houlihan, for example, underwent dramatic changes throughout the series. One of the components that made *M*A*S*H* stand apart so clearly from other sitcoms was the high level of meaningfulness contained in the program's storylines. This meaningfulness allowed viewers to overlook, even embrace, cast changes that may have otherwise been unsettling and deterring in another sitcom. According to Zillman and Bryant (1991), successful sitcoms rely on more than simply "funny characters in funny situations [...] they also have elements of drama" (p.265). This certainly applies to *M*A*S*H*, one of the most successful television series of all time.

Pace

Within a program of any genre, appropriate pacing is critical as it contributes to audience enjoyment. If the pace is too slow, the audience gets bored; if it is too fast, the audience gets worn out long before the story climaxes (McKee, 1997). In the case of comedy, the importance of timing cannot be overstated, and in sitcoms timing is a critical factor not only in the delivery of jokes, but also the length of scenes and interactions. McKee (1997) asserts that the length of each scene dictates the rhythm of a show, or to put it another way, how long the characters stay in the same time and place (p.291).

Today, it is commonly assumed younger viewers prefer faster paced television shows. The nature of new technology contributes to this in a way that has typically been viewed in one of two ways - either as leading audiences to have shorter attention spans or bestowing audiences with the capacity to absorb information more quickly. The latter appears like the former because boredom thresholds are lowered. In any case, television producers have changed the structure of their messages, making them shorter and faster, to accommodate this trend (Bellamy & Walker, 1996).

Lang, et al., (2005) looked at whether pacing and length of news stories affected channel-changing behaviour in younger and older adults. Participants were 47 undergraduate students (*age range* = 18–22) and 63 recruited adults (*age range* = 25–81). In the study, participants were given the opportunity to switch freely between four channels of different newscasts. The newscast recordings used in the study were edited by news professionals to accommodate four treatment conditions (production pacing—slow and fast, and story length—short and long). Production pacing was operationalised as camera changes per story, and story length was operationalised as the average duration of each news story. Age was the only between-subjects factor in a Pacing \times Story \times Age ($2 \times 2 \times 2$) design. The researchers hypothesised that younger viewers would prefer faster paced programming and short stories, whereas older viewers would prefer slower paced programming and long stories. Channel preference was measured by the amount of time spent on each newscast in conjunction with a post viewing evaluation.

Results revealed that production pacing and story length had a negligible effect on how long older viewers chose to watch a channel. On the other hand, pacing did affect younger viewers' channel preferences. Younger viewers tended to spend more time on faster paced shows when watching short stories, and faster pacing always resulted in more positive evaluations for this group. In contrast, older viewers only gave faster paced content positive evaluations for the long stories. The researchers conceded that although their data suggest younger and older audiences do respond differently to pace, it is unclear exactly why. Other than cognitive aging, other factors such as differences in developmental experiences with television, or cultural preferences and style could be

factors. Nevertheless, television producers have been (and continue) catering to this trend as is evident in the variety of faster paced content seen across genres.

2.2.6 Conclusions

As can be seen, studies into sitcom humour have addressed a number of angles. While not explicitly identifying the humour theories that underlie sitcom devices, there are links between theories and the concepts highlighted. For instance, group identity, gender issues, and social standards relate to superiority theory, while idiosyncratic behaviour by eccentric characters relates most clearly to incongruity theory.

Prior research has also identified specific techniques that have been associated with ratings success. In the long run, time will tell if the mockumentary style of filming sitcoms is just a phase or the way of the future. It does herald a significant change in that it does away with the traditional three-headed monster, where audiences have an omniscient point of view that allows them to easily pick up on cues that a joke has or is about to occur (Curtis, 1982). Further signalling usually comes by way of a laugh track — a mainstay of the traditional three-headed monster style. Research suggests that the more meaningful the narrative of a sitcom is, the less successful a laugh track is at contributing to humour ratings (Lieberman et al., 2009). An interesting prospect for further research would be to analyse whether successful sitcoms that have abandoned the laugh track contain more complex themes than those that have not.

This change from the traditional format is important because of what it says about the need for these joke cues to be abolished. Is it simply because we as an audience are not interested in being told what we should find funny, or is the ambiguity and openness of a show without a laugh track or obvious cues allowing for wider audience

accessibility? Or, are audiences simply desiring more meaning than is usually contained in traditional sitcom narrative?

Understanding how techniques used in sitcoms draw on humour theories is key in understanding sitcom success. As a result, this thesis will investigate the relationship between the two, in an effort to determine the humour techniques (and the theories they derive from) that contribute to sitcom success. To this end, the next section will review the historical and empirical aspects of traditional humour theories.

2.3 Theories of humour

Berger (1993) divided humour into four categories to analyse humour techniques contained in jokes. These categories are, Language, Logic, Identity, and Action. As was discussed in Chapter 1, relationships between these categories and traditional humour theories can be identified. Firstly, Freud used a psychological approach to identifying several Language and Logic techniques, which he called joke-work, and that allowed jokes to have the effect of releasing repressed motives such as aggression or sexuality. Later, arousal-relief theories concentrated almost exclusively on the effects side, noting that high emotional arousal increased the experienced funniness of identical content. Next, superiority theory, which dates back to the ancient Greeks, looks at how Identity techniques can have the effect of creating not just high arousal but feelings of joy, at the expense of others. Finally, incongruity theory, which like superiority theory has a long history, concentrates on how most humour techniques, but primarily Logic techniques, create humour through unexpected surprises.

Interestingly, it is possible to classify humour theories by the processing faculties underlying them — psychophysiological (psychoanalytical/arousal-relief), emotional (superiority), and cognitive (incongruity). This kind of classification is paramount when considering how to study humour empirically. In the following section is an overview of each the four theories with examples of empirical work carried out from the perspective of each.

2.3.1 *Psychoanalytical theory*

Psychoanalytical theory was the most influential theory in humour research during the first half of the 20th century. It derives from the work of Freud, who posited that within each of us there exists a collection of unconscious conflicting motives and desires. These include those that are childish, immature, prejudiced, or sexually aggressive (Martin, 2007). Freud suggested humour is a way to deal with these desires; for instance, lewd humour could be used to manage sexual aggression (Berger, 1987).

Freud suggested that the production of humour, like dreams, is universal, unconscious, and attached to deeper emotional meaning (Newirth, 2006). He argued that joke-work is analogous to dream-work in that the unconscious uses perceptions, drives, and emotions to produce jokes, pleasure, momentary lapses of inhibition, and laughter (Newirth, 2006). Freud maintained that it is this involuntary, spontaneous, and uninvited aspect of humour that makes it useful as a reflection of the unconscious mind.

In the literature there are variations in the reports of how Freud viewed jokes by structure and type. However, there is agreement on the definitions of the main terminology. According to Martin (2007), Freud maintained that within all jokes there are two essential elements: the *tendentious* element - facilitating the release of libidinal

drives; and the *non-tendentious* element—the cognitive humour technique used in the joke. Conversely, Kline (1977) insists Freud recognised the same distinction, but between jokes. That is, he classed a joke as either tendentious or innocent. Here, tendentious jokes, in line with Martin's interpretation, contain two elements—purpose and technique. The purpose of the joke is to facilitate the release of suppressed thoughts and emotions. Kline points out two specific types of tendentious joke—the first releasing hostile (aggressive) expressions, and the second releasing obscene (sexual) expressions. As an example of the hostile tendentious joke, Freud put forward the then popular set of mother-in-law jokes (Kline, 1977). Innocent, or trivial jokes, on the other hand, contain only the cognitive techniques that make us laugh.

From Freud's perspective, the cornerstones of his psychoanalytical theory—the id, ego, and superego—process these tendentious and non-tendentious (humour techniques) elements to produce and enjoy jokes. The id, holder of childish, immature, sexual and aggressive drives, seeks expression and gratification as dictated by the pleasure principle. The superego, the internalised parent conscience that abides by society, tries to contain the urges of the id, while the ego, working from the reality principle, attempts to find some sort of compromise between these conflicting desires, as well as the real world. To achieve this, the ego employs adaptive defence mechanisms to cope and protect itself (Martin, 2007).

In terms of the process underlying the enjoyment of jokes, the cognitive technique used in the joke momentarily distracts the superego, making us unaware of the real meaning, or the degree of relation to libidinous themes (Kline, 1977; Martin, 2007). In fact, Kline (1977) insists that the joke-work, or cognitive technique, must distract the

listener from the real meaning of the joke, or the listener cannot laugh. The diversion of the super-ego allows the listener to indulge in the enjoyment of the libidinous nature of the joke, a pleasure that would normally be suppressed. The psychic energy usually used to suppress this indulgence becomes momentarily redundant and released through the means of laughter (Martin, 2007).

Although it is essential that jokes contain cognitive techniques clever enough to distract the superego, Freud asserted short and easily understood jokes are the best as a great deal of intellectual consideration destroys humour (Kline, 1977). These techniques, displayed in Table 2.1, are referred to as joke mechanics and explained in detail in Freud's 1905 book, *Jokes and their Relation to the Unconscious*.

Table 2.1. Freud's humour techniques

Technique	Action
Condensation	Economy in joke-work. Three subtypes: dividing up words, multiple use, and double meaning.
Displacement	Shifting word meaning
Absurdity	Nonsensical humour
Sophistical reasoning	Absurd logic
Unification	Unexpected unities
Representation of opposite	Replacing logic with opposite. Subtype: irony.
Reference to Similar	Incorporation of correlated aspect.

Freud's humour techniques

The first technique, *condensation*, generally refers to economy in joke-work, which stems from the idea that brevity is the soul of wit (Freud, 1976). As a technique, condensation is a prime example of how Freud saw a connection between the ways the

unconscious constructs dreams and jokes. In his book, *The Interpretation of Dreams*, published in 1900, Freud attempted to establish that dreams are derivatives of our normal mental functioning. To enable this, he pointed out the processes that lead to the surreal nature of dreams (Freud, 1976). Condensation is a technique Freud described as having the greatest similarity to a technique he had also observed in joke-work, whereby concepts are abbreviated and composite structures are created for certain people, things, or even words (Freud, 1976).

‘Alcoholidays’, which is a combination of the words alcohol and holidays, is one of the examples Freud uses to illustrate this technique. In terms of the technique being used in a joke, an Italian joke is given as an example of one of the subtypes of condensation—*dividing up words*:

An Italian lady is said to have revenged herself for a tactless remark of the first Napoleon’s with a joke having this same technique of the double use of a word. At a court ball, he said to her, pointing to her fellow countrymen: ‘Tutti gli Italiani danzano si male!’ [All Italians dance so badly!]. To which she made the quick repartee: ‘Non tutti, ma buona parte’ [Not all, but a good part] (Freud, 1976, p. 64).

Freud cites the technique of this joke (and others used as examples) being the fact that the word (the name) is used in two ways, firstly in its whole form, and then again with separated syllables (Freud, 1976).

Along with *dividing up words*, there are two other subtypes of condensation - *multiple use* and *double meaning*. An example of *multiple use* is ‘a battle scared and battle scarred warrior’, showing how a word or phrase can

be used in multiple ways in one sentence, either as a whole or in parts (Freud, 1976; Kline, 1977). Finally, *double meaning* is touted as the easiest form of joke to make (Kline, 1977). Puns and double-entendres are well-known humour techniques that fall into this category (Freud, 1976; Kline, 1977).

The second technique, *displacement*, refers to the event whereby the meaning of a word is shifted from the assumed meaning. An example Freud uses to illustrate this is, ‘Have you taken a bath?’ to which the response is ‘Is there one missing?’ The displacement occurs with the word ‘taken’ as had another word been used (such as ‘Have you *had* a bath?’), the joke would not make sense (Kline, 1977). It can be seen that this joke also relies on the double meaning of the word ‘take’, showing how these techniques can sometimes overlap. In fact, double meanings appear many times within Freud’s techniques.

One technique that does not rely on the use of double meanings, however, is *absurdity*, the third technique. As the name suggests, *absurdity* refers to humour or jokes that are nonsensical. If a punch line is absurd, it points out a previous absurdity. For example, a dead character banished to Hell states, “Strike me alive” (Kline, 1977).

The next technique, *sophistical reasoning*, sometimes reflects absurd elements, as represented by the following example:

A borrows a kettle from B but B sues him because the kettle is damaged on return. A’s defence is “First, I never borrowed a kettle from B at all; secondly, the kettle had a hole in it already when I got it from him; and thirdly, I gave him back the kettle undamaged” (Freud, 1976, p. 100).

Freud regards each of these defences as valid in isolation, but they exclude each other when taken together. It is A's insistence on treating each claim separately, and his refusal to see the whole that makes the joke.

The fifth technique, *Unification*, is similar to condensation in that unexpected unities amongst words or phrases are highlighted. For example, concerning an 'ode to posterity'—'this ode will never reach its destination' (Kline, 1977). Freud describes these specifically as word amalgamations that are "modifications of familiar turns of speech and quotations [with] replacements of a few commonplace elements [that are] more pretentious and weighty forms of expression" (Freud, 1976, p. 276). Another example of unification can be seen in a quote by Fischer (1889): 'Human life falls in to two halves. In the first half we wish the second one would come; and in the second we wish the first one were back' (cited in Freud, 1976, p. 104). The similarity of the terms 'wish ... would come' and 'wish ... back' reflect a similarity in the meaning behind them in this phrase. Freud considered unification the basis of repartee (Kline, 1977).

Another technique found to be the basis of other forms of humour is the sixth technique, *representation by the opposite*. An example of this technique is, "You can conjure up spirits?" to which the reply is, "[Yes] but they don't come" (Freud, 1976, p. 109). Freud points out how this illustrates the way the joke is made by replacing the only possible answer 'no' with its opposite. He notes, however, that it is necessary to add a 'but' to the 'yes', so that the statement can be equivalent to 'no' (Freud, 1976; Kline, 1977). A well-known form of humour based on this technique is irony (Kline, 1977).

In contrast to *representation by the opposite* is the seventh and final technique, *reference to the similar*. This technique describes the incorporation of a correlated or

connected aspect to a well-known saying to create a new saying whilst maintaining the allusion. For example, an old familiar proverb: ‘New brooms sweep clean’ was a base used by German scientist and satirist, Georg Christoph Lichtenberg, to create the saying ‘New spas cure well’ (Freud, 1976). Freud clarifies, “Thus Lichtenberg’s saying becomes an allusion to the proverb. By means of this allusion something is suggested that is not said straight out—namely that something else is responsible for the effects produced by spas besides the unvarying characteristics of thermal springs” (Freud, 1976, p. 116).

In sum, although Freud did not suggest this list was exhaustive, it does cover a substantial variety of popular techniques (and bases of techniques) used in jokes and humour up to the present day. As a result, his insights offer a fitting historical starting point for techniques used in modern humour.

Empirical work in the tradition of psychoanalytic theory

Kline (1977) derived six specific hypotheses that involve individual differences based on the Freudian perspective and its implications on the study of humour (Martin, 2007). Kline claims that the psychoanalytical theory of humour holds value in its capacity to generate empirically testable theories, a quality scientists revere. Interestingly, this runs counter to the general consensus held by the same community towards Freud’s psychodynamic theory of consciousness.

The first hypothesis put forward by Kline is that individuals who find aggressively themed jokes the funniest will be higher in repressed aggression. Next, Kline posits the same hypothesis, but based on jokes with sexual themes, enjoyed by those with repressed sexuality. This hypothesis has three related sub-categories: (a) those fixated at an anal level will appreciate anal jokes (e.g., primary school humour); (b) those

fixated at an oral level will appreciate oral jokes; and (c) homosexual and transvestite jokes will appeal to those repressing the associated emotions.

Kline's third hypothesis relates to Freud's general psychodynamic theory. He proposes that those with a strong superego, and repression as their main defence mechanism, will have no sense of humour and not laugh at jokes at all. Similarly, Kline cites psychopaths as also being humourless because they have no need to lift their repression in the way Freud deemed necessary for the enjoyment of jokes. Finally, Kline aims his sixth hypothesis towards the creators of jokes, such as comedians. He states that these individuals will be more neurotic than the average person due to their more pronounced unconscious aggressive drives (Martin, 2007).

From the 1950s onwards, a number of researchers conducted studies aiming to test hypotheses such as those put forward by Kline. For example, Walter O'Connell (1969) developed the Wit and Humour Appreciation Test (WHAT) as a means to test such hypotheses and did so with a series of studies (Kline, 1977; Martin, 2007). The WHAT comprises 30 jokes divided into three categories of ten jokes as judged by a panel of clinical psychologists—hostile wit, nonsense wit, and humour (in a general Freudian sense). In line with Freud's psychoanalytic perspective, O'Connell hypothesised that well-adjusted, less hostile people were more likely to appreciate and enjoy jokes in the humour and nonsense wit categories. Participants were asked to rate the extent of their like or dislike for each joke. The hypothesis was only partially supported by the results (Kline, 1977; Martin, 2007). It is questionable, however, how reliable the study's materials were, in terms of whether these complex humour categories can be captured by 10 jokes, and those who rated them (Kline, 1977).

Another method for studying psychoanalytical theories of humour was developed by Redlich, Levine, and Sohler (1951). The Mirth Response Test (MRT) was designed to assess the types of humour people prefer in order to draw inferences of their underlying needs and conflicts (Martin, 2007). The test comprises 36 cartoons containing aggressive and sexual themes, and participants are presented with each cartoon individually while their spontaneous verbal and non-verbal responses are recorded. The cartoons that attract the most enjoyment are presumed to contain themes relating to the individual's underlying needs and conflicts. Cartoons attracting indifferent responses are thought to contain personally irrelevant themes, while those attracting negative responses, including responses where the individual fails to get the joke, are thought to contain themes that reflect threatening unresolved needs or conflicts.

Levine and Abelson (1959) used the Mirth Response Test to look at differences in humour appreciation of anxiety arousing humorous cartoons between hospitalised schizophrenics, patients with anxiety, and normal controls. In this particular study, cartoons were pre-rated by a panel of psychiatrists for the degree to which they were potentially evocative for patients with anxiety. Participants were asked to sort the cartoons by those they liked, disliked, and felt indifferent towards. The researchers predicted that the patient groups would dislike the more anxiety arousing cartoons due to the increased feeling of vulnerability they induce. Results revealed that the schizophrenic group enjoyed the most minimally disturbing jokes most and the most disturbing jokes the least. On the other hand, the normal controls displayed a curvilinear relationship between the disturbingness of jokes and joke enjoyment, preferring jokes that were moderately disturbing over those at either end of the scale (Martin, 2007). It was

concluded results supported the psychoanalytic perspective that, if a joke is not successful in distracting the superego from the true meaning of the joke, inhibitions are mobilised, resulting in decreased enjoyment of humour (Gollob & Levine, 1967; Martin, 2007).

Another factor, according to Freud, contributing to the loss of humour enjoyment is the intellectual analysis of jokes and the cognitive techniques contained within them. Gollob & Levine (1967) tested this hypothesis, also using cartoons as test stimuli, specifically focusing on the enjoyment of aggressive humour. The researchers predicted that by highlighting the reason behind the joke's appeal—namely, to express aggressive impulses—participants' inhibitions will be mobilised thereby rendering the joke unfunny. Female subjects gave cartoons funniness ratings before and after they were asked to explain why they thought the joke was funny (as a means to focus their attention on the cartoon content). What they found was that highly aggressive cartoons initially received the highest humour ratings, but on the post-test received a significantly lower rating than either the low aggressive or nonsense cartoons. This was presumably because not only did the act of explaining the joke force participants to observe their own unexpressed aggression, but it helped them to see through the clever joke-work, thereby nullifying its effects (Martin, 2007). Researchers considered this as support for the Freudian perspective.

However, many studies have produced findings that contradict the psychoanalytical theory of humour. A number of studies investigating the enjoyment of hostile jokes as an indication of hidden aggressive drives have found that those who openly express their aggression seem to enjoy hostile jokes more than those who hide

their aggression (Martin, 2007). Such findings were revealed in a study by Byrne (1956), who presented overtly hostile, covertly hostile (passive-aggressive), and non-hostile (compliant) male psychiatric patients with cartoons containing hostile and non-hostile themes. The hostility levels of the patients were rated by hospital staff and based on observation. Results revealed both groups of hostile patients rated the hostile cartoons as funnier compared to the non-hostile group. Byrne deduced that these results contradict the psychoanalytical perspective by showing that those who were openly hostile in their interactions with others preferred more hostility in their jokes compared to those who were not openly hostile (Martin, 2007).

This view, however, bears the assumption that an individual's outward behaviour is indicative of the emotions they are or are not repressing. For example, is it fair to say that because an individual is openly hostile they do not repress any hostility at all? Simply exceeding socially acceptable standards of hostility is not necessarily an indication that a person is expressing all of their hostility. Likewise, it is possible those who are not openly hostile may harbour no hostile emotions. It is a generalisation to assume they are repressing hostile emotions because they are not displaying these emotions openly.

In line with this sentiment, Rosenwald (1964) argued that overtly expressing impulses does not necessarily mean that inhibitions of this impulse do not exist. Instead, Rosenwald suggests that the ability to enjoy a joke containing sexual or aggressive themes indicates the degree to which inhibitions are able to be relaxed, rather than a reflection of unconscious conflicts. To support this idea, Rosenwald measured the aggression inhibitions of male high school students using the Thematic Apperception

Test. He found that those with flexible aggression inhibitions enjoyed hostile humour more than those with rigid or a lack of inhibitions. Although these findings were considered supportive of the psychoanalytical perspective of humour, most correlational studies into the enjoyment of jokes with hostile or sexual themes have not found an association to related repressed emotions (Martin, 2007).

Overall, the Freudian psychoanalytic perspective of humour proved popular when Freudian theory was popular in society, which was generally throughout the first half of the 20th century. However, around the 1960s its popularity began to diminish as a new perspective started to gain momentum—arousal-relief theory.

2.3.2 *Arousal-relief theory*

The basic premise behind this theory is that the enjoyment of humour is a way to release excess nervous energy. From the Freudian perspective, this excess energy accumulates from suppressed or repressed thoughts and feelings. Specifically, Freud posited that psychic energy is used to inhibit taboo feelings, and continually builds up in the body as a result of socio-cultural restrictions (Buijzen & Valkenburg, 2004; Mulder & Nijholt, 2002). As stated in psychoanalytical theory, these social barriers are lifted with the distraction of joke-work, and the redundant psychic energy is discharged through the act of laughing, offering a spontaneous physiological release (Buijzen & Valkenberg, 2004; Meyer, 2000; Mulder & Nijholt, 2002). Although the arousal-relief perspective theoretically borrows from Freud in that it posits humour and laughter facilitate a release of emotion (offering explanation for why the two theories are sometimes combined) its main focus is on physiological responses. It also shies away from any cognitive underpinnings by excluding the need for the involvement of symbolism. That is, laughter

produced from this perspective needs no particular circumstance for its occurrence, such as a child's laughter (Meyer, 1997). This theory makes no attempt to explain why we laugh—a fact that leads some to suggest it is more a theory of laughter than humour (Mulder & Nijholt, 2002).

Arousal-relief theory is popular amongst proponents of the health-giving properties of laughter. In fact, a slightly more simple, conventional explanation of this theory proposes we gain a pleasant sensation when negative emotions such as anger and sadness are replaced with humour (Mulder & Nijholt, 2002). This pleasant sensation derives from the sense of release experienced with a sudden reduction of stress (Meyer, 1997). For this reason, joke-tellers often capitalise on this observation by intentionally provoking feelings of tension with humour techniques for the purpose of inducing that sense of release with a punch line, presumably resulting in laughter (Meyer, 1997). Similarly, skilled communicators may diffuse tension by injecting humour into their speeches to make an audience feel more at ease. Indeed, the use of jokes to reduce tension is the primary application for arousal-relief theory. Another practical exemplification of this theory at work is spontaneous or awkward laughter that occurs during conversations between people trying to find comfort and ease in their interactions, be it first time or between people who have intense emotions towards each other (Meyer, 2000).

As with psychoanalytical theory, the traditional arousal-relief theory of humour is mostly outdated now. This is apparent when recognising the model on which the original conception of the theory is based. Although Freud is often cited as one of the first proponents of the theory of energy release, this idea can be traced back to the work of

19th century writer, Herbert Spencer (Martin, 2007). Spencer's idea — the hydraulic theory of nervous energy—was drawn from the modern mechanical model of the time, the hydraulic steam train (Martin, 2007). This view posits that laughter allows energy to leave the body the way safety valves release steam from a steam engine. Based on contemporary standards, including our current understanding of the human nervous system, this particular aspect of arousal-relief theory is obsolete.

A more modern approach to tension-relief theory focuses on the role of psychophysiological arousal in the processing and enjoyment of humour (Martin, 2007). For instance, in Daniel Berlyne's (1960) version of the theory, humorous jokes and situations contain a multitude of variables, which he terms 'collative' variables. These collative variables are present in all works of art, and include items such as surprise, incongruity, and ambiguity. Berlyne maintains that when a person perceives a joke, or work of art, they process these collative variables together in order to compare and contrast them (Martin, 2003). To support this idea, Berlyne reviewed psychophysiological research and concluded that collative variables attract our attention because they are unusual, and that when we process them we experience increases in arousal both in the brain and the autonomic nervous system (Martin, 2007).

A couple of components make this take of arousal-relief theory depart from its traditional foundations. Firstly, a cognitive component is added to the humour process, shifting its focus from purely physiological to psychophysiological. Secondly, laughter is no longer simply the release of pent-up energy. Berlyne's theory borrows Hebb's (1955) inverted U relationship between physiological arousal and subjective pleasure. Specifically, that the most pleasure is experienced with a moderate amount of arousal,

with the extremes (too little or too much arousal) being unpleasant. Berlyne proposes two arousal related mechanisms in the humour process—arousal boost and arousal jag.

Arousal boost occurs during the perception of a joke or humorous situation. The processing of the collative variables contained in the joke or situation causes an elevation in arousal to an optimum level, resulting in pleasure. Arousal jag, on the other hand, is induced when arousal continues to increase beyond the optimum level and begins to become aversive. The punch line, then, is a mechanism whereby this excessive arousal is reduced and brought back into the optimum realm. The suddenness of the reduction of arousal into a pleasurable level is said to add to the enjoyment of the joke (Martin, 2007). Thus, rather than simply tension release, Berlyne conceptualised the process of humour enjoyment as being related to pleasure derived from changes in arousal to an optimum level. He also likened this process to that of enjoying art, but on a different (shorter) time scale (Martin, 2007).

Empirical work in the tradition of arousal-relief theory

Godkewitsch (1976) specifically investigated Berlyne's concepts of arousal boost and arousal jag by measuring the physiological responses of participants exposed to a series of jokes, and then analysing their activity during the presentation of the body of the joke, and the punch line. In addition, after the presentation participants rated their subjective arousal levels as well as the funniness of each joke. Findings indicated that jokes that were rated as the funniest were associated with greater increases in skin conductance during the presentation of both the joke body and punch line, as well as greater increases in heart rate during the punch line (Martin, 2007). Furthermore, the funniest jokes were also related to the greatest subjective arousal ratings. In relation to

Berlyne's hypotheses, they were only half-supported. These findings are in line with the concept of arousal boost (the increase of arousal when perceiving a joke and processing collative variables), but fail to support the concept of arousal jag (the punch line bringing a sudden lessening of arousal into its optimal realm). Instead of reducing arousal, punch lines were found to increase arousal, even more so than the body of the joke.

Other findings in this area have been mixed. For instance, Goldstein, Harman, McGhee, and Karasik (1975) monitored the heart rate and skin conductance of male students who were exposed to seven riddles and seven problems that were structurally similar. The aim of this study was to observe differences in physiology when processing the two types of presentation. Results indicated that during the initial presentation and processing of both riddles and problems, heart rate tended to increase, and during the resolution (the punch line or answer) heart rate tended to decline. This is counter to findings of Godkewitsch, and supportive of Berlyne's arousal jag concept. In fact, the researchers specifically looked at Berlyne's hypothesis of arousal change during the humour process (the inverted U relationship between physiological arousal and subjective pleasure). Their findings were supportive of this theory, with the greatest amount of humour appreciation indicated when there was only a moderate amount of arousal change. But as will be discussed in Chapter 3, these results are difficult to interpret because heart rate responds to two sources of autonomic-nervous-system arousal.

Support for Berlyne's inverted U relationship has otherwise been scant. A number of studies looking into this theory have found evidence to the contrary. For instance, Langevin and Day (1972) recorded the psychophysiological measures of participants who were asked to rate the funniness of a series of cartoons. Results revealed that cartoons

that were rated the funniest were associated with higher heart rate and skin conductance levels. The relationship between arousal and funniness, however, was linear, and not the inverted U relationship. Likewise, findings of other studies (Chapman, 1973; Goldstein et al., 1975) investigating the relationship between physiological variables (such as heart rate, skin conductance, blood pressure and muscle tension) and the humour process have consistently found linear increases in these measures in association with exposure to humour (Martin, 2007). Specifically, the more an individual is aroused, the higher the rating of funniness and enjoyment of humour. In fact, this is one finding that does garner converging evidence — that humour is related to an increase in arousal.

In connection to a series of studies investigating the cognitive and physiological determinants of emotion, Schachter and Wheeler (1962) were specifically interested in observing how increased sympathetic nervous system activity (arousal) would affect participants' appreciation of a slapstick comedy film. To induce sympathetic nervous system arousal, an injection of epinephrine (adrenalin), a hormone and neurotransmitter known to increase heart rate, contract blood vessels, and dilate air passages, was administered. Participants in another group were administered an injection of chlorprozamine, a substance known to depress sympathetic nervous system activity. Finally, participants in a placebo group were given an injection of saline solution. The researchers hypothesised that if sympathetic arousal is a necessary component of emotional states, then those injected with epinephrine should experience the most intense response to the film, followed by those in the placebo group, and finally followed by the chlorprozamine group, who should demonstrate the least intense response. This hypothesis was supported, with those in the epinephrine group expressing the most

amusement from the film, displaying more smiling and laughter, and rating the film as funnier compared to the placebo group, who in turn, displayed more amusement and higher funniness ratings than the chloroprozamine group. In short, the higher the level of sympathetic arousal, the higher the level of amusement expressed and experienced. Schachter and Wheeler interpreted these results as indicating the emotional process (in this case amusement in response to a comedic film) involves both physiological arousal and cognitive understanding.

With these results two points of interest are revealed in terms of the humour process; firstly, contrary to the traditional concept of arousal-relief theory, a cognitive element is required and secondly, that the arousal component may be affected by a means unrelated to the elements of the joke and still produce an effect on the enjoyment of the joke. Cantor, Bryant and Zillman (1974) conducted a study that focused on the affects of externally induced arousal on humour enjoyment. Their aim was to investigate the excitation transfer principle by looking at whether residual arousal from another source can affect subsequent humour processing. Firstly, participants were exposed to either a positively or negatively toned condition of high or low arousal. In the low arousal/positive condition, participants read mildly interesting newspaper articles. In the high arousal/positive condition, participants read an explicitly descriptive passage from an erotic novel. In the low arousal/negative condition, participants read a mildly disturbing news article. In the high arousal/negative condition, participants read an article describing graphic torture.

After this, participants were told that as a part of a different experiment, they were to rate the funniness of a series of cartoons containing inoffensive themes. As predicted,

participants who had been exposed to the high arousal condition—regardless of whether it was positive or negative—rated the cartoons as funnier than those in either of the low arousal conditions. These results suggest that to increase the enjoyment of humour, not only is it unimportant whether the arousal boost comes from the joke itself, but also that it is unimportant whether the arousal is induced from positive or negative sources. Thus, it could be implied that humour is a way to increase positive feelings of arousal, and transmute negative feelings of arousal into positive feelings.

All in all, the arousal-relief theory of humour has a few variations. From the early traditional idea of tension release based on the concept of the hydraulic steam engine, to the physiological-only arousal-relief premise, to the more modern interpretation that involves both physiological and cognitive factors.

2.3.3 *Superiority theory*

Where arousal-relief theory focused in particular on emotional arousal and its effects on humour, superiority theory highlights the effects of emotional enjoyment (i.e., positive versus negative feelings) on humour by citing the boosting of self-esteem as its function (Buijzen & Valkenburg, 2004). The basic tenet is that when people observe the suffering of others considered to be lower in status (more stupid, ugly, unfortunate, weak, etc.), it gives a feeling of superiority over them (Berger, 2010; Keith-Spiegel, 1972; Martin, 2007; Meyer, 2000; Mulder & Nijholt, 2002; Veatch, 1998). Therefore, laughter from this perspective is the result of joy at the emotional expense of others (mockery or ridicule), which boosts self-esteem. For this reason, superiority theory separates the subject of humour from its usual light-hearted jovial connotations to portray it from a more sinister perspective. This theory specifically involves a form of humour that is

aggression-based, and the time of its popularity empirically coincides with the popularity of aggression research.

In terms of the historical timeline of humour theories, superiority theory has been documented as being around the longest, albeit in one form or another. Other names or variations include; disparagement, aggression, or degradation theories, and these go as far back as the time of Plato and Aristotle (Berger, 1987, 2010; Martin, 2007; Mulder & Nijholt, 2002). For instance, Plato suggested that laughter originates in malice towards people seen as relatively powerless, and pointed out the phenomenon of feeling delight instead of pain when seeing our friends in certain states of misfortune (Martin, 2007; Mulder & Nijholt, 2002). Similarly, according to Aristotle, comedy is based on the imitation of men considered to be from the lower echelons of society (Berger, 1987).

Another luminary, 17th century English philosopher Thomas Hobbes, attributed the pleasure of laughter to the sudden glory that arises from a perception of eminence in ourselves compared to others (Berger, 1987, 2010; Martin, 2007). More specifically, Hobbes posited that humour involves three factors; the first is a strong emotional aspect that induces a passionate response, the second is a sudden and spontaneous impact that leads to laughter, and finally, the third is a situation where we either feel superior to others or the way we once were (Berger, 1987). In fact, this final point relates to self-deprecation, a form of humour whereby the feeling of superiority can be aimed at a part of ourselves, or our former selves (Martin, 2007). Veatch (1998) elaborates that in the process of self-deprecation there are two selves present—one responsible for the violation and another that feels superior to the first. This form of humour can be seen as being healthy when aimed at oneself (Martin, 2007). For example, people that are

humourless and rigid and unable to see anything funny in themselves or their beliefs may not be as happy as those that can (Martin, 2007).

In addition to self-deprecating humour, examples of applications of this theory include slapstick comedy, practical jokes, clumsiness, verbal mistakes, dumb blonde jokes, or any jokes making fun of a certain group such as those of sexual or ethnic diversity (Berger, 1987, 2010; Martin, 2007). For this reason, where psychoanalytic theory relates to individual needs, and arousal-relief theory relates to individual and social needs, superiority theory relates humour to the social and cultural spheres. And the type of humour found in this realm ranges in malevolence from benign and playful to intentionally hurtful and malicious.

On one end of the scale is the mock fighting often seen between children and animals, where the joy comes from winning a playful game (Martin, 2007). In the moderate zone of the scale lies the idea of humour as a social corrective—that is, humour can be used as a way to strengthen ties between group members by offering a sense of belonging when a joke is shared and enjoyed, while those that do not conform to societal standards (the butt of the jokes) are outcast (Meyer, 2000). Examples include jokes making fun of stereotypical gender or cultural roles, or those seen as stupid. For instance, this type of humour is seen in shows such as *Australia's Funniest Home Videos*, or sitcoms depicting people caught in idiotic situations (Meyer, 2000). Finally, humour exemplifying this theory at the malicious end of the scale can be found across age groups and historical time frames, from the merciless teasing of children in the schoolyard, to historical eras of intense human suffering, such as Nazi Germany. Interestingly, documentation of this tragic time provides accounts of humour being involved on both

sides of the devastation—on the one hand, by the oppressors cruelly mocking their victims to gain a feeling of superiority and promote malicious camaraderie, but also on the side with the victims. This particular type of humour, termed ‘gallows humour’ by Freud, and more recently ‘black humour’, describes macabre humour employed to maintain sanity in victims of seemingly hopeless situations (Martin, 2007). The upshot of its use in this particular situation was to boost morale and garner a feeling of shared burden (Martineau, 1972).

Here lies a poignant example of the difference between ‘laughing at’ and ‘laughing with’, a distinction often used by psychologists and educators who espouse the therapeutic benefits of humour (Martin, 2007). These professionals promote the use of light and positive humour as opposed to jokes containing potentially offensive themes. However, speech expert Charles Gruner denies any such distinction. In fact, Gruner asserts that if the aggressive factor is taken out of a joke, humour is totally eliminated (Martin, 2007). Although this may seem to paint a negative picture, according to Gruner (1997) the intention of humour is not to inflict harm. For instance, those telling a joke containing a racial stereotype are not necessarily advocates of that stereotype, but rather simply using it as a tool in the framework of their joke. It is argued that, in line with Freudian theory, there are hostile people that tend to use jokes as a way to express their hostility; however, they will additionally use other more direct ways to express their hostility. Moreover, it is not automatically the case that those who enjoy such jokes are prejudiced or hostile. In brief, along with other aforementioned theorists, Gruner concurs that humour from the perspective of superiority theory is simply a playful means to boost self-esteem, with no real harm intended.

Empirical work in the tradition of superiority theory

One hypothesis to come out of Gruner's perspective is that the more aggression in a joke's themes, the funnier it will be. This is not a new concept, as can be seen from proponents of theories already discussed. First of all, there was Freud and his psychoanalytical concept of tendentious jokes—the idea that the purpose of the joke is to facilitate the expression of suppressed hostility or sexuality. According to this theory, the more hostility contained in a joke's themes the funnier it will be to those with a higher degree of suppressed or repressed hostility. Next, from the arousal-relief perspective, Berlyne offered the theory of arousal boost and arousal jag. This theory suggests that humour results from the heightening of arousal (arousal boost) followed by a sudden reduction of arousal to an optimum level (arousal jag). Thus, the more aroused one becomes during the arousal boost phase, the more enjoyment derived from the arousal jag phase. Therefore jokes provoking more arousal should derive the most enjoyment and laughter. Finally, and more strictly in line with superiority theory, Hobbes considered laughter as an expression of triumph over another (McCauley, Woods, Coolidge, & Kulick, 1983). This clearly suggests that the more aggression contained in a joke, the funnier it should be.

In a series of six studies including a wide range of participants, McCauley et al. (1983) tested the hypothesis that jokes containing more aggressive themes are funnier. Over the six studies, children and adults, native- and foreign-born individuals, and individuals from both high and low socioeconomic situations were asked to rate the aggressiveness and funniness of different sets of cartoons randomly taken from magazines. Across all six studies, significant positive correlations were found between

median humour and aggressiveness ratings (ranging from $r = .49$ to $.90$). The results indicate that participants found the more aggressive jokes funnier than less aggressive jokes, but this, as discussed, could be used as support for a number of humour theories.

In a study conducted more in line with the superiority perspective (termed disparagement theory in this case), La Fave (1961) looked at the social influences that affect responses to humour. Specifically, he hypothesised that group membership (e.g., religious or ethnic) could be a predictor of humour appreciation. Among the four groups tested—Catholics, Jehovah's Witnesses, Southern Baptists and Agnostics—it was (unsurprisingly) found that participants who were members of the group that were portrayed as superior in the joke, and whose outgroup was disparaged, rated the joke as funny, whereas the reverse was also true. That is, participants who were members of the group being disparaged rated the joke as unfunny. These results support superiority theory.

However, the findings of a study by Middleton (1959) demonstrate that it is not as clear cut as La Fave's results suggest. In this study, Black and White participants were exposed to jokes containing racial themes. Results were mixed and surprising. On the one hand, in line with superiority theory, compared to White participants, Black participants indicated more enjoyment of jokes disparaging Whites. On the other hand, contrary to superiority theory, Middleton found that Black participants enjoyed jokes containing anti-Black themes just as much as the White participants. As an explanation for his findings, Middleton offered that because the Black participants were mostly middle-class, perhaps they did not identify with the lower-class Black stereotypes portrayed in the jokes. These results suggest that, rather than group membership on its own, a distinction between

group membership and group identification is a factor that critically affects humour appreciation in the tradition of superiority theory.

In the enjoyment of humour another important factor, besides group membership or group identification, is attitude towards the reference group. With this in mind, Zillman and Cantor (1976) developed the dispositional model of humour. The underlying premise of this predictive model is that the more favourable a person's disposition is towards the reference group being disparaged, the less they will like the joke and find it humorous. Furthermore, humour appreciation varies depending on how favourable a person's disposition is towards the disparaging group. Zillman and Cantor posit that these attitudes lie on a continuum from extremely positive, to indifferent, and finally to extremely negative. Furthermore, they are not stable, but changeable, and even situation-dependent (Martin, 2007). This model of humour offers an explanation for the discrepancy between the findings of the aforementioned studies by La Fave and Middleton.

La Fave, McCarthy and Haddad (1973) carried out a study addressing the role of attitudes toward a reference group in the appreciation of humour, as opposed to group membership on its own. The researchers enlisted observers to recruit participants on the basis of whether they identified themselves as being pro-Canadian or pro-American. As assurance of this stipulation, only participants who indicated this affiliation on a post-experimental questionnaire were included in the final data analysis. During the study, participants were exposed to jokes that contained themes that were disparaging of either Canadians or Americans. Results from the pro-Canadian participants supported the prediction that their favourable attitudes to their reference group would inversely affect

their enjoyment of jokes disparaging Canadians. However, the results from the pro-American group failed to support hypotheses. The researchers suggested that there were inaccuracies in the initial assessment of the participants by the recruitment team.

Another possibility for this unexpected finding comes to light in a concept by Zillman and Bryant (1980), who suggest that sometimes there are social protocols in place that make it unacceptable to openly express the enjoyment of disparaging humour. For this reason, they came up with a misattribution theory of disparaging humour. This theory posits that, in situations where it may be perceived as wrong to laugh at someone in a humorous situation, or a joke containing disparaging humour, we can allow ourselves to laugh if there is another element in the joke or situation to which we can attribute the laughter. For example, when seeing a friend fall over, laughter could be attributed to a funny sound that was made as a result of the fall (Martin, 2007). In relation to the previous study's (La Fave et. al) finding that pro-Americans did not express enjoyment or laughter at jokes disparaging Canadians, it may have been they did not feel it was socially appropriate to do so.

In sum, although the findings of studies carried out in the perspective of superiority theory do vary, it is evident that aggression plays a role in humour, and has been observed as doing so for some time. One aspect that does find consistency among the conflicting results is that there are many potential variables to consider, both inter- and intra-personally. These variables make it difficult to ascertain if a person genuinely finds something funny or not funny, or whether they are simply responding to the social expectations of the situation. This problem affects all theories of humour, not just superiority theory. For example, what may have been considered as unsavoury behaviour

in the times of Freud may later have been considered acceptable at the time arousal-relief theory was prominent. This particular facet of social influence affects the accuracy of each theory, and most likely contributes to why no one theory can explain humour completely, as humour styles change over time due to what is or is not topical (in terms of content) and socially acceptable (in terms of response). It is best then to overview the theories and extract the elements that remain constant over time. One such element often referred to in the study of humour is incongruity.

2.3.4 *Incongruity theory*

Finally we come to incongruity theory—the most influential and widely accepted of all humour theories (Berger, 1987; Martin, 2007). Where the previously discussed theories focus on psychoanalytical, emotional, and social aspects of the humour process, incongruity theory focuses solely on cognition (Buijzen & Valkenburg, 2004; Martin, 2007; Meyer, 2000). Put simply, this theory states that the critical element in determining whether something is funny or not is the presence of some form of incongruity; be it by way of something surprising, unusual, or unexpected (Buijzen & Valkenburg, 2004; Martin, 2007). Formulaically this can be described as an accepted norm or expected pattern that is violated, but not so much that it is threatening (Buijzen & Valkenburg, 2004; Meyer, 2000).

The idea that incongruity lies at the heart of the humour experience has been discussed by philosophers and theorists for over 250 years (Martin, 2007). However, the way in which the incongruity is said to contribute to the humour process varies depending on the theorist. The first to be credited with comprehensively conceptualising the connection between incongruity and humour is 18th century German philosopher

Immanuel Kant (Mulder & Nijholt, 2002). Kant posited that laughter results from the sudden transformation of an expected turn of events into nothingness (Berger, 1987; Mulder & Nijholt, 2002). Similarly, another German philosopher, Arthur Schopenhauer, cited laughter as being connected to expectations. Namely, that it is an expression of the sudden realisation of the difference between what we expect and what we end up with (Berger, 2010; Martin, 2007; Mulder & Nijholt, 2002). Finally, 18th century writer James Beattie proposed laughter arises out of the perception of two or more inconsistent components that are presented as being of the same kind, or as having some sort of mutual connection in the unusual way the mind has perceived them (Martin, 2007). Although Beattie's take on how incongruity affects humour seems different to the other theories, it is still a theory that posits humour as being the outcome of violated expectations.

Applications of incongruity theory can be seen in a variety of humour techniques. For instance, the basic structure of the traditional joke usually contains some incongruity or element of unexpectedness that is supplied in the punch line (Berger, 1987). In more detail, and in line with Beattie's theory of incongruity, jokes commonly present two separate concepts in a single frame. Perception through this frame causes one to view the two objects in a similar way, but as the joke progresses it becomes obvious the frame only applies to one object, thus the difference (the incongruity) between the objects becomes apparent (Mulder & Nijholt, 2002). Incongruity theory can also be seen across many popular television programs, including the US sitcom, *Seinfeld*, where humour is generated by the most unusual, surprising, and unexpected behaviours (Meyer, 2000).

Although there is consensus amongst proponents of this theory that an incongruous element must be present for humour to exist, debate surrounds whether it is the incongruity itself that causes laughter. Incongruity in isolation is puzzling but not necessarily funny, unless you are a child (Martin, 2007; McGhee, 1972). In line with this proposition is the Benign Violation Theory of humour (McGraw & Warren, 2010).

According to this theory, three conditions are required for eliciting humour; a situation must be perceived as a violation (incongruity), it must also be perceived as being benign, and these two perceptions must occur simultaneously. In other words, anything that threatens the perceiver's idea of a norm will be humorous if it also seems benign.

McGraw and Warren suggest violations can be seen in a variety of humour styles, such as slapstick (e.g., physical deformities), linguistic norms (e.g., strange accents), social norms (e.g., obscure behaviours), and moral norms (e.g., disrespectful behaviours).

Some experts suggest it is the resolution of the incongruity that facilitates humour (Mulder & Nijholt, 2002). The way incongruity is resolved in a joke is by having it make sense in some way. This describes the premise behind the theory known as incongruity-resolution theory. This theory, however, purely addresses humour in relation to the structure of a joke and not other contributing components, such as situational variables (Mulder & Nijholt, 2002). The most popular incongruity-resolution theory is Raskin's semantic script-based theory of humour (Brock, 2004). Raskin proposes that when it comes to jokes, humour occurs in a three-stage process. Firstly, the joke will activate one of two opposing themes, or schemas. Examples of opposing themes are good/bad, money/no money, or possible/impossible. After the activation of the first theme, the activation of the second opposing theme occurs, causing ambiguity. Finally, the

resolution is resolved. A compact example is the following statement: *The first thing to strike a stranger in New York is a big car*. Here, the word ‘strikes’ initially conjures up one meaning, but is shown to carry another meaning after reading ‘a big car’. After these two meanings are activated, there is ambiguity. But when this ambiguity is resolved, through the understanding of the pun, humour ensues.

It has been established that the principle underpinning incongruity theory is that things that break our expectations, that are incongruous, are funny. Surprise is an element that emerges with anything unexpected, and this could explain why humour seems to date. For instance, once a formula for humour, such as the structure of a joke, has been circulated long enough to become renowned, the element of surprise will be eroded and the joke will no longer be seen as funny. This concept also extends into the contents of a joke. Cultural norms and stereotypes entail expected patterns of behaviour and are often used as material for jokes and television programs. However, it can be seen that after a while this kind of material will lose its spontaneity and therefore its humour. Not only do the jokes lose their spontaneity, but cultural standards shift as well. For example, it is common to find sitcoms that made our grandparents laugh fail to have the same effect on audiences today.

Empirical work in the tradition of incongruity theory

In a study looking at whether humour could be communicated through music, Mull (1949) observed college students as they were individually presented with 3 pieces of classical music. The students were asked to indicate which parts of the pieces they found humorous and, after listening, to report specifically what it was they found funny. Interestingly, the most standout theme was that parts displaying the most contrast and

incongruity, in terms of aspects such as sequencing, pitch, intensity and instrumentation, were perceived as the most humorous. Mull concluded that music can express humour and, furthermore, there is robust consensus that pieces considered humorous contain incongruity.

In another study looking at whether non-verbal incongruity is related to humour, Nerhardt (1970) tested whether stimuli containing unexpected qualities would result in smiling or laughter. Specifically, he randomly approached male and female adults passing through underground train stations and asked them to lift suitcases of varying weights and judge their heaviness. Nerhardt hypothesised that more smiling and laughter would be related to suitcases that were outside the range of expected weight. Results did not support this prediction, even at either extreme of the weight range (5 – 25kgs). Nerhardt suggested that the social context might have played a role in the lack of laughter, whereby participants felt laughing would not be appropriate in the situation. Moreover, participants may have felt competitive in this situation, another explanation for a decrease in laughter.

These situational variables were addressed in a related study by having psychology students who were accustomed to being in studies as participants (Nerhardt, 1976). The students were tested individually in a private laboratory setting with an experimenter after a lengthy introductory phase aimed at promoting a sense of ease and comfort in the participants. After this, the experimenter instructed the students to keep their eyes closed while lifting a series of weights with identical handles. This time, results confirmed the prediction that more smiling and laughter would be related to weights outside the expected range. Furthermore, weights within the expected range elicited

laughter when preceded with a series of dissimilar weights, such that the greater the difference between the preceding weight and current weight, the higher the frequency of laughter. This result highlights the idea that contrast, or incongruity, is a recurring element in the perception of humour. Moreover, these findings support the view that incongruity on its own induces the perception of humour.

In a study looking specifically at testing incongruity theory in relation to jokes, Kenny (1955) manipulated the degree of expectation of joke endings. First, 30 jokes were arranged into three incongruity categories by participants on the basis of how predictable they found the ending of the joke. The categories were; a) *low expectancy incongruity*, referring to jokes that ended predictably, b) *moderate expectancy incongruity*, referring to jokes that contained endings that were moderately predictable, and c) *high expectancy incongruity*, referring to jokes that contained endings that were very unpredictable. Next, a separate group of participants rated the jokes for funniness. Surprisingly, results indicated that jokes from the lowest expectancy category (the most predictable endings) were rated as the funniest. This contradicts incongruity theory. However, Nerhardt (1976) suggests that because the participants in this study knew they were going to be presented with jokes, they were expecting incongruity, which could have affected results. Put another way, the element of surprise is often cited as a technique used within incongruity theory, and with this element reduced it is clear to see that humour might also be reduced as an outcome. This critique demonstrates another aspect that makes it difficult to empirically test humour theories.

A number of studies have been carried out attempting to test the incongruity-resolution theory of humour—the idea that it is the resolution of incongruity that causes

laughter as opposed to incongruity on its own. Shultz (1974) conducted a series of studies whereby students were asked to identify the order in which they noticed elements within a series of jokes. Shultz predicted that the ambiguous element of the joke, where a hidden meaning is exposed and resolves the incongruity, would not be detected until the punch line of the joke. It is the punch line that compels respondents to search for this resolution, which, in turn, theoretically causes laughter. This is the point at which one 'gets' a joke. Results supported this prediction. In addition, results of a follow-up study that used visual cartoons instead of verbal jokes as the stimuli also supported this prediction. Participants tended to notice incongruity before the parts that prompted the search for resolution. These results indicate that the resolution of incongruity facilitates laughter in the humour process.

Subsequent studies have attempted to isolate the incongruous part of a joke from the part containing the resolution to test which element of these two weighs more heavily in the humour process. However, results are inconclusive, and it has been argued that it is not possible to clearly separate one of these elements from the other while maintaining the quality of each part separately, except, perhaps, if humour-creating tasks like Nerhardt's (1976) weight-lifting task are used.

In sum, the results of these studies suggest that incongruity on its own is perceived as funny, even with non-verbal stimuli. However, incongruity-resolution theory has also seen support. More specifically, results indicate that some form of incongruity is required in the humour process, although in jokes it is not enough on its own. In addition, resolution can be a part of the process, although not required. Results are mixed, indicating difficulty in isolating and capturing various aspects in different contexts.

Indeed, it has been demonstrated that contextual factors are critical throughout empirical work investigating humour theories, and incongruity theory is undoubtedly one of the most affected.

2.4 Conclusions: Which humour theory?

It can be seen that no one theory can comprehensively explain humour. It is apparent that all four theories can find support empirically, but also find contradiction—demonstrating the difficulty of capturing humour empirically in general. Berger (1995) likens humour to an elephant that has a number of blind men (the theories) all feeling a different part—all men come away with a different conception of the elephant, yet all are correct. This analogy illustrates how each humour theory accounts for an aspect of humour, but does not offer a complete explanation. For this reason, remaining open to insights from each perspective holds the greatest promise for finding as comprehensive an explanation as possible.

The present study aims to investigate which specific humour techniques contribute to sitcom success. To achieve this empirically, accurate measures are required. The following chapter will review which measures are most appropriate for this cause.

Chapter 3 – Sitcom Research Measures

3.1 Measures used in media studies

When researching how people respond to media it seems logical to use self-report methods, such as surveys, as the experience itself is subjective. However, these methods bring a host of shortcomings that compromise their ability to accurately convey the process between affect and behavioural outcome (Wang & Minor, 2008). First, commonly used techniques such as interviews, questionnaires, and surveys are prone to issues linked to what psychologists refer to as the Hawthorn Effect; that is, the phenomenon whereby simply observing a person changes their behaviour (Chiesa & Hobbs, 2008). In the experimental environment, for example, participants may respond to questions as they think they ‘should’ and may not be aware they are responding this way (Wilson & Sasse, 2000).

Further possible contamination arises from a second limitation—the fact that media presentations occur over time. Questionnaires administered after a test session cannot be relied upon to give accurate feedback as responses are articulated in hindsight (Fenwick & Rice, 1991; Abeele & Maclachlan, 1994). A third limitation of self-report measures, also related to response articulation, is that expressing response requires language. This leads to problems when working with those who lack proficiency in this area, such as children (Hazlett, 2006; Hazlett & Hazlett, 1999; Abeele & Maclachlan, 1994). Furthermore, the use of language requires cognitive effort. Cognitive mediation

may direct responses further away from what is actually happening at the level of experience.

However, despite these drawbacks, self-report measures continue to be used in media studies as they do have merit. Problems arise when they are used as the sole source of information. With this in mind, it is advantageous to find an additional way to test participant response to media that is objective, at the level of experience, and able to capture it as it occurs over time. This is where psychophysiology comes in.

3.1.1 *Psychophysiology*

Psychophysiology combines elements of physiology, biology, and psychology (Wang & Minor, 2008). Specifically, it can be described as a science that focuses on the relationship between behaviour and physiological processes (Kroeber-Riel, 1979). Because autonomic reactions are not under conscious control, physiological measures offer a way to potentially collect unbiased and sensitive measures of media response. To date, much research has been directed at identifying emotional states with psychophysiological measures. Since the late 1800s, when William James hypothesised that emotional states were related to observable physiological changes in the body, theories of the underlying physiology of emotions, and ways to measure it, have evolved and proliferated (Cacioppo & Tassinary, 1990; Lang, Potter, & Bolls, 2009; Larsen, Berntson, Poehlmann, Ito, & Cacioppo, 2008). The popularity of each measure has echoed the appearance (and disappearance) of various devices used to capture them (Stewart, 1984). It has been suggested that psychophysiological measures can differentiate emotions, but more on this later. Firstly, to understand how emotion can be

measured biometrically, we must first explore emotion theoretically, and how it relates to psychophysiology.

3.2 Theories of emotion

3.2.1 *Discrete (categorical) emotions*

The nature of emotion has been explained largely by two primary theories. Firstly, the discrete (or categorical) model focuses on a number of distinct and specific emotions such as anger, disgust, sadness, happiness and fear (Lang et al., 2009; Lee & Lang, 2009; Mandryk & Atkins, 2007; Mandryk, Inkpen, & Calvert, 2006; Ravaja et al., 2005).

Discrete theorists mostly see these emotions as arising from one's cognitive appraisals of the environment (Frijda, 1986; Lazarus, 1991). These appraisals lead to an interpretation of the relevant stimuli, which then activates the appropriate adaptive responses (Darwin, 1998; Izard, 2009; Ravaja et al., 2005). These responses are referred to as action tendencies, and although each action tendency is a form of engagement or withdrawal, different emotions produce variations of these constituents (Dillard & Peck, 2001). For instance, sadness and fear would both be considered withdrawal emotions, but both result in different types of withdrawal—sadness leading to lethargy, and fear leading to tension (Dillard & Peck, 2001).

One limitation of the discrete model perspective is the lack of consistency in findings relating to the underlying physiological patterns of particular emotions (Larsen et al., 2008). Lang, Potter, and Bolls (2009) suggest this is due to the static nature of the model. More specifically, problems may arise when attempting to explain categorical emotions with dynamic physiological measures.

3.2.2 *Dimensional model of emotion*

An alternative theory, the dimensional model of emotion, posits that rather than having a range of disparate emotional states, all emotions are essentially similar and their differences lie in where they are situated on a plot of two factors — enjoyment and arousal (Barrett, 1998; Lang et al., 2009; Lang, 1995; Larsen et al., 2008; Mandryk et al., 2006; Ravaja, 2009; Ravaja et al., 2005). Dimensional theorists suggest these emotions are fleeting, targeted and emerge from two basic motivational systems — the appetitive system, which supports approach behaviour, and the aversive system, which supports avoidance behaviour (Lang et al., 2009; Lang, 1995; Lee & Lang, 2009). The first dimension, enjoyment, refers to hedonic quality and ranges from pleasant to unpleasant (Ravaja, 2009; Ravaja et al., 2005). As such, enjoyment describes the *direction* of motivational activation (approach/avoid, or positive/negative). The second dimension, arousal, refers to the level of bodily activation that occurs during the experience. This ranges from low to high and describes the *intensity* of motivational activation (Lang et al., 2009; Lang, 1995; Ravaja, 2009; Ravaja et al., 2005). Although the discrete and dimensional theories of emotion are often contrasted, they do share some basic fundamentals and are by no means mutually exclusive (Nabi, 2010). Proponents of the discrete perspective do not discount the existence of underlying motivational processes, and proponents of the dimensional perspective do not discount discrete emotional states (Bolls, 2010). In fact, Barrett (1998) posited that one theory might not be applicable to all individuals. For this reason, it may not only be possible, but advantageous to borrow concepts from both to measure emotion.

3.2.3 *Combining theories*

Lee and Lang (2009) borrowed concepts from both discrete and dimensional theories of emotion in an attempt to identify reliable patterns in the relationship between the underlying motivational systems and discrete emotions. Using both self-report and physiological measures, they found, as predicted, joy was associated with strong appetitive activation, fear was associated with a strong aversive activation, and sadness was associated with a moderate aversive activation. Lee and Lang posited their findings of the various links between the motivational systems and discrete emotions could be used as a basis for the prediction of physiological patterns involved in specific emotions.

In another study combining discrete and dimensional theoretical aspects, Levenson, Ekman, and Friesen (1990) trained participants to voluntarily configure their facial muscles to resemble expressions associated with specific discrete emotions while monitoring physiological measures of heart rate, skin conductance, and finger temperature. Results revealed each facial expression produced self-reported feelings of the associated emotion, as well as physiological distinctions. Studies such as these suggest that it is indeed possible and beneficial to combine findings and insights from both discrete and dimensional theories when approaching the study of emotion.

3.3 **Psychophysiological measures of emotion**

Throughout history a variety of physiological measures have been used to mark emotional arousal and attention in media-users. Psychophysiological measures are appealing to researchers as they offset many of the weaknesses associated with collecting subjective data alone, such as reliance on language and memory, temporal imprecision, and interruption of the experimental process (Ravaja et al., 2005; Ravaja, Saari,

Salminen, Laarni, & Kallinen, 2006). However, despite these advantages, psychophysiological measures can lead to interpretative ambiguity. As a result, studies typically use a variety of measures together.

Wang and Minor (2008) presented an analytic review of ten major psychophysiological measures based on 67 marketing studies which used these methods. In the review, a chronological summary of psychophysiological measures used in these 67 published marketing studies was provided, and can be seen in Table 3.1.

Table 3.1 Chronological Classification of Marketing Studies (1960 – 2006) Using Psychophysiological Techniques (numbers of publications in parentheses).

Decade	60s	70s	80s	90s	2000-present
Measure	(7)	(10)	(21)	(16)	(22)
Non hemispheric brain wave analysis (5)		1	3		1
Hemispheric lateralisation (8)		1	5	1	1
Pupillary response (8)	6	2			
Electrodermal analysis (16)	1		5	5	5
Voice pitch analysis (4)		2	2		
Heart rate response (5)				1	4
Vascular activity (2)			2		
Facial muscle activity (4)			1	1	2
Eye movement analysis (19)		4	3	8	4
Brain imaging analysis (5)					5

Adapted from Wang and Minor (2008).

Of the ten methods reviewed, three measures (non hemispheric brain wave analysis, hemispheric lateralisation, and brain imaging analysis) relate to the central nervous system (CNS), five measures (pupillary response, electrodermal analysis [skin

conductance], voice pitch analysis, heart rate response, and vascular activity [blood pressure] relate to the autonomic nervous system (ANS), and two measures (facial muscle activity and eye movement analysis) relate to the somatic nervous system (SNS). As can be seen in Table 3.1, the number of marketing publications employing psychophysiological methods increased from the 1960s to the 1980s. From this point, the popularity of certain measures oscillated until the 1990s, and the number of publications using psychophysiological measures decreased altogether (Wang & Minor, 2008). Overall, this decline was attributed to issues of validity, reliability, and applicability.

From 2000 onwards, however, use of psychophysiological measures by marketing researchers has seen substantial resurgence. Non hemispheric brain wave analysis, hemispheric lateralisation, facial muscle activity, eye movement analysis, and electrodermal analysis are still used by marketing researchers, with heart rate analysis and brain imaging analysis used in a growing number of studies.

For the purposes of the current study, a subset of these measures was considered on grounds of practicality and availability at the time of data collection. These measures will be discussed in the following section.

3.4 Physiology of humour

3.4.1 Measures of arousal

Heart rate (HR)

The activity of the heart is often measured as a reflection of emotional arousal. This is because the cardiovascular system is regulated by a multitude of subsystems that are affected by central and peripheral influences, rendering it sensitive to

neurobehavioural changes (Berntson, Quigley, & Lozano, 2007). The heart is innervated by both the sympathetic (SNS) and parasympathetic nervous systems (PNS), meaning that HR can index emotional arousal as well as attention. Emotional arousal is indexed when there is an increase in cardiac sympathetic activity, resulting in increased HR. In contrast, attentional engagement is indexed when there is an increase in cardiac parasympathetic activity, resulting in a decreased HR (Lang et al., 2009; Ravaja, 2009; Ravaja et al., 2005; Ravaja, Saari, Turpeinen, et al., 2006).

Heart rate activity can be captured using a range of measures including heart rate (HR), interbeat interval (IBI), and heart rate variability (HRV). HR was used by Mandryk, Inkpen and Calvert (2006) when testing the efficacy of physiological data to evaluate user experience with video games. They found an interaction between game difficulty and level of player expertise, such that there was no difference in HR in expert players, but in novice players HR was higher in the easy condition than the beginner, medium, or hard conditions. In semi-experienced players HR was higher in the difficult condition than the beginner or easy conditions. The researchers suggested that HR increases were associated with positive affect—hence HR increased when the players engaged in the game at their most appropriate level.

Whereas HR is simply a measure of the frequency of heartbeats, interbeat interval (IBI), as the name suggests, measures the time between heartbeats. When HR increases, IBI decreases, suggesting increased SNS arousal. IBI is a preferable measure to HR, as the relationship between PNS activity and IBI is somewhat linear (Ravaja, 2004). Ravaja et al. (2005) used IBI as a part of a study examining emotional enjoyment and arousal to different video game events. They found IBI decreased (i.e., HR increased) in response to

a positive game event. However, they also found a simultaneous decrease in skin conductance. Because skin conductance reflects cardiac sympathetic activity, the researchers deduced that the increase in HR was related to a reduction in parasympathetic activity, that is, a *reduction* in attentional engagement, in contrast to the findings of Mandryk et al. who, in their study, deduced increased HR related to positive affect. These two examples illustrate how in the published literature low arousal has been associated with HR that increases and decreases thereby making HR a very ambiguous measure of sympathetic nervous system arousal (Bernston, Cacioppo, & Quigley, 1993).

This interpretive ambiguity is the major caveat of using HR as a measure. It is particularly problematic when using experimental stimuli that are both attentionally engaging and emotionally arousing—properties inherent to media presentations. To address this, Potter and Bolls (2012) suggest HRV be used to distinguish parasympathetic from sympathetic activation. However, in order to do this, ECG leads need to be attached to the body in a way that is possible only with students, making this method impractical with a more encompassing population.

Skin conductance

Electrodermal activity (EDA), or skin conductance, is a commonly used measure of arousal due to its validity and reliability (Wang & Minor, 2008). In fact, as can be seen in the summary of psychophysiological measures (Table 3.1), it is the most consistently used physiological measure since the 1980s. When a person becomes aroused the sympathetic nervous system (SNS) is activated, leading to an increase in sweat gland activity (Ravaja et al., 2005; Ravaja, Saari, Salminen, et al., 2006). This, in turn, leads to an increase in skin conductance, which is what is measured to ascertain sweat gland

activity (and ultimately SNS activation). EDA specifically measures the activity of the eccrine sweat glands, which are most densely populated on the palms of the hands and the soles of the feet and, unlike the heart, are solely innervated by the SNS (Andreassi, 2007; Lang et al., 2009; Lee & Lang, 2009; Mandryk et al., 2006; Ravaja, 2009; Ravaja et al., 2005).

Studies have shown that EDA is highly correlated with self-reported emotional arousal when viewing pictures (Lang, Greenwald, Bradley, & Hamm, 1993); however, it has been shown as having a tendency to habituate with media requiring longer periods of use (Lang et al., 2009). Another caveat is that electrodes need to be positioned at the correct sites and the environment clean and controlled for accuracy (Stewart & Furse, 1982). On the other hand, because EDA is not dually innervated, it does not carry the interpretative ambiguity of HR as a measure of SNS arousal.

In sum, skin conductance is a widely used measure in the study of audience response, but the data gained from this method is best used to indicate arousal as arousal can be negative or positive in valence (Adams, 2000; Hazlett, 2006; Hazlett & Hazlett, 1999). Therefore, EDA is a sound objective index of emotional arousal that is especially useful when combined with an appropriate measure of enjoyment.

3.4.2 *Measures of enjoyment*

Facial electromyography (EMG)

Facial electromyography (EMG) is the most validated psychophysiological method for differentiating emotional valence (Hazlett, 2006; Hazlett & Hazlett, 1999; Lang et al., 1993). Specifically, sensors are placed over particular muscles that measure the electrical activity that occurs when facial muscles contract to express emotion

(Hazlett, 2006; Hazlett & Hazlett, 1999; Ravaja, 2009). One major advantage of this method is that it can detect minute muscle activity not visible to the eye (Hazlett, 2006; Hazlett & Hazlett, 1999; Larsen et al., 2008). When differentiating emotional valence with facial EMG, it has been established that increased activity of the zygomaticus major (cheek/smile muscle) is related to positive emotion, and increased activity of the corrugator supercilii (brow/frown muscle) is related to negative emotion (Hazlett, 2006; Hazlett & Hazlett, 1999; Mandryk et al., 2006; Ravaja, Saari, Salminen, et al., 2006).

Bolls, Lang, and Potter (2001) tested the validity of facial EMG as a measure of emotional valence in participants listening to positively and negatively valenced radio messages. It was predicted that zygomaticus muscle activity would increase during positively valenced messages compared to negatively valenced messages, and that corrugator muscle activity would increase during negatively valenced messages compared to positively valenced messages. Results supported these predictions, with zygomaticus muscle activity increasing significantly (and corrugator muscle activity decreasing slightly) during positively valenced radio messages. Also, as predicted, corrugator muscle activity increased significantly during negatively valenced radio messages (while zygomaticus muscle activity decreased slightly). Although the stimuli used in this study were audio only, the researchers believed their results robust enough to generalise across mediums. However, Bolls et al. asserted they were not suggesting the replacement of other methods such as self-report, rather endorsing facial EMG measures as a powerful additional tool in measuring emotion.

Despite this method's success at distinguishing positive from negative emotions, it is not suggested as a way of deciphering discrete emotions (Hazlett, 2006; Hazlett &

Hazlett, 1999). Facial expression decoding by computers (e.g., Affectiva) is a popular measure used currently but, unfortunately at the time of data collection, was not available. Furthermore, TV network researchers have seen that a lack of laughter in a pilot test is a strong indicator of a lack of success. However, laughter alone does not guarantee sitcom success because the importance is on having audiences see the show again. More than laughter is needed for this. Thus an alternative method to distinguish real-time enjoyment was required.

Continuous response measurement – Dial

Tracing emotional processing over the course of an audiovisual presentation is important when deciphering how responses change from moment-to-moment (Abee & Maclachlan, 1994). This is especially important for researchers looking to identify differences between responses to individual scenes. Continuous response measurement (CRM) is typically recorded via a handheld dial or slider set to distinguish between increments on a scale, usually some form of semantic differential (Potter & Bolls, 2012). CRM is also low in reactivity, nonverbal, immediate, spontaneous, reliable and valid (Abee & Maclachlan, 1994).

CRM records the dynamic variation in participant response during a viewing session via introspective analysis, whereas psychophysiological measures do not require such introspection (Potter & Bolls, 2012). As a result, CRM is beneficial for identifying specific subjective responses to particular parts of a presentation, in contrast to facial EMG, where responses are inferred from facial muscle activity. CRM also offers more detailed information than post-exposure retrospective methods of enquiry, where it is unclear which responses are being reported; for example, the peaks during the

presentation, the globally dominant emotion, or the emotion experienced at the end (Fenwick & Rice, 1991; Abeele & Maclachlan, 1994).

Abeele and Maclachlan (1994) aimed to validate CRM by correlating it with skin response. Their rationale was that EDA is an objective measure of arousal unbiased by emotional, cognitive or verbal barriers, and therefore a good candidate as a validation correlate. In their study, a warmth score represented CRM. This was achieved using a simple method, whereby participants used a pencil to mark a line on a page of paper, moving it to the right when warmth was experienced. Although results were not able to provide convergent validity of the warmth score with EDA, the researchers made interesting suggestions on things to consider when using CRM, such as which intervals to use as the official response. They concluded a pattern of response over time would be preferential, with comparisons being between shapes of patterns rather than individual points of response.

CRM has also been used specifically to measure humour. Woltman Elpers, Mukherjee, and Hoyer (2004) analysed moment-to-moment responses to humour in television advertisements in an effort to assess how moment-to-moment surprise and humour affects the global perception of humour. Moment-to-moment measures were recorded on a computer program that allowed participants to report their responses on a continuous scale using a mouse. What they found was overall humour was rated higher in ads where moment-to-moment surprise preceded moment-to-moment humour. This finding supports the contrast resolution theory of humour, which has the transformation of moment-to-moment surprise into humour as its basis (Raskin, 1985). In addition, their analysis revealed structural elements of humorous ads contributed to the effectiveness of

the ads. These findings support CRM as an effective means of not only measuring moment-to-moment emotional response, but also humour and its structural elements.

3.5 Conclusion

In sum, a most effective way to measure participant response to media is to measure both arousal and valence (to identify the direction of arousal). Heart rate is a commonly used measure of arousal, however, as the heart is dually innervated it is prone to interpretative ambiguity. EDA offers a less ambiguous, simply attained measure of arousal. To measure valence, facial EMG yields reliable results, however at the time of data collection a practical method of measurement was not available. As a result, CRM (dial) was chosen as an effective moment-to-moment measure of valence, which has been shown to be useful in studies involving humour and structural techniques.

Also advantageous is the combination of objective and subjective measures, to ascertain whether the data reported by participants (prone to bias) correlates with their physical responses (unbiased). In addition to the objective measure of EDA, and the subjective measure of dial, a post-exposure survey would provide subjective global measures of enjoyment and arousal, allowing specific questions to be asked, as well as making an interesting correlate to the other measures.

Chapter 4 – Sitcom Humour Techniques

The aim of this thesis is to investigate which elements are included in successful sitcoms. As no one theory or technique is likely to be the explanation, it is logical to draw from a combination. This chapter explains the developmental process of the sitcom humour coding typology used to identify a list of potential independent variables for the following statistical analysis. Firstly, previous humour coding schemes by Berger (1976) and Buijzen and Valkenburg (2004) are reviewed, as well as their shortcomings for capturing humour contained in sitcoms. Secondly, the process of devising a new sitcom-specific typology is detailed. For this, Berger's typology was used as a basis, over three phases of development. Phase 1 involved adopting appropriate techniques from both Berger and Buijzen and Valkenburg, Phase 2 involved the addition of new original sitcom-specific techniques, and in Phase 3 the resulting typology was tested with another coder for inter-coder reliability. Finally, reliability-testing results are revealed; verifying the typology is ready to be used in the experimental study.

4.1 Review of previous schemes

Despite the lack of research into the specific techniques of humour, scholars, psychologists, and philosophers have tried to understand what makes people laugh. As a result, various humour theories have been developed and although scholars may not agree on which is the most viable, there is current consensus that these theories may be complementary (Buijzen & Valkenburg, 2004). In order to investigate the relationship between theories it is necessary to identify humour types derived from all the main theories contained in works of humour. However, to date, research using categorised

humour types is limited. The most extensive typology was originally put forth by Berger (1993) in 1976. Berger's typology is unique in that it uses techniques from across the main humour theories. The basis of Berger's typology is that individual humour techniques may be used not only on their own, but also in combination with others regardless of which theory they stem from. In fact, rather than being contradictory, it is the combination of humour types that serves to generate humour (Buijzen & Valkenburg, 2004).

Berger's aim was to identify humour types in order to categorise them, and for this purpose he analysed jokes. He cites two reasons for this; the first being for ease and simplicity, the second being that jokes enable direct and immediate use of humour (1993). Berger asserts that because humour is incredibly complex, many mechanisms may be active at one time, and while some techniques may not be funny when used in isolation, they work when used in combination with other techniques. However, he points out that one mechanism is usually dominant. Berger's method was to name as many humour techniques as possible, with emphasis on what is generating humour rather than why it is funny (1993). Berger focused on techniques because he asserts it is not the content or subject matter that is funny, but rather the way that content is presented.

In Berger's classification scheme, reversals (or opposites) of techniques were treated as the original humour technique. For example, both exaggeration and its reversal, understatement, were coded as the technique exaggeration. The typology comprises four basic categories — language (verbal humour), logic (ideational humour), identity (existential humour), and action (physical or nonverbal humour), with individual humour

techniques contained within these categories. Berger insists his typology (as seen in Table 4.1) is comprehensive, and that the 45 humour techniques are mutually exclusive.

Table 4.1. Berger's (1976) humour typology – 4 categories/45 techniques

Language	Logic	Identity	Action
Allusion	Absurdity	Before/After*	Chase
Bombast	Accident*	Burlesque*	Slapstick
Definition*	Analogy*	Caricature*	Speed
Exaggeration	Catalogue	Eccentricity	Time*
Facetiousness*	Coincidence	Embarrassment	
Insults*	Disappointment	<i>Exposure</i>	
Infantilism	Ignorance	Grotesque	
Irony	Mistakes*	Imitation	
Misunderstanding	Repetition	Impersonation	
Overliteralness*	Reversal*	Mimicry*	
Puns, word play	Rigidity	Parody	
Repartee	Theme/Variation*	Scale	
Ridicule		Stereotype	
Sarcasm		Unmasking*	
Satire			

**Items not used by Buijzen & Valkenberg (2004)*

Berger elicited his techniques by way of a “content analysis of all kinds of humour in various media” (p.18, 1993). (He does not distinguish which kinds of media.) Despite this, in 2004 when Buijzen and Valkenburg were looking to identify humour used in audio-visual material, they found it necessary to adapt and amend Berger’s typology. As a result, the original typology was honed to make it more appropriate.

Hence, a number of items were dropped from the original typology, as depicted in Table 4.1.

Table 4.2. Buijzen & Valkenburg's (2004) humour typology - 8 categories /41 techniques

Slapstick	Surprise	Irony	Clownish humour
Slapstick	Conceptual surprise*	Irony	Clownish behaviour*
Peculiar face*	Visual surprise*	Sarcasm	Anthropomorphism*
Peculiar voice*	Transformation*	Embarrassment	Speed
Coincidence	Exaggeration	Puns	Chase
Clumsiness*		Scale	
Stereotype			
Ridicule			
Malicious pleasure*			
Repartee			
Satire	Misunderstanding	Parody	Miscellaneous
Satire	Misunderstanding	Parody	Imitation
Irreverent behaviour*	Ignorance	Bombast	Impersonation
Outwitting*	Disappointment	Rigidity	Eccentricity
Peculiar music*	Peculiar sound	Absurdity	Sexual allusion
		Infantilism	Repetition
			Grotesque appearance

**New items not included in Berger's original typology*

4.1.1 *Buijzen and Valkenburg's scheme*

Buijzen and Valkenburg's typology contained 8 categories, which are defined as follows (the number of individual items contained within each category is in parenthesis, and a complete listing can be seen in Table 4.2):

- **Slapstick** (9) – Physical pie-in-the-face humour, often degrading.
- **Surprise** (4) – Sudden changes of concepts and images.
- **Irony** (6) – Meaning the opposite to what is being expressed.
- **Clownish behaviour** (6) – Exaggerated physical behaviour.
- **Misunderstanding** (4) – Misinterpreting a situation.

- **Parody** (5) – Imitating a style or genre.
- **Satire** (5) – Making fun of well-known things, situations, or people.
- **Miscellaneous** (8)

4.1.2 *Adaptation of Berger’s typology for audio-visual media*

Specifically, the purpose of Buijzen and Valkenburg’s typology was to distinguish humour techniques used in television advertisements aimed at different audience groups. The adaptation process from Berger’s typology involved two stages. The first was a review of research into the humour preferences of various age and gender groups, and the second was an inductive analysis similar to Berger’s method, this time analysing audiovisual media instead of jokes. The researchers considered commercials the audiovisual equivalent of jokes in that they are short with complete storylines that can be accessed directly.

For the purposes of coding humour, the main shortcoming of Berger’s typology is that audiovisual media may contain a much wider variety of humour types and techniques than verbal narratives. The definitions of techniques also change when shifting from verbal narratives to audiovisual material. In addition, Berger’s study focused on humour aimed at adults, whereas Buijzen and Valkenburg aimed to address humour aimed at all age groups. Consequently, the revised typology contains a number of marked changes — 16 techniques from the original typology were discarded, 12 new techniques were added, and categories were completely revised. In sum, the transition from the original typology saw a reduction from 45 to 41 techniques, and an expansion from 4 to 8 categories.

4.1.3 *Development of new humour categories*

Berger categorised techniques into language, logic, identity and action, and developed these categories by way of a top-down, inductive analysis of humorous material. Buijzen and Valkenburg, on the other hand, used bottom-up statistical analysis to investigate how their techniques clustered into higher order categories. Over a number of principle component analyses for categorical variables (CATPCA), seven humour categories were arrived at, with six items that did not load exclusively onto a category placed into a miscellaneous group.

Berger's top-down method ensured techniques were grouped logically and theoretically. As a result, his original typology does not contain a miscellaneous category as in the Buijzen and Valkenburg typology. This suggests that a bottom-up approach can categorize humour techniques differently from how they would be grouped logically, from the perspective of both the creator and the audience. For this reason, Berger's four theoretical categories were used as the basis for the current typology, with the addition of techniques that capture humour in audio-visual media. To accomplish this, techniques from Buijzen and Valkenburg's typology were added, as well as new original techniques.

4.2 **New Coding Scheme for Sitcoms**

4.2.1 *Development of sitcom coding instrument procedure*

The humour categories created by Berger were used as the foundation on which to develop an instrument to code sitcoms. As discussed above, the purpose of the original typology was to analyse jokes and, as a result, it needed to be adapted for coding television programs. Applicable humour techniques from the Buijzen and Valkenburg

typology were added into appropriate categories and new techniques were developed. In this way, the new instrument would be a blend of the two typologies in methodology, while being aimed at coding humour techniques unique to the sitcom format.

4.2.2 *Phases of development*

Basis

A typology was prepared for sitcom coding using theory and previous research. When developing their typology, Buijzen and Valkenburg adopted 28 of Berger's humour techniques by way of inductive analysis. As a foundation for the current typology, Berger's original four humour categories (Language, Logic, Identity, and Action) were represented, including only those 28 Berger techniques that Buijzen and Valkenburg deemed appropriate for audio-visual material.

Phase 1

From here, in phase 1 of amendment, the Berger techniques considered relevant for coding sitcoms were kept. A total of 17 techniques were not included because they either were considered not relevant to coding sitcoms, or represented by other techniques. For instance, three of Berger's four Action techniques Chase, Slapstick, and Speed were grouped convincingly by Buijzen and Valkenburg under the category "clownish humour," and this category can be summarised by a single technique, Clumsiness, identifying the presence of physical humour ("lacking dexterity or grace," Table 4.5). Another problem applying Berger's joke techniques to sitcoms is that images are necessarily moving images, involving action as well as appearance. For example, one Berger technique from the Identity category, Grotesque appearance, was renamed

Repulsive behaviour, and because it now related to behaviour, it was relocated to the Action category.

Six techniques developed by Buijzen and Valkenburg (Conceptual surprise, Outwitting, Malicious pleasure, Peculiar face, Peculiar music, and Clumsiness) were added into appropriate categories bringing the total number of techniques to 17.

Phase 2

At this stage, there were still areas that needed capturing, so five new original sitcom-specific techniques were added—Wit, Caught out, Condescension, Deceitful behaviour, and Self-deprecation. Caught out (“unexpectedly get caught while wrongdoing or saying something reprehensible”) was added as it reflected sitcom behaviour not covered, in Berger’s sense, by the reverse of Buijzen and Valkenburg’s technique, Outwitting (“outsmarting someone or the establishment by retort, response, or comeback”). Both of these were included in Berger’s Logic category. Definitions of all these new techniques are included in the coding sheet at the end of this chapter (Table 4.5). Examples of new original techniques are contained in Appendix A. The final typology (Table 4.3) included four categories and 22 techniques, which were tested for reliability during the next phase of development.

Table 4.3. New typology for sitcoms – 4 categories/22 techniques

Language	Logic	Identity	Action
Allusion	Absurdity	Parody	Peculiar face†
Irony	Coincidence	Rigidity	Peculiar music†
Puns	Conceptual surprise†	Malicious pleasure†	Clumsiness†
Repartee	Outwitting†	Condescension*	Repulsive behaviour
Ridicule	Caught out*	Deceitful behaviour*	
Wit*	Misunderstanding	Self-deprecation*	

*New technique created for this study

†Buijzen & Valkenburg technique

Phase 3

In phase 3 of development, another coder was enlisted to test the typology for inter-coder reliability. A variety of popular US sitcoms aired in Australia over the period 2007–2009 were used as stimuli. To begin with, the two coders watched a selection of sitcoms together whilst coding and discussed the humour observed in the sitcoms in relation to its representation on the coding sheet. When an instance of humour appeared that contain multiple techniques, the program was paused while the coders discussed the humour techniques in relation to their representation on the coding sheet. The unit of analysis was also discussed. Throughout this process, amendments were made to the coding sheet before the coders went away to separately code a number of programs. The coders then separately coded this first batch of programs. Agreement on the independently coded techniques was calculated to evaluate the reliability of the final coding scheme.

Table 4.3 shows the final version of the coding scheme that was used in the third (reliability testing) phase of this process. The final scheme has four categories (adopted from Berger), as opposed to the eight used by Buijzen and Valkenburg (2004). The scheme has 22 techniques, 19 less than the 41 used by Buijzen and Valkenburg (2004).

Six Buijzen and Valkenburg techniques were adopted for this scheme, while five new techniques were added, developed specifically for this study to code unique aspects of sitcom humour. The following sections describe each of the four categories and their new techniques.

4.3 Inter-coder reliability

4.3.1 *Sitcom selection*

Two sitcoms, *Modern Family* (ABC) and *The Office* (NBC) were used for the first stage of Phase 3, identifying the average level of reliability for the codes refined in Phase 2. After revising the code definitions, the final reliability test involved coding two episodes each of four different sitcoms: *Scrubs* (NBC/ABC), *Will and Grace* (NBC), *How I Met Your Mother* (CBS), and *Two and a Half Men* (CBS). All programs had been aired on Australian television and were 20 minutes long.

4.3.2 *Unit of analysis*

To analyse the coding sheet for reliability, thought had to be given to its purpose, or more specifically, the way the sheet would be used with the biometric data collected in the main analysis. Coding every single instance of humour over a 20-minute program was impractical for analysis and the resulting data would only represent frequency of technique use. As the data was to be used in conjunction with event-related skin conductance response, it would be difficult to ascertain which responses relate to techniques occurring less than 10 seconds apart, because of the 3-second delay generally involved in psychophysiological measures (Potter & Bolls, 2012). Furthermore, from a

theoretical view, it is questionable how much underlying meaning can be contained in such small segments.

4.3.3 Beats

According to McKee (1997), beats are exchanges of ‘action/reaction in character behaviour’ (p.258). McKee, who uses beats as a component of scene analysis, qualifies each beat’s sub textural action with a verb or active phrase, such as ‘begging’ or ‘wanting her to stay’. The moment this sub textural action changes, for example, from ‘begging’ to ‘threatening to leave’, the beat is over. Originally, it was decided separating sitcoms into beats for the unit of analysis was less problematic and less ambiguous (for psychophysiological research) than marking each humour technique. However, once segmenting the shows had begun, it was evident this was not the case as faster paced shows such as *Modern Family* and, in particular, *The Office*, contained many more beats than humour techniques. This posed an issue for psychophysiological analysis, as many beats were less than 10 seconds long.

4.3.4 Scenes—by theme

The next level of analysis from a beat, according to McKee, is a scene. Beats are contained within scenes. McKee (1997) defines a scene as “an action (...) in more or less continuous time and space” (p.35). But using scenes by this definition for humour technique analysis is ambiguous because there are sometimes a few different stories (and related humour techniques) that can occur in the same time and space within a scene. For example, in the sitcom *Friends*, overlapping stories often occur simultaneously as the cast sit down to coffee in their usual café. This is because sitcoms have a history of being filmed on a set in front of a live audience.

Apart from the issue of multiple stories happening in the same time and space, there lies the problem of the same story (and related humour techniques) carrying over into multiple times or spaces. For example, Figure 4.1 displays the beginning of the episode ‘Todd Packer’ of *The Office*. Here, one character mockingly asks another a question in the staff lunchroom while the other staff members are present. He repeats this question over a number of time frames until they are alone and it is much later. In this case, the topic is the same but time changes as a part of the joke. The humour revolves around this time change, so to class each time-changed setting as a new scene serves no purpose theoretically and only complicates the data analysis.



Figure 4.1 Three screenshots of example segment from *The Office* that illustrates why scenes are best defined by changes in topic rather than changes in time or space.

To address this problem, as well as make it more meaningful from an audience response perspective, the shows were segmented into scenes by topic. That is, as long as the characters were talking about or the scene revolved around the same topic, it was classed as a scene. This also makes sense for the humour techniques, as jokes relate to a particular topic. In this thesis, topic segments were named scenes by this definition.

When sectioning sitcoms into scenes by topic, there were problems again to do with very short scenes. *The Office* and *Modern Family* often have short bursts (a couple of seconds long) of a theme that continues throughout the show incidentally thrown in

amongst other longer scenes. A way around this was to keep the main scene by topic as a whole, and make a note if these contained short topic bursts when coding humour techniques. This covers the psychophysiology prerequisites and also satisfies the theoretical aspect.

4.3.5 *Coding procedure*

Programs were divided into their appropriate scenes before the coders analysed each scene for humour techniques. Each scene could contain many instances of humour, but were only coded for each type of humour once. Each type of humour was coded as being present (1) or absent (0).

4.3.6 *Reliability analysis*

To ascertain inter-coder reliability statistically, Krippendorff's alpha was selected because it is widely recognised as the most rigorous test for content analysis as it incorporates agreement by chance as well as the magnitude of non-agreements (Krippendorff, 2011). For robust reliability, Krippendorff's alpha requires a cut off level of 0.8, with items achieving outcomes between 0.667 - 0.8 considered for tentative conclusions (Krippendorff, 2004). After coding the first two programs (two episodes each of *Modern Family* and *The Office*) the coders came together to assess their findings. For the two episodes of *Modern Family* the percentage agreement was 96%. However, the Krippendorff's alpha level was only 0.58. Likewise, for the two episodes of *The Office*, the percentage agreement was 96%, with a Krippendorff's alpha level of 0.66. These alpha levels are not considered satisfactory for reliability, so discussion was carried out between the coders and amendments were made until consensus was achieved.

Coding then commenced of a new batch of shows, comprising 215 scenes across 8 programs (listed above). The overall percentage agreement calculated was 96%. Table 4.4 displays the statistics for each technique coded in the final analyses. No technique fell below the .667 cutoff for exploratory analysis (the lowest was Conceptual surprise, $\alpha = .67$). Half (11) of the 22 techniques had reliabilities above the recommended .80 level.

Table 4.4

Inter-coder reliability statistics for scenes coded by each individual program (8 programs, 215 scenes coded in total).

Humour technique	Percent agreement	Krippendorff's α
Malicious pleasure	98%	0.89
Ridicule	94%	0.72
Condescension	98%	0.88
Deceitful behaviour	94%	0.79
Peculiar face	99%	0.85
Peculiar music	99%	0.75
Clumsiness	99%	0.82
Repulsive behaviour	98%	0.79
Conceptual surprise	93%	0.67
Coincidence	100%	1.00
Irony	96%	0.75
Absurdity	97%	0.82
Outwitting	97%	0.76
Caught out	98%	0.90
Misunderstanding	98%	0.74
Parody	95%	0.68
Rigidity	97%	0.76
Self-deprecation	100%	0.89
Sexual allusion	97%	0.88
Pun	98%	0.87
Repartee	99%	0.82
Wit	95%	0.68

At this point the typology was considered ready for use in the main analysis.

Table 4.5 displays the final 22 techniques with definitions. Some of the definitions derived directly from the original typology by Buijzen and Valkenburg (2004), while others were produced from observations and discussions made during the coding process.

4.4 Conclusion

This chapter reviewed both Berger's joke typology, and Buijzen and Valkenburg's advertisement typology, and explained how neither typology was sufficient to code humour unique to the sitcom format. As a result, applicable techniques were adopted from these schemes, and new original techniques were added to come up with a sitcom-specific humour typology. This typology was tested with another coder for inter-coder reliability, and it was revealed the typology is theoretically sound, practically easy, and reliable. Hence, the typology is ready to be used to code the data used in the main analysis.

Table 4.5 Sitcom humour typology definitions (examples of new items in Appendix A)

Humour Technique	Short Description
Absurdity	Nonsense, a situation that goes against all logical rules
Allusion	Indirect reference
Caught out	Unexpectedly get caught while wrongdoing or saying something reprehensible
Clumsiness	Lacking dexterity or grace
Coincidence	A coincidental and unexpected occurrence
Conceptual surprise	Misleading the audience by means of a sudden unexpected change of concept
Condescension	Displaying arrogance by patronising those considered inferior
Deceitful behaviour	Being deliberately misleading, concealing or distorting the truth
Irony	Saying one thing and meaning something else or exactly the opposite of what you're saying
Malicious pleasure	Taking pleasure in other people's misfortune; victim humour
Misunderstanding	Misinterpreting a situation
Outwitting	Outsmarting someone or the establishment
Parody	Imitating a style or a genre of literature or other media
Peculiar face	Making a funny face, grimace
Peculiar music	Funny, unusual music (when not as part of program structure)
Pun	Playing with the meaning of words
Repartee	Verbal banter, usually in a witty dialogue
Repulsive behaviour	Offensive, aversive, disgusting behaviour
Ridicule	Making a fool of someone, verbally or nonverbally
Rigidity	Someone who thinks along straight lines, who is conservative and inflexible
Self-deprecation	Expressing something negative about oneself
Wit	Ingenious humour

Chapter 5 – Methods

The previous chapter discussed the identification of humour techniques relevant to television sitcoms, and the process of developing a reliable way of coding for the presence/absence of these techniques. These techniques were the independent variables used in the quantitative analysis reported in Chapter 6. This chapter discusses the other materials and methods used in this thesis. The chapter begins by describing the data set used for the analysis, which was secondary data collected for another purpose by the Disney Media & Advertising Lab in Austin, Texas. The dataset included biometric measures of emotional arousal and a continuous self-report (dial) measure of emotional enjoyment (liking), for the most popular sitcoms on the four major US television networks. These continuous measures were first separated into scenes, to align with the technique-coding analysis, and summary measures of these variables were calculated for each scene. These summary measures were the dependent variables in the quantitative analysis reported in Chapter 6.

5.1 Dataset

The American Broadcasting Company (ABC) collected the dataset used in this study for an unrelated study, looking at advertising effectiveness across four competing television networks (ABC, CBS, NBC, FOX) across three genres of television programs (comedy, drama, unscripted). Program response data during the entire session were recorded. Participants were told that they were to evaluate two recent episodes of a prime time television program. The data analysed in this thesis are the subset in which participants viewed comedy programs.

5.2 Participants

Participants were recruited from a panel of volunteers from the general public in Austin, Texas, and received a \$30 gift card for their involvement in the study. The final sample of the comedy-only subset comprised 62 females and 47 males ($N = 109$). Ages ranged between 19 years – 50 years. The imbalance of males to females arises from the gender split contained in the original dataset, which reflected the intended population of the study (the ABC audience). Despite this split, only *Modern Family* (ABC) was affected (females = 19, males = 10), with the remaining three shows containing more even gender numbers; *Big Bang Theory* (CBS, females = 15, males = 12), *Family Guy* (FOX, females = 15, males = 13), and *The Office* (NBC, females = 13, males = 12). Most of the participants had seen their assigned program before: *Big Bang Theory* = 88%, *Family Guy* = 97%, *Modern Family* = 86%, and *The Office* = 97%. Most, however, had not seen their assigned episodes: *Big Bang Theory* = 36%, *Family Guy* = 27%, *The Office* = 31%, except for those viewing *Modern Family* = 51%. Because this dataset was from secondary data, it was not possible to control sample sizes.

5.3 Design

Participants were randomly assigned into one of 4 rotations. The experimental design was between-subjects, with participants viewing two episodes of one program, with advertisements between and throughout the episodes. Each viewing session lasted approximately 60 minutes, followed by a post-session computer survey that lasted between 15 and 20 minutes.

5.4 Procedure

Participants were invited to participate by email. On arrival at the lab, they were greeted at reception and administered an information sheet, consent forms, and a physiological screening form (see Appendix B). The physiological screening form assessed whether the participant could be used safely for biometric recording, and whether their data might be biased by drugs that affect emotional response (Andreassi, 2007). On completion of the forms, participants were assigned a badge displaying an ID and seat number. After being escorted to their assigned viewing theatre, participants were asked to take their corresponding seat number. Each theatre had 14 seats available, each equipped with a computer screen and biometric measurement capability, but to separate participants, the maximum group size was nine. An assistant attached electrodes to the participant while explaining their purpose was to monitor skin conductance and heart rate (except where a medical condition prevented this). Participants were then presented with a short tutorial on how to use the dial measure of real-time enjoyment. After fielding any queries, the assistant asked the participants to refrain from talking, eating, and reading during the presentation. The experimental presentation then began automatically.

When the viewing session was over, the assistant returned to remove the biometric leads. Participants were asked to complete the survey on the computer screen on their desk. Once they had completed the survey, they left the theatre and reported to the front desk to check out and collect their payment.

5.5 Stimuli

Programs used in the presentation were the four highest-rating comedy programs across the four primary US networks (ABC, CBS, NBC, FOX). Table 5.1 displays

program and network information. Each stimulus presentation was 60-minutes long and contained two episodes of one program interspersed with four ad pods. Ad breaks were standardized across all programs so that all participants were exposed to the same brands. The advertisements in the pods ranged in duration from 15 – 60 seconds.

Table 5.1 Programs used in experimental stimuli

Program	Network	Episodes
<i>Big Bang Theory</i>	CBS	The Toast Derivation/The Boyfriend Complexity
<i>Family Guy</i>	FOX	Business Guy/Family Goy
<i>Modern Family</i>	ABC	Regrets Only/Two Monkeys and a Panda
<i>The Office</i>	NBC	Todd Packer/China

5.6 Measures

5.6.1 Scenes

Shows were segmented into scenes based on topic — as long as the characters were talking about (or the scene revolved around) the same topic; it was classed as a scene. Scenes could vary in duration. Also, scenes could contain no humour techniques, or one or more humour techniques.

5.6.2 Humour techniques

Based on theory and coding procedures outlined in the previous chapter, 22 individual humour techniques were established as being potentially instrumental in the use of humour in successful sitcoms. These techniques were distributed across four humour categories adopted from Berger’s original humour typology (1976). Techniques were mutually exclusive, and more than one technique could appear during any scene.

Using a spreadsheet, sitcoms were first segmented into scenes by topic, and then each scene was coded for the presence or absence of the 22 humour techniques. Scenes were coded for humour techniques with techniques coded only once if they appeared. This was not only more manageable for the inter-coder analyses, but also made it possible to correlate techniques with biometric data. Additional information such as plotlines, characters and narrative structure was recorded. Also, to measure the length (journey) of the biometric trace during each scene, scenes were divided into 10 equal divisions.

5.6.3 *Session timelines*

The beginning and end points of each scene were coded as markers into a timeline used to analyse the biometric data.

5.6.4 *Arousal*

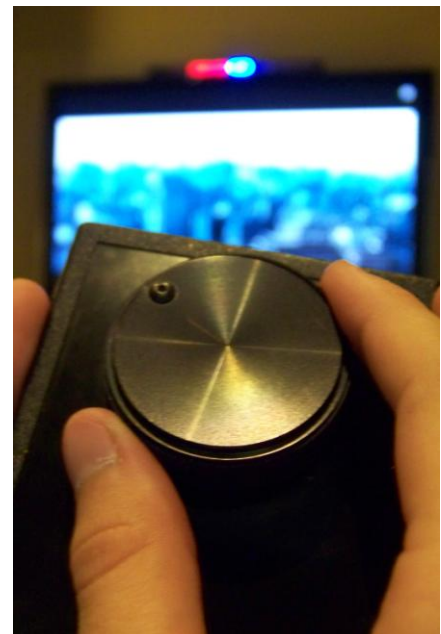
To indicate psychophysiological arousal, electrodermal activity (EDA) was measured using disposable electrodes specifically made for this purpose. Electrodes were placed on the medial phalanges of the first and second fingers of each participant's non-dominant hand. The resulting data were recorded with a Biopac MP35 using AcqKnowledge software (V.4.1, Biopac, USA) and stored on a personal computer for later analysis.

Prior to analysis, the recorded EDA activity waveform was filtered to remove high frequency artefacts caused by movements. Average EDA level was measured during whole scenes and during each of the 10 segments within each scene in microSiemens. Files of participants who indicated on their consent forms that they had consumed caffeine, emotional-response-affecting medication, or had an emotional-response-

affecting medical condition on their consent forms were screened from analysis, as well as files that contained bad data. Six files were excluded due to response-affecting medical histories or medication use (5.5% of total sample, 109), and 24 files contained bad data (22%). This left a total of 83 usable files. The necessary deletions did not adversely affect the gender split in the EDA subsample (females = 46, males = 37), nor the age range (19 – 50 years). To control for individual differences in emotional responsiveness (e.g., younger people tend to have larger EDA responses), the mean for each scene, and for each of the 10 segments of each scene (across participants) was calculated and then transformed into individual Z-scores. As a result, the transformed data indicated each participant's amount of change, in standard deviations, from their own individual mean throughout the viewing session.

The processed data were copied into an Excel spreadsheet. One spreadsheet for each program was made containing all participant files for that show. These sheets were then analysed by PASW (18.0). Durbin Watson analysis revealed an autocorrelation issue with the scene-level EDA mean. As a solution, a new variable was created that averaged across the negative and positive (not absolute) sequential differences between the 10 segment-level means for each scene. This new variable eliminated the autocorrelation issue and was used in all subsequent analysis.

Figure 5.1 Dial used by participants to capture enjoyment



5.6.5 *Enjoyment*

A continuous real-time measure of enjoyment was captured using a dial that indicated positive or negative valence, as can be seen in Figure 5.1. The dial set at zero indicated neutral liking, and extended to +3 (extreme positive) and -3 (extreme negative), with increments of 1. A tutorial on how to use the dial, with a test of the levels, was completed prior to the presentation.

As with the EDA files, the mean for each scene, and for each of the 10 segments of each scene, was calculated and then transformed into individual Z-scores in preparation for analysis.

5.6.6 *Arousal journey*

Because using the mean alone as a measure of continuous responses misses much of the information contained in such rich data, the use of another measure that captures variance within scenes was required. Since 2011, Dr. Duane Varan has incorporated Arc Length as a key measure for continuous data associated with audience response at the Disney Media & Advertising Lab in Austin, Texas. Arc length of each scene was used to

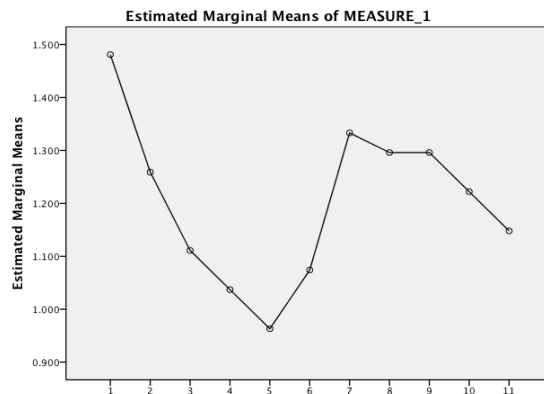
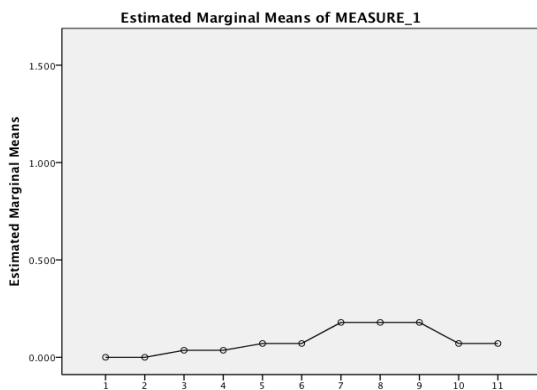


Figure 5.2 Example of short and long arousal journey (arc length)

capture the journey of peaks and troughs made by each participant's responses. In terms of sitcom success, this variability may be more predictive as it indicates the eventfulness of audience experience. 5.2 illustrates the difference between long and short arc length in arousal (EDA) levels. The first diagram depicts a short arc length, with very little up and down movement, while the second depicts a wavelength with more peaks and troughs, indicating a longer distance (more variance). Two participants could have the same average EDA for a scene, but very different arousal journey lengths.

As previously mentioned, to make scenes comparable despite the differences in their duration, each scene was divided equally into 10 segments (11 data points per scene). Instead of using calculus to measure the true arc length, which would require customized calculation of derivatives, a very close approximation was calculated using Pythagoras's theorem ($z^2 = x^2 + y^2$). The baseline segment (x) was always defined as one unit in length, although the actual length in seconds could vary. The height (y) was the change in response over the duration of the segment.

5.6.7 *Enjoyment journey*

Enjoyment journey was calculated in the same manner as arousal journey, using the dial data.

5.6.8 *Survey*

After viewing the program, participants completed a survey that included program evaluation questions (e.g., "How would you rate your enjoyment of this episode?"; "How likely are you to watch *The Office* after today?") on a 7-point scale. Other questions

pertaining to attitudes and feelings towards characters and the shows themselves were answered on a 10-point scale.

5.6.9 *Covariates*

Tests were conducted on the four shows for potential covariates on subsequent analyses. Demographics tested were gender, age, occupation, education, and income. Results revealed no significant differences between groups, indicating successful random assignment.

5.6.10 *Fan mean*

Because participants were randomly allocated to shows, fandom was used as a covariate. Participants were asked whether they were a fan of their assigned show on the post-exposure survey (“How much of a fan are you of this show?”). The answer was recorded on a 10-point scale (1 = “Not a fan” to 10 = “Super fan”).

5.7 **Final data set**

The final data set contained 169 rows (the scenes from each episode), which were the object of analysis rather than participants. Contained in each row were humour techniques information, survey data, and biometric data.

5.8 **Analysis**

According to Crawley (2005), the most effective regression model-building strategy includes all factors to account for all effects (e.g., correlations between variables), then removes terms until the model contains nothing but significant terms. For this reason, a multiple regression analysis using stepwise backward elimination was used to investigate whether individual humour techniques significantly affected arousal,

enjoyment, and arousal journey and enjoyment journey measures. The shows used in the experimental presentation, and the mean fan ratings provided by participants on the post-exposure survey were used as control variables.

Chapter 6 – Results

This chapter provides the empirical results for the investigation of which specific humour techniques improve program enjoyment and therefore increase ratings for sitcom programs. First, it provides descriptive data about the unit of analysis used for these results: individual scenes within programs, rather than programs in their entirety. Second, it shows that while only four programs provided data for these analyses, these programs contained a diverse range of scenes, featuring instances of every type of humour technique. Third, the chapter then introduces the four dependent variables that were analysed, showing why all four are needed, how they differ from each other and how they can be interpreted, based on their inter-correlations and correlations with other variables. Finally, the chapter presents the main results, four separate regression analyses, one for each dependent variable, in which humour techniques are the independent variables, controlling for covariates such as program fandom (important as participants were forced to watch programs they may not have watched at home). The implications of these findings will be discussed in the next chapter.

6.1 Unit of analysis — Scenes by topic

As discussed in the previous two chapters, scenes were chosen as the most appropriate level of analysis for this study. Table 6.1 displays descriptive information about the average scene, for each program individually, and aggregating across the four programs. The total dataset consists of 169 scenes (rows), equally contributed from all four programs ($\chi^2(3, N = 169) = 4.988$, exact $p = .174$). Each episode contained an

average of 21 scenes, and since each episode was 21 minutes long (without ads), each scene lasted just under 1 minute on average ($M = 57.61$ s). Each scene featured on average just over 3 different humour techniques ($M = 3.38$).

Table 6.1 Descriptive statistics of scenes (standard deviations in parentheses)

Program	<i>Big Bang Theory</i>	<i>Family Guy</i>	<i>Modern Family</i>	<i>The Office</i>	Total
Scenes	31	42	45	51	169
Scene duration (secs)	76.03 (36.01)	56.00 (26.67)	53.36 (32.76)	51.49 (34.60)	57.61 (33.50)
Scene duration min (secs)	19	10	11	9	12.25
Scene duration max (secs)	168	121	178	207	168.50
Humour techniques per scene (\bar{x})	2.90 (1.54)	1.57 (1.36)	1.31 (1.04)	1.27 (1.17)	3.38 (2.32)
Humour techniques min	0	0	0	0	0.00
Humour techniques max	6	5	4	4	4.75

6.2 Independent variables: Program use of humour techniques

Humour techniques analysis was conducted to investigate whether the small sample of sitcoms used in the current study presented acceptable variability in humour technique use. The frequency of use of each humour technique across programs can be seen in Table 6.2.

As can be seen; humour technique use varied significantly across programs. Discussion of the top 5 humour techniques used in each program follows, with programs listed in descending order of audience numbers when aired. Survey data from the participants in this study were analysed to uncover whether participant responses were in accordance with this ratings information.

Table 6.2 Frequencies of individual humour techniques (by category) used in 2 episodes of each program. Category totals included.

HT	<i>Big Bang Theory</i>	<i>Family Guy</i>	<i>Modern Family</i>	<i>The Office</i>	Total	<i>p.</i>
1. Language						
1.0 Allusion	5	8	3	10	26	
1.2 Irony	5	0	6	1	12	
1.3 Pun	3	0	6	0	9	
1.4 Repartee	6	0	0	0	6	
1.5 Ridicule	9	2	7	4	22	
1.6 Wit	7	4	4	4	19	
	35	14	26	19	94	.000
2. Logic						
2.1 Absurdity	2	12	0	1	15	
2.2 Coincidence	0	1	0	1	2	
2.3 Surprise	8	8	4	3	23	
2.4 Outwitting	2	0	4	9	15	
2.5 Caught out	4	2	4	4	14	
2.6 Misunderstanding	1	0	4	1	6	
	30	28	24	19	75	.000
3. Identity						
3.1 Parody	3	17	1	2	23	
3.2 Rigidity	11	1	0	1	13	
3.3 Malicious Pleasure	6	0	3	2	11	
3.4 Condescension	6	0	3	7	16	
3.5 Deceitful behaviour	3	2	4	8	17	
3.6 Self-deprecation	1	0	1	0	2	
	30	20	12	20	82	.000
4. Action						
4.1 Peculiar face	3	1	1	0	5	
4.2 Peculiar music	2	0	1	0	3	
4.3 Clumsiness	1	1	3	4	9	
4.4 Repulsive behaviour	2	7	0	3	12	
	8	9	5	7	29	.026
Total techniques	179	165	123	132	599	.000

6.3 External validity of participant sample

Of the sitcoms used in the current study, the two episodes of *Big Bang Theory* garnered the highest audience numbers when they went to air. Survey data analysis found that although there was a significant difference in program enjoyment ratings, $F(3, 130) = 8.877, p = .000$, post hoc comparisons using the Tukey HSD test revealed that *Family Guy*'s enjoyment rating ($M = 5.27$) was significantly lower than the enjoyment ratings for the other three programs, *Modern Family* ($M = 6.51$), *The Office* ($M = 6.44$), and *Big Bang Theory* ($M = 6.24$). However, according to ratings, *The Office* gathered the lowest audience numbers.

The reason for the discrepancy between the ratings and survey findings is most likely attributed to the fact that participants were randomly allocated to their viewing conditions, rather than choosing what they would like to watch, as would be the case in a home viewing setting. Analysis of the survey data between fans and non-fans of the shows and enjoyment ratings verifies that participants who were fans of the programs they were assigned to rated their enjoyment as significantly higher than those who were non-fans, $t(32.672) = -5.624, p = .000$. This finding was controlled for in further analyses.

6.4 Most used humour techniques in each program

The following section reveals the humour techniques that appeared most frequently in the two episodes of each program. Programs are presented in order of ratings numbers.

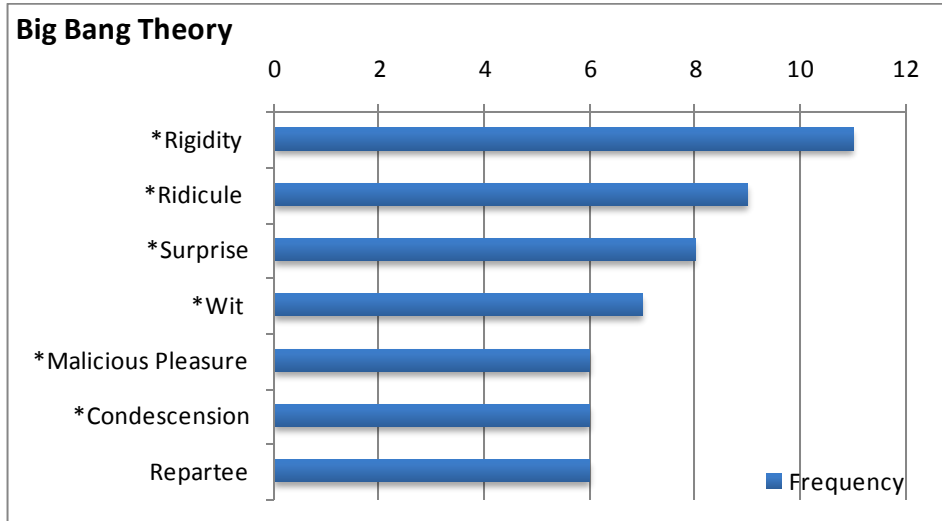


Figure 6.1 Top humour techniques used in 2 episodes of *Big Bang Theory* (asterisks denote significant χ^2 tests).

6.4.1 *Big Bang Theory*

'The Boyfriend Complexity' – 13.022 million viewers

'The Toast Derivation' – 12.349 million viewers

Humour techniques/categories

Big Bang Theory contained the highest use of techniques overall from three categories — Language, Logic, and Identity. In fact, for the use of humour techniques from the Language category, *Big Bang Theory* was considerably higher in comparison to the other three shows. Most-used techniques from this category include Ridicule, Repartee and Wit. *Big Bang Theory* also scored considerably higher in techniques from the Identity category, with Rigidity being its highest scoring technique overall. Since these techniques revolve around wit (Language) and character-based situations (Identity), these findings suggest the show derives most of its humour from witty dialogue, and its characters' idiosyncrasies.

Since *Big Bang Theory* was clearly the most successful program in terms of ratings, these results tentatively suggest that wit, and character-based humour techniques are beneficial when creating a hit sitcom. The show revolves around socially outcast geeks and their relations with other social types, which again serves to highlight the character-based nature of the show.

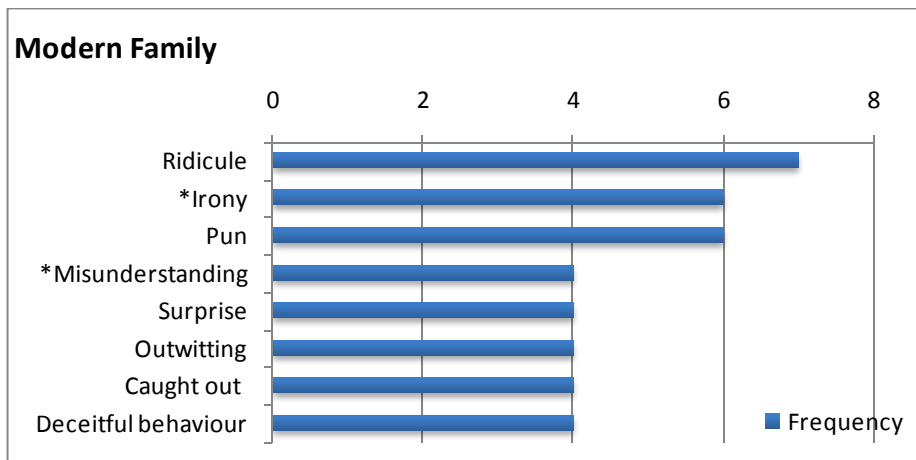


Figure 6.2 Top humour techniques used in 2 episodes of *Modern Family* (asterisks denote significant χ^2 tests).

6.4.2 *Modern Family*

‘*Regrets Only*’ – 10.169 million viewers

‘*Two Monkeys and a Panda*’ – 10.105 million viewers

Humour techniques/categories

In comparison to the other shows, humour techniques used in *Modern Family* were spread more evenly across categories, indicating that rather than being focused on a particular type of humour; the show includes a range of humour types. In contrast to *Big Bang Theory*, which recurrently uses character-based humour techniques, the humour in *Modern Family* arises from storylines as well as characters. Because *Modern Family*

represents an “average” sitcom, with a blend of humour techniques rather than concentrating on certain types, *Modern Family* was used as the default comparison program (the constant) in the main regression analyses below.

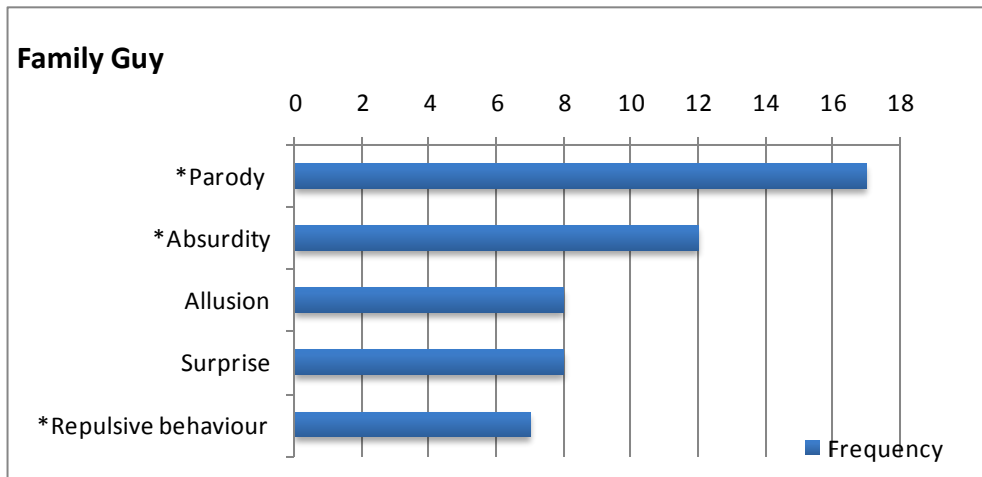


Figure 6.3 Top humour techniques used in 2 episodes of *Family Guy* (asterisks denote significant χ^2 tests).

6.4.3 *Family Guy*

‘*Family Guy*’ – 9.688 million viewers

‘*Business Guy*’ – 7.676 million viewers

Humour techniques/categories

Three techniques in particular were prominent in *Family Guy* in comparison to the other shows—Parody, Absurdity, and Repulsive behaviour. Since these techniques are all derisive in nature, much of this show’s humour can be explained by superiority theory: deriding others’ moral and social standards. Absurdity and Parody featured markedly higher in *Family Guy* than in the other shows. This result highlights the absurd nature of many of the show’s themes and storylines. Perhaps this finding relates to the fact this was the only animated program in the study, allowing for these types of themes.

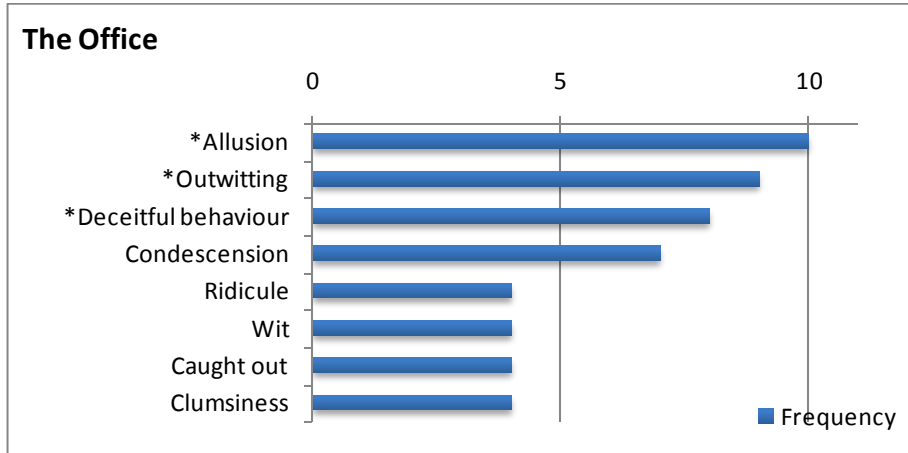


Figure 6.4 Top humour techniques used in 2 episodes of *The Office* (asterisks denote significant χ^2 tests).

6.4.4 *The Office*

‘China’ – 7.311 million viewers

‘Todd Packer’ – 6.121 million viewers

Humour techniques/categories

Most prominently used techniques in *The Office* included Allusion (Language), Outwitting (Logic), and Deceitful behaviour (Identity). Techniques such as Deceitful behaviour, Condescension, and Ridicule denote derisive humour. Considering this show is set in the workplace, these results suggest much of its humour derives from facetiousness in workplace relationships.

Table 6.3 Comparison of humour use by category across programs

Show	Humour category/techniques
<i>Big Bang Theory</i>	Highest use of Language, Logic, and Identity
<i>Family Guy</i>	Highest use of Action category (Repulsive behaviour)
<i>Modern Family</i>	Lowest use of Identity and Action
<i>The Office</i>	Lowest use of Logic

6.4.5 *Summary of humour techniques analyses findings*

In sum, these analyses of differences in humour technique usage between these four programs revealed:

1. *Family Guy* derives much of its humour from themes related to moral and social standards.
2. *Big Bang Theory* contains humour that is mostly character-based.
3. *The Office* frequently uses malicious humour.
4. *Modern Family* features a range of techniques across categories, but fewer humour techniques related to moral and social standards.
5. The 3 highest scoring humour techniques overall across programs were Allusion (Language category), Surprise (Logic category), and Parody (Identity category), with the latter being mostly due to its use in *Family Guy*.

In conclusion, analysis has revealed that despite the small sample of sitcoms used in this study, there is sufficient range and variability in humour technique use across the four humour categories to permit further analysis of participant response data. Although not all techniques were used by all shows, each technique was used at least once in one program.

6.5 Dependent Variables: Self-reports and biometrics

6.5.1 Correlation analysis

Table 6.4 Correlations among variables and descriptive statistics

	Fan mean	EDA mean	Dial mean	EDA arc length	Dial arc length
Fan mean	—				
EDA mean	-.14	—			
Dial mean	.71**	.04	—		
EDA arc length	-.06	.35**	-.04	—	
Dial arc length	-.22**	.17*	-.36**	.42**	—
<i>Program means</i>					
<i>Big Bang Theory</i> (n = 31)	7.27 [†]	.005 (.032) ^a	1.14 (.23) ^b	10.14 (.14) ^b	10.15 (.11) ^c
<i>Family Guy</i> (n = 42)	6.73 [†]	.001 (.043) ^a	.55 (.24) ^a	10.09 (.06) ^a	10.12 (.09) ^{b c}
<i>Modern Family</i> (n = 45)	7.34 [†]	-.001 (.023) ^a	1.03 (.21) ^b	10.07 (.08) ^a	10.08 (.07) ^{a b}
<i>The Office</i> (n = 51)	7.33 [†]	.003 (.024) ^a	1.23 (.28) ^c	10.05 (.06) ^a	10.04 (.06) ^a
TOTAL (N = 169)	7.17 (.26)	.002 (.031)	1.01 (.37)	10.01 (.09)	10.10 (.09)

Pearson correlations

** $p < 0.01$ level (2-tailed)

[†] Fan mean is a constant for each show

In any column, means with different superscript letters are significantly different ($p < .05$), according to a Tukey HSD test.

The tests in this section were carried out in an effort to ascertain the measures used in this study were independent from one another, thereby capturing different aspects of the audience experience. Table 6.4 displays correlations between the dependent variables used in the analysis. Fan mean (from the post-exposure survey) was used as a control variable to account for the fact that participants were randomly allocated to the viewing sessions and did not choose their preferred program. The continuous self-report measure of program enjoyment, Dial mean, was significantly correlated with program fandom (Fan mean), as would be expected. The four dependent variables, however, display discriminant validity, as they were not highly correlated (largest $r = .42$ between

Dial arc length and EDA arc length). Therefore it can be assumed that all four dependent variables are needed, as each contributes unique data pertaining to different aspects of the viewing experience.

Table 6.5 Correlations among variables and ratings and survey data

	Ratings	Enjoyment mean	Intent to view mean
Ratings	—		
Enjoyment mean	.05	—	
Intent to view mean	.58**	.83**	—
Fan mean	.05	1.00**	.83**
EDA mean	.02	-.007	.005
Dial mean	-.18*	.40**	.31**
EDA arc length	.36**	-.23**	.01
Dial arc length	.41**	-.29**	-.02
<i>Program means</i>			
<i>Big Bang Theory</i> (n = 31)	12.63 ^a	6.24 [†]	6.12 [†]
<i>Family Guy</i> (n = 42)	8.63 ^b	5.27 [†]	5.47 [†]
<i>Modern Family</i> (n = 45)	10.14 ^c	6.51 [†]	6.40 [†]
<i>The Office</i> (n = 51)	6.70 ^d	6.44 [†]	6.08 [†]
TOTAL (N = 169)	9.19	6.13	6.02

Spearman correlations

** $p < 0.01$ level (2-tailed) * $p < 0.05$ level (2-tailed)

[†]Enjoyment mean and Intent to view mean constant for each show

In any column, means with different superscript letters are significantly different ($p < .05$), according to a Tukey HSD test.

Table 6.5 displays correlations between the dependent variables used in the regression analysis with ratings and survey data. Fan mean correlated highly with the survey Enjoyment mean, as would be expected. Likewise, Intent to view correlated highly with Enjoyment mean, as would be expected. On the other hand, there was a low

correlation between Ratings and Enjoyment mean, highlighting the fact that participants were assigned to their program. This is also reflected in the Tukey results.

6.5.2 Relationships between the different measures of enjoyment

Dial mean

As Table 6.4 shows, Dial mean results across programs aligned with survey enjoyment ratings (Table 6.5) in terms of what was least popular — with *Family Guy* occupying this position, significantly different from the other three programs. However, while *The Office* scored highest in Dial mean, (significantly from the other three programs) *Modern Family* was deemed most enjoyable according to the survey Enjoyment mean. According to ratings information, *Big Bang Theory* garnered the highest audience, but in this sample, in which viewing was forced, it was rated only in the middle for Dial mean and Enjoyment mean.

Dial arc length

Program means for Dial arc length (Table 6.4) found concordance with Ratings results (Table 6.5) in terms of the highest and lowest scoring programs, which were *Big Bang Theory* and *The Office*, respectively, suggesting longer enjoyment journeys are related to increased popularity. Probably because program viewing was forced, survey Enjoyment mean did not align with Ratings or Dial arc length results. These results suggest that a key measure for program testing, especially with forced viewing, is Dial arc length, which in this study was highly correlated with actual ratings data in the field.

6.5.3 Relationships between enjoyment and arousal

EDA mean

As can be seen in Table 6.4, *Big Bang Theory* scored highest in EDA mean, while also scoring highest in Ratings results (Table 6.5). As for the lowest EDA mean result, *Modern Family* occupied this position. Interestingly, this show rated highest in Enjoyment mean and Intent to view mean, seen in Table 6.5.

EDA arc length

As with Dial arc length results, EDA arc length (Table 6.4) aligned with Ratings results (Table 6.5) in terms of the highest and lowest scoring programs, which were *Big Bang Theory* and *The Office*, respectively, suggesting longer enjoyment journeys are related to increased popularity. Again, probably because program viewing was forced, survey Enjoyment mean did not align with Ratings or EDA arc length results.

6.5.4 Summary of correlation findings

As shown, the correlations between dependent variables were low enough to demonstrate that these variables are measuring different aspects of participants' viewing experience. Moreover, the dependent variables are informative in the ways in which they aligned with other variables, especially with the key success measure, program ratings.

Longer enjoyment journey related to lower Dial mean.

As shown in Table 6.4, Dial mean was negatively correlated ($r = -.36$) with Dial arc length. Because a longer enjoyment journey is caused by positive and negative peaks, negative dips would lower the average over the scene and therefore contribute to the negative association between enjoyment journey and Dial mean. This is also reflected in

Table 6.5, which displays the significant negative correlation between Dial arc length and Enjoyment mean.

Longer enjoyment journey related to higher arousal mean.

Table 6.4 also shows a small (Cohen, 1988) positive correlation between Dial arc length and EDA mean. As described in the previous finding — the longer enjoyment journey was due to positive and negative dips in self-reported enjoyment. Since arousal varies independently of valence (enjoyment), high arousal can result from both negative and positively valenced responses, or even from neutral responses. It would make sense, therefore, that there is a positive relationship between enjoyment journey (extremes of positive and negative valence) and arousal mean.

No relationship between arousal journey and Dial mean.

Table 6.4 shows a negative but non-significant, practically zero correlation between EDA arc length and Dial mean. Again, given that arousal and valence are theoretically unrelated, it is perfectly understandable that arousal journey length is not related to average enjoyment of the scene. But the zero correlation with Dial mean probably resulted from the EDA arc length measuring both positive and negative enjoyment responses. The lack of relationship between means and journey length was the reason for analysing both types of measure. However, the highest correlation in Table 6.4 is between the two arc length measures, suggesting that dial enjoyment ratings tapped arousal as well as valence (i.e., extreme valence in either direction was associated with high arousal).

Table 6.5, however, displays a significant negative correlation between EDA arc length and the surveyed Enjoyment mean. As described previously, a longer arousal

journey may have contributed to lower enjoyment as the length of the arousal journey can be due to both negatively and positively valenced responses. Extreme negative valence reactions may have been associated with higher levels of arousal. Supporting this explanation is the forced-choice viewing model of the study, whereby program enjoyment would have been much lower for non-fans.

Longer arousal journey related to higher arousal mean.

Table 6.4 also shows a medium positive correlation between EDA arc length and EDA mean. This finding, which contrasts with the negative correlation between Dial arc length and Dial mean, can probably be explained by the different nature of the two variables. Dial mean has a neutral zero point at the mid-point of its scale (-3 to +3), whereas EDA has a natural zero at extremely low arousal, and participants would tend to rebound to their baseline zero level after arousing events. So while Dial arcs are characterised by peaks and valleys, EDA arcs would tend to be lengthened mainly by peaks, and therefore longer EDA arc length tends to increase the EDA mean for a scene.

6.6 Regression analysis

A regression analysis was conducted to reveal which humour techniques and categories were most important in the sitcoms sampled. Table 6.6 displays the significant effects of humour techniques on the four dependent variables. In these analyses, *Modern Family* was used as the default program (the constant). The reason for this being that, as explained above, *Modern Family* was considered the most 'typical' show out of those used in the study, in that it does not concentrate on any category of humour techniques, and it generally has a more widespread appeal, as it is not catering to a niche target audience. The remaining shows (as dummy variables) and Fan mean were used as control

variables. The following sections report the main results for each dependent variable in turn, beginning with EDA mean.

Table 6.6 Regression results for effect of humour techniques on arousal and enjoyment

Predictor	b	β	SE	t	p
<i>1. EDA (arousal) mean</i>					
Constant ^a	-.003		.003	-1.081	.281
HT3.6 Outwitting	.017	.164	.008	2.232	.027
HT4.0 Parody	-.015	-.163	.007	-2.215	.028
HT5.2 Self-deprecation	.055	.197	.020	2.707	.008
<i>2. Dial (enjoyment) mean</i>					
Constant ^a	-4.710		.597	-7.892	.000
HT3.0 Surprise	.170	.157	.058	2.924	.004
HT3.6 Outwitting	.191	.147	.062	3.100	.002
Big Bang Theory ^b	.179	.186	.051	3.525	.001
The Office ^b	.255	.314	.046	5.606	.000
Fan mean ^c	.784	.535	.084	9.306	.000
<i>3. EDA (arousal) arc length</i>					
Constant ^a	10.419		.166	62.756	.000
HT3.0 Surprise	.045	.176	.017	2.632	.009
HT3.7 Caught out	.055	.172	.021	2.647	.009
HT5.1 Rigidity	-.058	-.173	.028	-2.071	.040
HT5.2 Self-deprecation	.195	.238	.053	3.648	.000
HT6.2 Pun	.088	.224	.025	3.471	.001
Big Bang Theory ^b	.072	.313	.018	3.963	.000
Fan mean ^c	-.052	-.148	.023	-2.228	.027
<i>4. Dial (enjoyment) arc length</i>					
Constant ^a	10.645		.180	59.190	.000
HT5.2 Self-deprecation	.226	.269	.059	3.834	.000
Big Bang Theory ^b	.060	.255	.016	3.638	.000
Fan mean ^c	-.082	-.228	.025	-3.270	.001

β = Standardised coefficient

^a *Modern Family* used as constant (coded 1/0)

^b Other shows used as control variables (coded 1/0)

^c Fan mean used as control variable

R^2 = .172 (EDA mean), .678 (Dial mean), .378 (EDA arc length), .360 (Dial arc length).

Largest VIF = 1.741 - HT5.1 (EDA arc length)

DW = 2.376 (EDA mean), 1.454 (Dial mean), 2.214 (EDA arc length), 1.752 (Dial arc length).

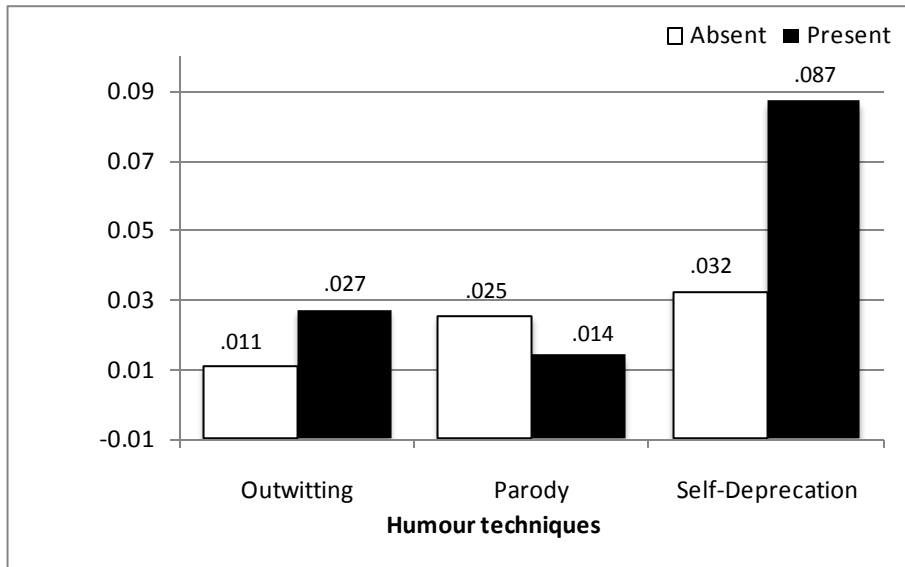


Figure 6.5 Mean arousal responses to the absence vs. presence of significant humour techniques.

6.6.1 EDA (arousal) mean

Identity

Table 6.6 shows that three humour techniques were significantly related to EDA mean. As can be seen in Figure 6.5, the Identity category was represented by 2 techniques, Parody and, most significantly, Self-deprecation. Interestingly, this effect of Parody was negative, with the presence of the technique resulting in reduced arousal. Parody was featured most notably in *Family Guy*, the program to receive the lowest reported enjoyment in this study by way of Dial mean and survey Enjoyment mean.

Logic

Another category to make an impact on mean EDA levels was the Logic category with one humour technique, Outwitting.

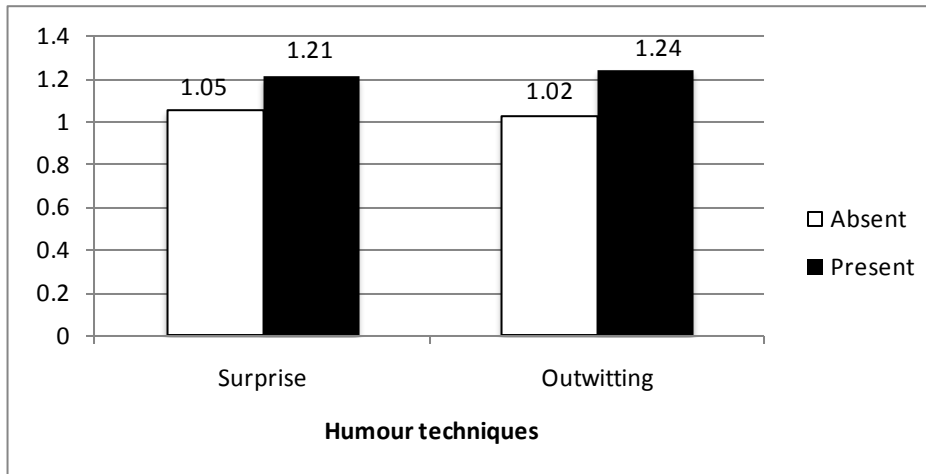


Figure 6.6 Significant mean dial responses (range -3 to +3) to humour techniques.

6.6.2 *Dial (enjoyment) mean*

Logic

Table 6.6 shows that two humour techniques were significantly and positively related to Dial mean. As can be seen in Figure 6.6, the Logic category was the only category to affect Dial mean levels, represented by two techniques. These were Surprise and Outwitting.

6.6.3 *EDA arc length (arousal journey)*

Identity

Table 6.6 shows that five humour techniques significantly affected EDA arc length, which as shown above appears to be highly predictive of ratings. Of the five techniques that affected arousal journey, Self-deprecation was the most significant ($p = .000$), with presence versus absence positively increasing arc length (peaks and valleys), as can be seen in Figure 6.7. Also scoring significantly from this category was Rigidity,

however the presence of this technique had an inverse effect, reducing arc length. This effect was not highly significant ($p = .04$) and is difficult to perceive in Figure 6.7.

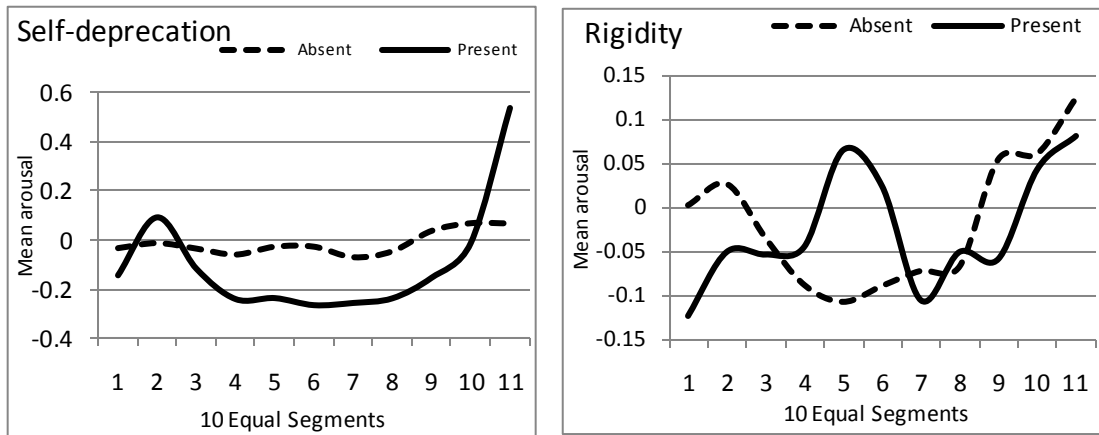


Figure 6.7 Arousal journey for humour techniques Self-deprecation and Rigidity

Logic

Techniques from the Logic category also significantly affected arousal journey, with Surprise and Caught out being highly significant techniques ($p = .009$). As shown in Figure 6.8, the presence of either of these variables positively increased EDA arc length.

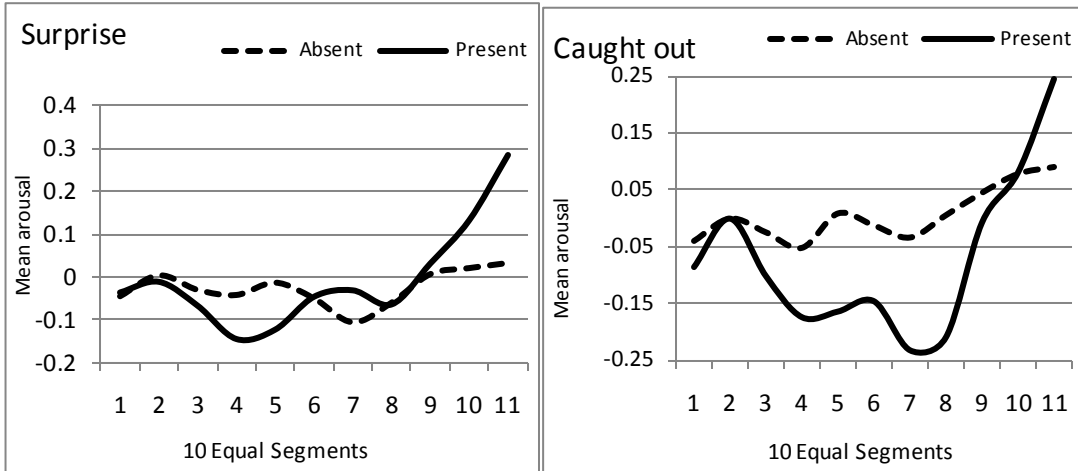


Figure 6.8 Arousal journey for humour techniques Surprise and Caught out

Language

As can be seen in Figure 6.9, the Pun technique from the Language category also had a strong significant positive effect on arousal journey, and was the only technique from this category to affect arousal.

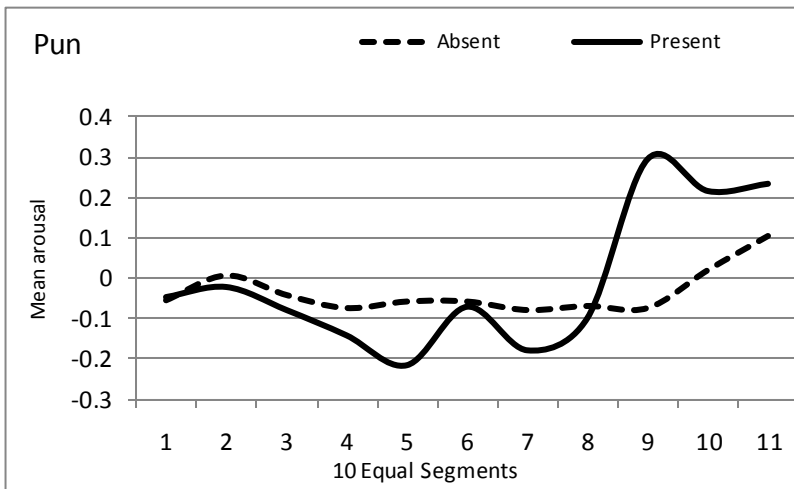


Figure 6.9 Arousal journey for humour technique Pun

6.6.4 Dial arc length (enjoyment journey)

Identity

Table 6.6 shows that one humour technique is significantly related to Dial arc length (enjoyment journey). As with EDA arc length, Dial arc length is important for program testing because the results reported above suggest it is predictive of program ratings. The Identity category's Self-deprecation humour technique had a positive effect on enjoyment journey, as can be seen in Figure 6.10. Interestingly, this technique was also a highly significant factor for arousal journey (as reported above, the two arc length measures were positively correlated).

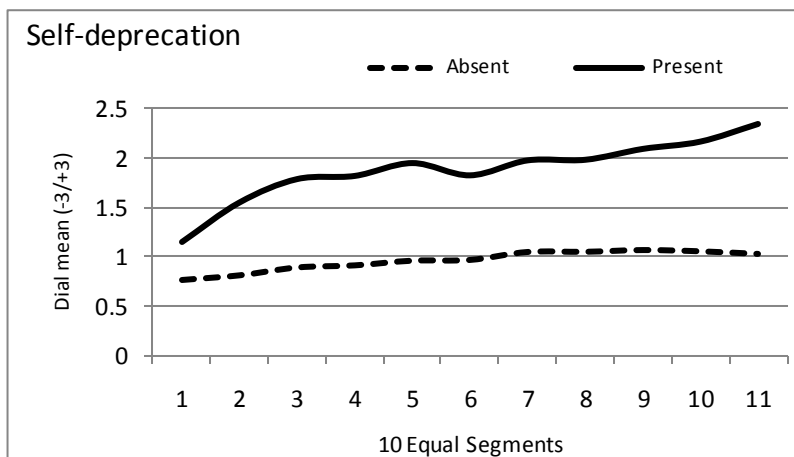


Figure 6.10 Enjoyment journey for humour technique Self-deprecation

6.6.5 Summary of regression analysis key findings

1. Self-deprecation, a technique from the Identity category, yielded the strongest effect size and highest significance for both arousal journey and enjoyment journey.

2. Self-deprecation significantly affected three out of four dependent variables, the most of any technique.
3. Techniques from the Logic category (related to Incongruity Theory) affected EDA mean, Dial mean and EDA arc length (arousal journey), but not Dial arc length (enjoyment journey).
4. Arousal journey was affected by more of a variety of techniques than the other dependent variables, with five humour techniques from three categories being represented.

6.7 Conclusion

This chapter reports the results of an investigation into which humour techniques are the most effective to use to improve the success of a sitcom program. For this purpose, ‘success’ was defined by current ratings information (audience numbers), and this was correlated with the results of the analyses presented. The measures that correlated the highest are suggestive of success.

The chapter began by introducing two new measures, Dial arc length (enjoyment journey) and EDA arc length (arousal journey), and showed how they were different from but related to two more familiar dependent variables, Dial mean (average enjoyment) and EDA mean (average arousal). Most importantly for the aims of this study, these two new variables were more predictive of program ratings in the field than the traditional means measures. The next chapter discusses the implications of these results for theory and practice.

Chapter 7 – Discussion

7.1 Research aim

The aim of the current study was to identify key components of successful sitcoms in terms of humour types and the ways they are executed. This aim was achieved. Regression analyses revealed which humour techniques and categories were important. Furthermore, as would be expected, the execution of humour techniques was found to vary across sitcoms. These variations and their relationship to performance ratings are discussed below, as well as their theoretical and practical implications.

7.1.2 Major Findings

7.1.2.1 *Humour techniques and categories*

Table 7.1 displays the humour categories used in the typology and their corresponding theoretical premises.

Table 7.1 Humour categories (adopted from Berger 1976)

Category	Description	Theory most aligned
Language	Verbal humour	Incongruity
Logic	Conceptual humour	Incongruity Theory/Psychoanalytical
Identity	Existential humour	Incongruity/Superiority
Action	Physical or nonverbal humour	Incongruity/Superiority/Relief

Four categories of humour techniques were adopted from Berger's original humour typology for jokes (1976). Each category was represented by several specific

techniques. Altogether, a total of 22 individual humour techniques were investigated. All four humour categories, although not all 22 techniques, were represented in the four sitcoms analysed. Techniques from the Identity category had the most significant results in the regression analysis—most markedly with the technique Self-deprecation. The Identity and Logic categories significantly affected three out of four dependent variables, while the Language category significantly affected one. But in this study, no techniques from the Action category had significant results.

7.1.2.2 *Emotional journey (arc length) measures*

Two types of dependent variable were used: (1) the mean value of a variable across the duration of a scene, and (2) the journey or arc length of the curve traced by the variable over duration of a scene. Emotional journey was expected to provide more information than a traditional means analysis, because arc length includes information about the variance in a variable over a scene, that is, the journey it makes above and below its mean value. Each program consisted of several scenes that averaged one minute in duration, and scenes could feature a number of humour techniques. For each type of measure, two variables were used, electrodermal activity (EDA), which is a continuous measure of a participant's psychophysiological arousal, or preparation for approach or withdrawal (Cacioppo, Tassinary, & Bernston, 2007) and dial, which is a continuous measure of enjoyment made by the participant, twisting an electronic dial. Analysis revealed that dial and EDA arc length (journey) measures were more predictive of program performance than traditional mean measures, with stronger correlations between ratings and these measures. Perhaps these measures tap the reactions that are an essential part of successful sitcoms. It is interesting that dial journey, like EDA journey, was

predictive of ratings, even though, unlike EDA, dial journey requires conscious ratings by the viewer.

7.1.3 Theoretical implications

Currently, the superiority and incongruity theories of humour are recognised as the most influential (Berger, 1987; Martin, 2007). Firstly, superiority theory offers an emotional aspect to humour by citing the boosting of self-esteem as its function (Buijzen & Valkenburg, 2004). Historically, this theory dates back the longest, existing in various forms. Much of this humour is aggression-based, ranging in malevolence from benign and playful to hurtful and malicious. Zillman and Cantor (1976) theorised that appreciation of this humour is dependent upon how the disparaging group is perceived.

Secondly, incongruity theory is heralded as the most influential and widely accepted of all humour theories (Berger, 1987; Martin, 2007). This theory focuses solely on cognition (Buijzen & Valkenburg, 2004; Martin, 2007; Meyer, 2000). The idea that incongruity lies at the heart of the humour experience has been discussed by philosophers and theorists for over 250 years (Martin, 2007). However, it is argued that while some form of incongruity is required in the humour process, it is not enough on its own.

7.1.3.1 *Effects of humour categories*

It was proposed that all four categories would be important for sitcom success. Although not all techniques appeared in each sitcom, all four categories were represented, suggesting that the producers of all four programs shared lay theories about the importance of these categories.

Logic category

The Logic category significantly affected three dependent variables. This category derives from the incongruity theory of humour, and as it explained most of the results, there is consensus that this is generally the most applicable theory of humour. However, it has been theorised that incongruity in isolation is not necessarily funny, but that it facilitates humour (Martin, 2007; McGhee, 1972; Mulder & Nijholt, 2002). In fact, the proposition that this theory only addresses the structure of humour highlights findings that suggest a combination of key techniques from a few categories is needed to evoke a meaningful response to humour. That is, techniques from this category could be seen as an essential component of successful sitcoms, but only in combination with other categories.

Identity category

Like the Logic category, the Identity category significantly affected three dependent variables. It also contains the top performing humour technique, Self-deprecation. Interestingly, out of the four shows, *Big Bang Theory* scored highest in ratings and contained a higher number of techniques from the Identity category than the other three shows, showcasing successful use of these techniques. In fact, *Big Bang Theory* scored highest in technique use from the three categories that had significant effects in the main analysis. Theoretically, the Identity category has mixed underpinnings, incorporating aspects from both incongruity and superiority theories. In this study, techniques in the Identity category derive their humour from idiosyncratic behaviours, which are surprising and outside the norm (incongruity theory). In addition, these characters assert their superiority with behaviours such as Malicious pleasure and

Condescension, and inferiority with behaviours such as Self-deprecation (superiority theory). Historically, both the incongruity and the superiority theories have been widely influential, but logically humour derives from their combination, and these results reflect this.

Humour techniques, Parody and Rigidity, reduced arousal mean and arousal journey levels, respectively. These were the only inverse results. Parody was featured most frequently in *Family Guy*, and this show received the lowest enjoyment ratings out of the four sitcoms (survey and dial mean enjoyment measures). Real world ratings, however, confirm *Family Guy* is a successful sitcom (it was rated third most popular amongst the four sitcoms), suggesting this type of humour contributes to enjoyment when audience members are fans of the show. Echoing this are theories originally put forth in the 1960s and 70s (La Fave, 1961; La Fave et al., 1973; Zillman & Cantor, 1976) citing group identification and group attitudes as key in appreciation of such humour. This has practical implications for writers and producers attempting to attract new audiences in terms of the humour techniques used in pilot episodes. This explanation also fits the finding that Rigidity reduced arousal journey, while being most frequently featured in highest rating show, *Big Bang Theory*.

Language category

One technique from this category, Pun, was significant, and positively affected arousal journey. Techniques from this category are devices that play with words or situations. This type of humour relates most closely to incongruity theory as the appearance of these techniques elicits humour by way of surprise in the pattern of events.

Action category

Techniques from this category failed to make any significant impact. According to Buijzen and Valkenburg, incongruity theory explains the more innocuous types of humour, which includes the techniques in this category. Berger (1987), however, saw the slapstick style of humour as being derived from superiority theory, as humour is seen in clownishly inferior behaviour. Therefore, humour resulting from this category can also be seen as deriving from the combined operation of the two theories.

Although these techniques failed to have impact in the regression analysis, the analysis of humour techniques revealed they were used just as frequently as techniques from the other categories across the four sitcoms. This could indicate that on its own, this category does not ensure program enjoyment, but does contribute to enjoyment in combination with other techniques. Alternatively, the same theoretical explanations may apply as those for the Identity category, which also stems from both incongruity and superiority theory. That is, appreciation of these humour techniques is related to group identification. In this case, this type of humour is best aimed at niche audiences, or used on a show that has an existing following, rather than on a show attempting to gain a new audience.

7.1.3.2 *Effects of humour techniques*

After an extensive refining process, a humour technique coding typology for sitcoms was developed that included 22 techniques divided into four categories (seen in Table 7.1). Exploratory analysis revealed that all four categories, and a number of the 22 techniques, were featured in the four sitcoms analysed in this study.

Highest performing techniques

The highest performing humour technique was from the Identity category. Self-deprecation had the strongest effect size and highest significance of all techniques, and this was in relation to both arousal journey and enjoyment journey. The other significant techniques from the Identity category, Rigidity and Parody, yielded negative results, on arousal journey and arousal mean, respectively.

As modern sitcoms are generally character-based, it makes sense that techniques from the Identity category are frequently used. In fact, *Big Bang Theory*, the highest rating show, used humour techniques from this category markedly more frequently than the other shows. The fact that some techniques are used more frequently than others suggests comedy producers have lay theories about which techniques are effective. However, it is possible infrequently used techniques may be just as effective, and it is the rarity of use that makes them so.

Pun (from the Language category) had the next largest effect (on arousal journey). Of the shows tested, this technique only appeared in the two highest rating shows, *Big Bang Theory*, and *Modern Family*. Humour that plays with words is traditional in the sense that it has been the basis of jokes long before the advent of audio-visual material. The fact that techniques from this category were used most frequently in the four shows tested overall suggests that it is still popular and effective.

7.1.4 Practical implications

7.1.4.1 Key humour techniques for sitcom success

All categories except one (Action) had techniques that significantly predicted the journey measures related to ratings success. Not all of the 22 techniques were significant

predictors, suggesting writers need only be concerned with a smaller number of key techniques. Table 7.2 displays the 7 key techniques that had a significant effect in the regression analysis.

Table 7.2 Key techniques by humour category

Language	Logic	Identity
Pun	Surprise	Self-deprecation
	Outwitting	Parody*
	Caught out	Rigidity*

*Techniques with negative effects

Techniques from Logic and Identity categories for enjoyment

As can be seen in Table 7.2, the Logic and Identity categories contained the highest number of significant techniques, and the highest scoring programs in audience ratings and experimental enjoyment measures used these techniques liberally.

Be cautious with derisive techniques

Parody and Rigidity were the only inverse regression results. Of the four shows analysed, Parody featured significantly higher in *Family Guy*. Although this show received the lowest enjoyment ratings of those analysed, it is still a successful show. Thus these findings suggest this type of humour works best with fans. This has implications for writers in their approach to pilot episodes, where the task of attracting new audiences is the primary objective.

If a niche audience is the goal, including this type of humour should not pose a problem for that market, but the disparaged group may find offence. Perhaps a way

around this would be to incorporate humour from a variety of perspectives. For example, the disparaged group is given the opportunity to find humour in the situation by having disparagement directed back at the offending group. This could explain the popularity of *Modern Family*, which offers negative and positive aspects to each character without taking the viewpoint of a particular character. While it is important for niche-market shows to maintain their focused viewpoint, for those requiring a wider market a mix of categories may be a more viable option.

Include techniques from a variety of categories for widespread appeal

In addition to a variety of narrative perspectives, including humour techniques from a variety of categories may prove beneficial for those wanting to attract a more widespread audience. In the regression analysis, *Modern Family* was used as the constant because it does not cater to a niche audience, and of the four shows analysed, has the most widespread appeal.

7.1.4.2 *Key measures for sitcom success*

Analysis revealed that EDA arc length measures were affected by a wider variety of techniques than the mean measures. Furthermore, and most importantly, arc length measures were more indicative of ratings success than the means measures. This suggests it would be worthwhile including these measures in any efforts to predict sitcom success. In addition, the fact these measures were affected by a wider variety of techniques indicates that these measures are more sensitive than the traditional means measures, making them a more useful inclusion when only a few measures of enjoyment are practical.

7.1.5 Limitations and future research

7.1.5.1 Limitations

A limitation of this study was its use of network shows only. A major issue affecting the ability to make comparisons between shows was the number of sitcoms used in the analysis. Using the four highest rating sitcoms allows some insight into what goes into successful programs, but the number is too low to make any definitive inferences regarding use of humour techniques. In addition, only successful shows were tested. It is conceivable that many of the techniques that were found to be non-significant in the shows sampled are significant predictors of arc length and means for unsuccessful shows. The four sitcoms that were analysed used a relatively sophisticated level of humour. If comedies based more on the use of physical humour had been analysed, such as *Funniest Home Videos* or classic silent films, the Action category would probably have been associated with significant results. However, these shows are not sitcoms, thus physical humour is not the key to sitcom success.

Also, the sample group were only from Austin, Texas, and may not capture cultural and religious differences amongst US audience segments. Also, the sample group were only from Austin, Texas, and may not capture cultural and religious differences amongst US audience segments. For instance, some may find *Modern Family* contains more repulsive behaviour than the group sampled. Sample size is another issue that should be improved upon, ideally 60 participants or more per program, to detect medium sized effects Cohen (1988). Thus, it is suggested these findings be used as a basis for further research.

Another limitation is the use of the continuous dial measure of enjoyment, whereby participants must constantly and consciously assess their enjoyment of the program. This potentially interrupts the flow-state of watching a program, thereby affecting enjoyment. Furthermore, the reliability of the measures captured by dial is often criticised because it is a delayed response measure. Dial was preferable, however, than using the post-exposure survey measure alone, but future research may consider a less cognitively obtrusive measure of enjoyment, such as smiling activity (another biometric measure). Also, other measures such as EEG, IAT, and eye tracking may offer additional insight.

Finally, current ratings may not be an entirely accurate indicator of success. For instance, a show like *The Office* may be still as good as it once was, but now it gets lower ratings because it has more competition.

7.1.5.2 Future Research

Future research should use the humour techniques typology and biometrics measures developed in this study on a wider variety and higher number of sitcoms — both successful and unsuccessful. These results are correlational only, not causal, so research that manipulates the factors identified in the regression analysis, while comparing arc length measures with ratings, would definitively identify the building blocks of a successful sitcom (Armstrong, 2012). Further investigation of effective techniques should consider not only the frequency and effects of techniques, but the rhythm, incidence and combinations of techniques that are most effective. As stated, a technique may be most effective when it is used rarely, and in combination with other specific techniques. No doubt, there are also contextual factors that contribute to program

enjoyment and therefore success. For instance, mocking humour technique Parody had an inverse relationship with program enjoyment in this study. However, *Family Guy*, the show that featured the highest incidence of this type of humour and scored the lowest in enjoyment, is a very successful sitcom. This suggests this type of humour contributes to its success.

Analysing cable and niche shows, and comparisons between groups other than successful and unsuccessful sitcoms is also suggested, such as cultural differences in the use of humour types (e.g., US humour and UK humour). Furthermore, other forms of comedy, not only sitcoms, may be analysed using the typology, or adaptations of the typology. For instance, live stand-up comedy would be an interesting arena for investigating the use of humour techniques and categories, especially as live performance is much easier to manipulate than video production (Russell, 2002).

Writers, producers, and television networks may be interested in using the typology in conjunction with the arc length measures as a tool for predicting sitcom success. These groups may also be interested in investigating the types of humour that appeal to certain audiences to assist in the production of programs. Additionally, this information could be of use to advertisers, not only as a guide to which programs are best to place advertisements with, but also what type of humour should be used in advertisements.

7.2 Conclusion

In conclusion, the sitcom genre is the widest reaching comedy form, yet sitcom specific research is surprisingly scant (Mills, 2005). As a result, sitcom success is difficult to predict, posing a problem for all involved with the sitcom industry. To this

end, the aim of the current study was to develop a humour typology to identify key components of successful sitcoms. This aim was achieved, with the finding that significant categories and techniques aligned with the two most prominent theories of humour — superiority and incongruity. In addition, two new experimental measures (of arc length) were found to be more indicative of actual ratings success than traditional means-based measures. These findings are, however, best considered a strong starting point for further research, due to the limitations of the current study. A wider variety of sitcoms and comedy genres should be tested, using the new typology in conjunction with the new emotional journey (arc length) measures, with a view to developing genre-specific prediction kits for use by writers, producers, and television networks.

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APPENDICES

APPENDIX A – NEW SITCOM CODING HUMOUR TECHNIQUES EXAMPLES

Humour category	Humour technique	Program/episode/example
Language	Wit	Big Bang Theory/The Toast Derivation – Sheldon is annoyed Leonard wants to go out for dinner. Leonard asks if they could break with tradition. Sheldon replies, “We could. We could also stop using the letter M, but I think that idea is misguided and ironic”.
Logic	Caught out	The Office/Todd Packer – Dwight and Jim try to offer Packer a fake job to get rid of him but are overheard by Michael.
Identity	Condescension	Big Bang Theory/The Boyfriend Complexity – Sheldon criticises Raj’s prepared reading material: “Are you sure you have enough comics? You’re going to be monitoring the telescope for 12 hours, and by my estimate, you’ve only selected seven hours of reading material. That’s even factoring in your difficulty in parsing American comic book idioms like Bamf and Snikt”.
	Deceitful behaviour	Modern Family/Two Monkeys and a Panda – Alex accidentally rips Hayley’s shirt while she is wearing it. Hayley appears and Clare helps Alex divert Hayley’s attention away from the shirt.
	Self-deprecation	Modern Family/Two Monkeys and a Panda – Phil is at a beauty salon talking to ladies trying to understand how his wife wants to be treated. One of the ladies explains, “When you say, ‘Do this or do that’ all she’s hearing is, ‘I’m smarter than you’”. Phil replies, “Believe me, she doesn’t think that”. He says this because he knows he is notoriously dopey.

APPENDIX B – PARTICIPANT FORMS

Consent to Participate in a Study
Media Research Labs, LLC

Information Sheet for this Media Panel Study: Modern Family

Dear Media Panel Member,

Congratulations on being selected to participate in this study! Researchers at The Media Panel are interested in viewer evaluations of the television show, *Modern Family*. You will be asked to watch two recent episodes of this show today.

You can help us by consenting to participate in the following study where you will watch two 30-minute episodes of *Modern Family*. You will view the episodes on a flat-screen television in a theatre. The content should last approximately 1 hour. Once the content has ended, you will be asked to take a post-session survey, which should last no more than 15-20 minutes. The time to complete the session will vary, however, it is expected that approximately one hour and 15 minutes is necessary. You will not be given a break during the session, so please use the restroom or make phone calls before you begin. You can withdraw your consent at any time, without having to offer an explanation. All information provided is confidential and no names or other information which might identify you will be used for commercial purposes, or appear in any publication arising from the research.

If you agree, we would like to video your viewing session so that we can use that information for further research analysis looking at factors such as device use, viewing positions and body language clues (e.g., non-verbal cues, facial expression). You can also check the appropriate box on the provided consent document if you agree that your video can be considered for a “highlights” reel, showing examples of the participation process, which will be included in a video presentation about this study for our sponsors.

To compensate you for your time and travel costs, you will receive a \$30 AMEX Gift Card for participating in this study. If you are willing to participate, please complete the Consent Form given to you at your appointment check-in.

If you have any questions about this research, please see a researcher at Reception.

Consent to Participate in a Study
Media Research Labs, LLC

Please place your INITIALS next to the following statements if you agree.

_____ I (the participant) have read the information on the Information Sheet. Any questions I have asked have been answered to my satisfaction. I agree to take part in this study, however, I know that I may change my mind and stop at any time. I agree that research data gathered for this study, including information provided by or derived from me, may be published provided my name or other information that might identify me is not used.

_____ I understand that much of the video content that I will see in this Study is pre-recorded and not controlled by The Media Panel.

_____ I agree to hold in confidence any information related to this study, including the contents of any video I see, and to not divulge this information, except as may be required by U.S. law.

_____ I agree that my participation may be recorded and used for research purposes.

_____ I agree that selected extracts from the recordings of my participation may be included in a "highlights reel" that may be disclosed to the research sponsors of this study.

_____ I agree to have two small electrodes placed on two of my fingers to measure and record changes in perspiration.

_____ I have completed the 'Physiological Screen' form and agree that the information given is correct at this point in time. (Only required if you are agreeing to the previous clause).

_____ I understand that I am not employed by Media Research Labs, LLC, d.b.a. The Media Panel. I understand that I will not be entitled to any compensation other than the incentive described in the Information Sheet, and I hereby release Media Research Labs, LLC., d/b/a The Media Panel, its employees, officer and representatives, together with its research Sponsors, from any and all liability for any claims I may have. I agree to leave the premises of Media Research Labs, LLC., d/b/a The Media Panel promptly upon completion of my participation in the Study, and to not return unless invited to participate in another Study.

SIGNATURE: _____ **DATE:** _____

Name: _____ Member Number: _____

Phone (home): _____ (other): _____

Email _____ address:

For internal use only: RA Initials: _____ ID Provided: _____ Date: _____ Time: _____

Consent to Participate in a Study

Media Research Labs, LLC

Physiological Screen Form

(Day of participation)

Completing the following information will help us determine if it is okay to measure your body's response to the video content today. There are no right or wrong answers but it is important that you be truthful. We understand that you may have answered some of these questions when you signed up to participate in the Panel, but to ensure your greatest comfort and the most accurate data, we need to ask these questions again today. All information on this form is confidential. This information cannot be released without your consent unless specifically requested by a court of law. If you can't participate in the physiological measures, or choose not to, you can still take part in this study.

If you have any questions, please ask the research assistant.

Date: _____ Time: _____

Member ID: _____

Age: _____

Handedness: Left / Right / Both

Do you have a pacemaker, defibrillator, or any other internal electrical device? ___YES**
___NO

Are you currently pregnant? ___YES** ___NO

Do you suffer from any medical conditions?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, please provide details
Are you taking any long-term medication?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, please provide details
Do you feel well today?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If No, please provide details
Have you had caffeine, or a similar stimulant, in the last 3 hours?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, please provide details
Have you had any medication, alcohol, or used recreational drugs in the last 24 hours?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If Yes, please provide details

**Answering YES to this question will prevent us from being able to collect biometric data from you at this time. This will not affect your compensation in today's study nor future participation in our lab. Please ask an RA if you have any questions.

For internal use only: RA Initials: _____ Date: _____ Time: _____