Aesthetic taste and consumer demand for cultural goods: an application to theatre

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Summary

This thesis develops and tests hypotheses with respect to two commonly observed phenomena in cultural goods consumption: Firstly, the fact that cultural goods are an "acquired taste" in that some experience or knowledge is necessary for those goods to be enjoyed. Current models account for this phenomenon by including proxies such as past exposure, general education or social status. Secondly, within a cultural goods category, goods that are aesthetically rewarding are generally not as highly demanded as those that are considered entertaining. This thesis tests whether the philosophical concept of taste (interpreted as a perceptive skill) can explain those two phenomena, distinct from past exposure. Choice models are developed and tested using data collected via an online discrete choice experiment applied to over 400 Sydney residents. Theatre plays were chosen as the cultural goods category to test the hypotheses, since demand for and choice of theatre has been investigated previously by cultural economists and thus offers good opportunities for comparing research results.

Direct and indirect measures of individual aesthetic taste as well as three alternative measures of aesthetic qualities of theatre plays are developed. Binary conditional logit models, tobit regression models, multinomial logit models, ordinary least squares models and a latent class model were estimated from the survey data to test the hypotheses. An overall positive effect of aesthetic taste on consumer choice of cultural goods, separate from the effects of past attendance, is established. Results for the hypotheses tested in regard to the relationship between aesthetic taste and aesthetic qualities are largely supported. The conclusion of this thesis emphasizes the importance of aesthetic taste as a concept distinct from familiarity, and suggests how the results can be used by policy makers and arts organisations. Suggestions for further research are given.

Statement of the candidate

The work presented in this thesis has not been submitted for a higher degree to any other university or institution. The sources of information used and the extent to which the work of others has been utilized are acknowledged in the thesis. Ethics Committee approval has been obtained (Reference number: 5201200335(D)).

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1 INTRODUCTION

1.1 MOTIVATION OF THE THESIS

Whether it be visual arts exhibitions, opera performances, theatre plays or live music concerts, two phenomena can generally be observed amongst consumers: firstly, some people are passionate about a particular cultural good, whilst others remain indifferent or even get bored; secondly, the best-sellers are generally the ones considered the most entertaining rather than the most awe-inspiring, however these two qualities are defined. Both phenomena and why they provide interesting research questions for studying the demand for artistic goods will be discussed separately in detail below.

Why do some people rave about theatre, arts exhibitions, opera or classical music concerts whilst others are simply indifferent to the arts? Sure, there are those that get dragged along by their parents, partners or friends to performances or concerts, but casual observation tells us that consumption of cultural goods tends to be more of a dichotomy of "lovers" and "haters". For example, the Australian Bureau of Statistics (2010) reports that only 9.4% of the Australian population attended a classical music concert in 2009/10, only 16.4% a theatre performance and 16.7% a musical or opera performance. Is it purely a matter of tastes that so famously cannot be quarrelled about, like taste for spicy food, vintage cars or watching cricket? Fans of the arts often say something like "But look, don't you see/hear how amazing this is?" and non-fans might look, and yet fail to experience the same excitement. Why is this? Is there something that fans are seeing or experiencing that others are not?

Observing this difference between arts and non-arts consumers is not new. The arts are said to be "an acquired taste" and several cultural economists have written about this process of taste acquisition. For example, Bruce Seaman observes that "cultural economists have always stressed that current arts demand ... is especially influenced by past arts exposure" (Seaman 2006, p.441). Stable preferences, so the argument goes, cannot be

assumed for the arts since exposure to artistic goods and acquisition of knowledge about such goods influence and change preferences. The same point is made when Morrison and West write that "It is generally accepted that the arts are an acquired taste that must first be cultivated before individuals voluntarily attend performances" (Morrison and West 1986, p.19), or when McCain defines very broadly that "In the process of cultivation of taste, tastes are changed by the experience of consumption" (McCain 1981, p. 332), or when Levy-Garboua and Montmarquette claim that "…taste for arts is acquired or discovered and the rate of art consumption increases over time with exposure" (Levy-Garboua and Montmarquette 2003, p.202). David Throsby emphasizes the point that tastes for artistic goods and services are cumulative: "It is apparent that a person's enjoyment of music, literature, drama, the visual arts and so on, and hence her willingness to spend money on consuming them, are importantly related to her knowledge and understanding of these art forms. Such cultural competence is acquired through education and experience, and hence stronger and more discriminating tastes for the arts are likely to be shown by the better educated and by those who have already become consumers" (2001, p. 115). Mark Blaug goes so far as to say that "…the study of cultural economics militates against the complacent orthodox view that preferences are given and that the formation of tastes is a subject best studied by sociologists rather than economists" (2001, p. 125f). Artistic goods are referred to as experience goods by some authors, which also has the same underlying idea that experience is needed in order to enjoy the goods (Hutter 2011). Tibor Scitovsky defines culture as "the training and skill necessary to enjoy those stimulus satisfactions whose enjoyment requires skill and training" (1976, p. 226) thereby clearly emphasising what is required to enjoy the consumption of such goods. He writes: "Consumption skills differ not only in the difficulty of acquiring them, but also in the amount of enjoyment their acquisition makes available, and both render some forms of culture more valuable than others" (p.228). Scitovsky goes on to describe what he calls the rational bias against culture, whereby consumption skills do not return a measurable yield as do production skills which, he argues, is the reason for their being neglected in a capitalist economy.

As will be seen later in this thesis, economists have aimed to account for this phenomenon of taste acquisition in empirical analysis in different ways, for example through the use of proxies such as familiarity, past experience, education, social class or active involvement in the art form. However, the conclusions drawn for policy-makers are somewhat circular in their reasoning; Seaman sums up the literature on arts demand by pointing out that current studies recommend "…increasing attendance by increasing attendance" (Seaman 2005, p.108).

We now turn to the second phenomenon in artistic goods consumption: If people do in fact consume cultural goods, they tend to choose those that are entertaining. Lonsdale and North (2011) in their study on reasons for conducting different leisure activities find six different factors people have for conducting those activities, entertainment and mood management being the top reasons. One could argue that it is only natural that humans are more drawn to goods that make them feel "entertained", "take their mind off things" or "happy", as entertaining artistic goods do. On the other hand, art connoisseurs who appreciate a greater variety of cultural goods claim that the cultural goods that provide the greatest reward for them are those that "inspire awe", that "mesmerize", or are somehow "transcendent", rather than those that simply entertain. Those goods are harder to access since they require more active involvement and training (Hume 1760/1998; Scitovsky 1976; Goldman 2005). Overall, such goods seem to be much less in demand. Why is that so? Doesn't it seem odd that some people have a near spiritual experience when consuming cultural goods whilst most merely look for belly laughs?

Currently this puzzling phenomenon of human kind is explained by "differences in tastes". "Why should we care?" one might ask, asserting that "people can do what they like". This may be true, but if one has never experienced awe when listening to a concert or looking at a painting, how can one be expected to make a decision between a play that offers entertainment and one that might evoke an awe-inspiring experience? A more obvious example might be one where a person who cannot read has to decide whether to buy a book or a videogame for her own pleasure; would we consider her choice (of the videogame

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presumably) as her "true revealed preference" or would we say "…well, of course she made that choice; she can't read so the book has no meaning for her"?

The economist could argue that these issues are not the concern of economics but rather fall into the realm of the psychologist. The conventional economic approach to consumer demand is represented in neoclassical demand theory, its purpose being "to describe and explain observed consumer choices of commodity bundles" (Boehm and Haller 2008, p. 415). More generally, Pollak (1970) describes demand theory as a theory of how consumers allocate a given amount of money (expenditure, called income) among goods. So to be able to disregard consumers' motivations for demand choices and to focus purely on observable behaviour, the assumption is introduced that consumers have pre-existing preferences that are acted upon when making consumption decisions. Neoclassical demand theory relies on a small number of strong assumptions about how these consumer preferences behave, namely:

- Consumers act "as if" they would maximise utility given the budget constraint;

- consumers can provide relative preference rankings of goods; and

- preferences of consumers are consistent.

These mathematical axioms about individual preferences are at the heart of neoclassical demand theory and are fundamental to the writings of, for example, Lionel Robbins and Milton Friedman, two renowned supporters of this standard theory. In his contribution to the *Handbook on Cultural Economics*, Roger A. McCain quotes the widely cited definition of economics by Lionel (Lord) Robbins: "the science which studies human behaviour as a relationship between ends and scarce means that have alternative uses" and adds that "Economics is not concerned at all with any ends as such" (McCain 2003, p. 445). What this definition implies is that economists, according to Robbins, take the tastes and preferences of individuals as given. Milton Friedman shares this view. After discussing the relative nature of human wants, he writes:

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Despite these qualifications, economic theory proceeds largely to take wants as fixed. This is primarily a case of division of labor. The economist has little to say about the formation of wants; this is the province of the psychologist. The economist's task is to trace the consequences of any given set of wants. The legitimacy of and justification for this abstraction must rest ultimately, in this case as with any other abstraction, on the light that is shed and the power to predict that is yielded by the abstraction (Friedman 1962, p.13).

Nevertheless, not all economists share the conventional view that takes tastes and preferences as given. Welfare economists and economists who see economics as one of several social sciences have always argued that tastes cannot be disregarded in economics. Pollak even claimed in 1970 that "Most economists would agree that past consumption patterns are an important determinant of present consumption patterns, and that one ought to distinguish between long-run and short-run demand functions" (Pollak 1970, p.745). In the late 1970s Pollak (1978) observed a new push to account for taste formation and taste changes in consumer demand analysis, which this time did not come from those "usual culprits", but from economists interested in consumer behaviour and empirical demand analysis. This Pollak saw as an important point since, as Friedman said, the ultimate test for any abstraction lies in its power to predict, and since the impetus in developing models to incorporate taste changes came from empirical economists, this power to predict must have been called into question (see for example Weizäcker 1971, Polak 1978, Swann 1999). This seems to be still true today. According to Gabaix and Laibson (2008), economists have put too much emphasis on being mathematically consistent and have elevated properties like parsimony, tractability, conceptual insightfulness, and generalizability. Yet, at the same time, they have not put enough emphasis on predictive accuracy. Gabaix and Laibson further believe that economic models that make weak predictions (or no predictions) are limited in their ability to advance economic understanding of the world.

In particular, predictive power suffers in the case of endogenous changes in tastes. This refers to a situation in which what one consumes in the present alters the preferences

one has in the future (Hammond 1976). Pherson (1987) describes the divide of intellectual labour on tastes between economists and other disciplines as "efficient in the common view", but notes that when tastes change because of changes in economic variables making tastes endogenous to the economic system – such as when a learning process is needed for some goods that haven't been experienced before, or when goods are "habit-forming" – "the division of labour will not be so neat".

Endogenous changes in tastes, whilst not exclusive to the arts, seem to be particularly relevant in demand for the arts since experiences are known to influence future experiences and learning is continuous. It is for that reason that tastes and differences in tastes do matter in an analysis of demand for cultural goods[1].

And this is where the circle closes. It is clear that a concept is needed that can be incorporated into an economic analysis of demand for cultural goods that (a) breaks the circular advice currently given to policy-makers to increase attendance by increasing attendance (Seaman 2005, p.108); and (b) explains the heterogeneity in tastes for cultural goods between those looking for an aesthetic experience and those looking for entertainment.

This thesis puts forward and tests the proposition that the concept of aesthetic taste as defined in aesthetics and operationalized as perceptual expertise – a concept used in cognitive psychology – can provide the answer to both of these requirements. As we will see in Chapter 2, a significant number of philosophers have thought that the essence of arts consumption is development of aesthetic taste. Empirical research so far, however, has not attempted to measure this concept of taste directly or to investigate its role in economic demand as distinct from the role of other concepts such as past exposure and education.

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[1] See Choi et al. (2007) and Grisolia et al. (2010) for recent examples of empirical investigations in cultural economics that deal with differences in tastes (or attitudes) between people in relation to cultural goods and how consumer behaviour is affected.

1.2 AIMS AND OBJECTIVES

This thesis aims to contribute in several areas:

Firstly, it aims to advance research on demand for cultural goods by accounting for aesthetic taste in a model of consumer choice of cultural goods, thus contributing to finding an explanation for the two puzzling phenomena mentioned earlier: that some people are passionate arts consumers, whilst others are not; and that the best-selling cultural goods are generally the ones considered the most entertaining rather than the ones with the greatest aesthetic merit. In particular, this thesis aims to contribute to the literature on demand for cultural goods in a number of ways:

(1) Theoretical: Aestheticians have for centuries written about taste, and cognitive psychologists have investigated perceptive expertise for decades. This thesis aims to point out the parallels between the two concepts and to investigate whether aesthetic taste can be formulated – distinct from past exposure – as a form of perceptive expertise that is influenced by aesthetic language proficiency and general knowledge about the particular category of cultural goods.

(2) Methodological:

a. Based on this novel interpretation of aesthetic taste as a form of perceptive expertise, this thesis sets out to specifically develop and test two ways of measuring aesthetic taste in people via survey methods:

- directly, by using the proportion of aesthetic statements presented that is understood by respondents, and the proportion of playwrights known out of a list of playwrights;

- and indirectly, by asking respondents to assess their own levels of aesthetic vocabulary proficiency and general level of theatre knowledge.

b. Three different measures of aesthetic qualities in theatre plays are developed and tested:

- one possible measure of aesthetic qualities that is suggested and tested is the number of aesthetic terms used in the play description;

- a second, binary, measure is formulated as "strength" of aesthetic character – a more consolidated form of measurement as compared to the first one described here;

- A third way of measuring aesthetic qualities in theatre plays suggested in this thesis is via star ratings attributed by theatre reviewers in two local media.

c. Although choice models and discrete choice experiments have been used before by cultural economists, their application is still relatively sparse. Another aim of this thesis, therefore, is to broaden the application of choice theory and discrete choice experiments (DCE) to cultural goods.

(3) Empirically: The thesis uses theatre plays in a survey instrument as they are presented in "the real world" rather than constructed as attribute-combinations as is common in discrete choice experiments. Respondents can see the play title, name of the playwright, ticket price, plot, venue and description of the play, the objective being to introduce greater realism into DCE of cultural goods.

Secondly, it hopes to provide useful information to policy-makers and managers of cultural institutions by aiming to show that exposure to cultural goods is necessary but not sufficient alone for developing aesthetic taste and thus demand for cultural goods.

1.3 STRUCTURE OF THE THESIS

The aim of Chapter 2 is to establish a solid understanding of the often quite nebulous concept of aesthetic taste to such an extent that will allow us to measure it empirically by means of a survey of individuals in Sydney, Australia. To that end, the chapter reviews the concept of aesthetic taste, in particular:

- its historical origin in aesthetics as an ability in humans to perceive certain qualities in cultural goods;

- its definition as compared to different meanings of "taste" that are common in both economics and sociology;

- its relationship to aesthetic qualities in cultural goods, and how those aesthetic qualities relate to observable non-aesthetic qualities in cultural goods;

- how it can be developed by actively perceiving aesthetic qualities and acquiring a richer vocabulary to describe those qualities, and by increasing one's knowledge of the cultural goods category; and

- how it affects the experience of consuming a cultural good.

Based on an extensive review of literature on taste in aesthetics, it will be shown that aesthetic taste can be interpreted as distinct from pure familiarity with a cultural good, namely as a form of perceptive expertise that any human can develop given the right conditions. Aesthetic taste interpreted in this way can be understood as the ability to perceive certain qualities that are central to the consumption of cultural goods. These qualities cannot be directly observed with the normal senses (seeing, hearing, etc.) and are referred to as "aesthetic qualities". Different aesthetic qualities can be distinguished depending on the cultural goods category, and renowned aestheticians have argued that although aesthetic qualities ultimately rely on the existence and arrangement of non-aesthetic qualities, they are not rule-governed and thus no general conclusions about how they are formed or created can be drawn. One simplification that this thesis introduces in order to circumvent the discussion about whether or not specific aesthetic qualities exist in the cultural goods used in the empirical study is the concept of "strength of aesthetic character", which is seen as the whole set of aesthetic qualities of the cultural good.

Familiarity with a cultural good, on the other hand, can be interpreted as the accumulation of pure exposure to that cultural good – without any or with only little

knowledge of the creation, the history and the intention of the cultural good in question, and without any conscious reflection or discussion on the aesthetic qualities of the cultural good.

Theatre plays have been chosen as the empirical field in which to test the hypotheses to be developed. Chapter 3 thus reviews the economic literature on consumer demand for the performing arts, starting with a more general literature review and in later sections with a particular focus on research targeting what has been referred to as "taste refinement", "learning-by-consuming" and "taste cultivation".

Chapter 4 proposes a general model of aesthetic taste development and cultural goods choice, which is used as a basis for developing nine specific hypotheses. One of the central aims of this thesis as stated earlier is to test whether aesthetic taste can be interpreted as a concept distinct from familiarity with a cultural good (as measured in terms of past exposure). To that end, different hypotheses are formulated between aesthetic taste, familiarity and consumer (choice) behaviour. Specifically, the hypotheses developed address the relationship between aesthetic taste development on the one hand and familiarity on the other, and their respective relationship with:

- the probability to purchase a cultural good (H1 and H2);
- heterogeneity of tastes in demand for cultural goods (H3, H4, H5 and H6),
- the aesthetic nature of cultural goods (H7, H8 and H9).

Chapter 5 documents the conduct of the survey, socio-demographic frequency and descriptive statistics of the survey respondents, and shows how the measures for aesthetic taste and aesthetic qualities were developed. Reasons for choosing an online discrete choice experiment as the methodology for data collection are given. The plays used in the DCE are described and the experimental design used is outlined.

Aesthetic taste in respondents is measured in two ways: directly, by asking respondents about their comprehension of a set of aesthetic statements on theatre plays, and about their knowledge of a number of playwrights; and indirectly, by asking respondents

to self-assess their behaviour when reflecting on an attended theatre performance and their general level of theatre knowledge.

Three different ways to measure aesthetic qualities in theatre plays are proposed and the respective variables created. One measure counts the number of aesthetic attributes in a play description, the second is a binary variable assessing whether or not a play has a strong aesthetic character (also based on the play description provided by the theatre), and the third set of measures is drawn from star-ratings attributed to plays by theatre experts reviewing the plays for local print media.

Chapter 6 presents results of the hypotheses tested. Two basic hypotheses test the relationship between aesthetic taste development and average probability to attend a theatre play (H1), and between familiarity and average probability to attend a theatre play (H2). To test these two hypotheses, binary conditional logit models – whether respondents choose to purchase a ticket to a play or not – are estimated. We estimate four different models for each hypothesis, varying how aesthetic taste is measured (only including direct measures of aesthetic taste, only including indirect measures of aesthetic taste, including both direct and indirect measures, and a "conventional" model that does not include any measures of aesthetic taste). Likelihood ratio tests conducted reveal that models including measures of aesthetic taste perform significantly better, which is in support of both H1 and H2. As an alternative model to test H1 and H2, we also conduct a tobit model that leads to results similar to those found with the binary logit models.

Four hypotheses are formulated with respect to general taste heterogeneity: H3 assumes that aesthetic taste can help explain taste heterogeneity; H4 states that familiarity can help explain taste heterogeneity in a model of consumer demand for cultural goods; and H5 tests a specific hypothesis based on Loewenstein and Angner (2003), namely whether development of aesthetic taste leads to preferences becoming more discriminating. H6 states that we expect people with higher levels of aesthetic taste to be more omnivorous, in the sense that they are open to a wider variety of cultural goods within one cultural goods category.

In order to test H3, H4 and H5, multinomial logit (MNL) models are estimated that include only alternative-specific constants (one per play + one "none" alternative). As before, we estimate four different models, varying the inclusion of direct and indirect measures of aesthetic taste. Again we conduct L-ratio tests that show support for H3 and H4, which means that the inclusion of measures of aesthetic taste and familiarity in models of consumer demand for cultural goods is advisable. We cannot find any evidence in support of H5, the hypothesis that states aesthetic taste development leads to more discriminating preferences.

To test H6 we construct an indicator variable, that signifies whether an individual has a non-zero or zero probability of choosing a particular play, and sum over all plays for each individual, thus measuring the number of plays for which a particular person has a non-zero probability of choosing it. We then conduct several ordinary least-squares (OLS) regressions (again using alternative measures of aesthetic taste) to test H6 and find some evidence in support of it.

Two more hypotheses were formulated with respect to the relationship between aesthetic taste and the aesthetic character of cultural goods (H7 assumes this relationship to be positive) and the relationship between familiarity and the aesthetic character of cultural goods (H8 assumes this relationship to be of no or of only weak significance).

In order to test H7 and H8, the theatre plays used in the discrete choice experiment are "broken down" into attributes at the stage of the analysis. Four attributes are of a general nature (average familiarity with the playwright, average familiarity with the theatre venue, ticket price, and a binary variable that captures whether an alternative is an actual theatre play or the "none" alternative); three attributes capture the content of the play's introductory text (whether it makes reference to a romantic or sexual relationship, a catastrophic event or an artistic profession); four attributes capture the content of the play description (critical, comedic, tragic, psychological); and five attributes are defined as alternative measures of aesthetic qualities in theatre plays (via number of aesthetic terms used, a binary variable, and star ratings attributed by local media).

We use these attributes to conduct a series of MNL models, where we test the performance of the three different measures of aesthetic qualities and include/exclude interaction terms between aesthetic taste and familiarity variables with variables measuring aesthetic qualities. In all cases we find at least some support for our hypotheses H7 and H8.

Another hypothesis (H9) is formulated based on research conducted by Latour and Latour (2010), who find different types of wine consumers: aficionado consumers who have high past exposure but low expertise (in our case, aesthetic taste), and expert consumers who have high past exposure *and* high expertise. H9 hypothesises that we will also find these two types of consumers amongst consumers of cultural goods.

H9 is tested using latent class analysis, estimating several latent class models with different number of classes. Using the Bayesian Information Criterion (BIC), the 6-class solution turns out to be the optimal solution. We find weak support for H9, with some coefficients in the utility function being lower than anticipated, most probably due to the way the data were collected.

Chapter 7 concludes and provides implications for arts policy and arts organisations, as well as introduces ideas for further research.

2 AESTHETIC TASTE, A PERCEPTIVE SKILL

The biggest peril when talking or writing about the word "taste" is that everybody is under the impression that they know what it means. We think of taste as: "She has a taste for wine" or "he has a good taste" or "olives are an acquired taste". When mentioning taste to economists, most think of heterogeneity of tastes, which puts tastes somehow in line with what economists interpret as our preferences. This chapter shows that there exists a completely different meaning of the notion of "taste" that has been neglected in everyday life as well as in economic demand analysis of artistic goods. The reason why this different meaning of taste matters is because many influential thinkers have claimed that taste is the essence, the root of consumption of artistic goods.

The chapter starts with distinguishing the aesthetic concept of taste from the ways it is used in other disciplines, namely economics and sociology. This distinction is crucial since it is the concept of taste in the aesthetic sense and its supposedly essential role in the consumption of artistic goods that are the primary concerns of this thesis. The chapter continues by exploring in greater detail the aesthetic concept of taste in order to gain a better understanding of what it means "to have taste" in an aesthetic sense; this will provide a theoretical basis upon which hypotheses can be formulated. To that end, several other aesthetic concepts that are essential to understanding aesthetic taste will also be discussed, such as judgment of taste, aesthetic judgment, aesthetic qualities and aesthetic experience. Being philosophical notions, many of the terms introduced here are still subject to academic debate about their exact meaning. The various subchapters here reflect this on-going debate. For economic analysis however, we do need clear definitions of terms. A summary at the end of the chapter thus states clear definitions of all notions as they are used in this thesis.

2.1 ECONOMIC, SOCIOLOGICAL AND AESTHETIC MEANINGS OF TASTE

The very different meanings of the notion of "taste" are reflected in the Oxford Dictionary of English (1998). Leaving aside those interpretations that address the organ of taste (e.g. to eat and drink) and those that focus on the act of experiencing or consuming a small quantity of some good or sensation ("I want only a small taste of it"), the Oxford Dictionary provides three separate definitions of "taste":

(1) taste as "the fact or condition of liking or preferring something; inclination, liking *for*, appreciation" or "the object of one's liking or preference", which is the way <u>economists</u> most commonly use the word "taste", often in its plural form "tastes".

Economists have often used the notion of taste interchangeably with notions such as wants, ends, preferences or desires (see for example Weizacker 1971; Stigler and Becker 1977; Pollak 1978; McPherson 1987). This trend of blurring the original aesthetic notion of taste with taste in the sense of preferences started with Pareto, who brushed aside centuries of philosophical research by writing that "taste is not a faculty to be developed and improved. It is any kind of predilection the user of a commodity might have and which he or she is able to rank in their order of preference" (Pareto in Hutter and Shusterman 2006, p.187). Taste in the sense of preferences cannot be refined. It also cannot be quarrelled about. Taste in that sense is personal and subjective, and has to be taken as given. Thus, economists have made "taste" the same as or closely related to the notion of "preferences", which are defined as "liking for or estimation of one thing before or above another; prior favour or choice" or "that which one prefers; the object of prior choice; the favourite" (1998). A preference is a value judgment that is subjective and relative as it may change over time (Wright 1987). From the above it is apparent that "taste" as in definition (1) and "preference" are used and defined in a very closely related way. Taste is the broader and therefore vaguer concept as compared to preference but in an economic context taste and preference are more or less synonymous.

The second definition in the Oxford Dictionary states:

(2) taste as a "mental perception of quality; judgment, discriminative faculty", which is in essence the <u>sociological interpretation</u> of taste.

As the second definition indicates, this meaning of taste is widely used in sociology, most prominently in Bourdieu's work, who argued that taste is purely culturally determined: "a work of art has meaning and interest only for someone who possesses the cultural competence, that is, the code, into which it is encoded. (…) A beholder who lacks the specific code feels lost in a chaos of sounds and rhythms, colours and lines, without rhyme or reason" (Bourdieu and Nice 1984, p.2).

Using this interpretation of taste, the implication that follows is that there is no intrinsic value, no true value to art; the value is created somewhat arbitrarily, disconnected from anything in the artworks, instead only created by society and connected to the artworks through training and encoding, similar to computer programming.

In the third, and in this context only, relevant definition of taste as stated in the Oxford Dictionary:

(3) *taste* as an ability in a person to understand and feel certain qualities in the world. Taste in this sense is described as "the sense of what is appropriate, harmonious, or beautiful; *esp.* discernment and appreciation of the beautiful in nature or art; *spec.* the faculty of perceiving and enjoying what is excellent in art, literature, and the like", and this captures the <u>aesthetic interpretation of taste</u>, which is also the original, earliest meaning of the notion.

The aesthetic meaning of taste in definition (3) will be explored in greater detail further below, but already just by comparing it to definition (1) above it is apparent that it is very different from the one imposed by Pareto. In the aesthetic sense, taste is an ability whereas for Pareto and other economists following his view, taste is simply a "statement of preference".

Taste as in definition (3) is also very different from the sociological interpretation of taste (definition 2) as a – more or less arbitrary – code that has to be learned and understood. Etlin observes that such a (Bourdieuan) world view dismisses any humanist concepts, along with the rights of man "either as a ploy to mask true and nefarious intentions for domination or as a weapon in the struggle to oppress the masses" (Etlin 1998, p.124). He parallels aesthetic appreciation with the learning of language. Although humans have an innate ability for language, they are not born speaking a particular tongue but have to learn it, which takes time and effort. Whilst most children are spoken to and taught language from an early age, aesthetic training is rarely provided by the parents. As one would not expect somebody to speak a language fluently without having learned it for many years, one cannot expect someone to appreciate a complex artwork without having had exposure and training earlier in life. Rather, one's psyche has to be "awakened" and not, as sociologists have argued, instructed with a code.

In response to Bourdieu's "code", Etlin distinguishes between the essential language of the art form and secondary codes of signs and symbols that operate in works of art. He sees Bourdieu's codes as belonging to the secondary codes, such as allegorical or emblematic references to the visual arts. Yet, even without this knowledge of secondary codes, so Etlin argues, one is able to experience aesthetically (Etlin 1998, p.153). He contends that one has to distinguish between the sociology and the aesthetics of art. Whereas "the valuing of uniqueness" belongs in the domain of the sociology of art, "the true, intrinsic aura, as well as authenticity adhere to the aesthetic of art" (Etlin 1998, p. 125).

Whilst the sociological concept of taste (definition 2) is an interesting field of investigation, this thesis is not concerned with taste as sociologists have used the notion, but only with the aesthetic meaning of the word (definition 3), since it is aesthetic taste that seems most relevant in true art appreciation and hence in consumer demand for artistic goods. Despite its importance for cultural goods consumption, aesthetic taste has so far failed to be the focus of specific economic research. This thesis aims to fill this gap, at least to some extent.

The aesthetic origin of the word "taste", its meaning as well as related concepts will be reviewed in detail in the following pages, to allow for specific hypotheses to be formed about the effect of aesthetic taste on consumer demand. For the remainder of the present chapter the notion of "taste" is used in the aesthetic sense, but in the following chapters the distinction will be made between "taste" in the economic sense, and "aesthetic taste" in order to separate the two concepts.

2.2 HISTORY AND DEFINITION OF THE CONCEPT OF TASTE IN AESTHETICS

Before proceeding to define hypotheses and conduct empirical investigations, it is crucial to understand exactly what this seemingly elusive "taste" is. Hutter and Shusterman (2006) in their contribution to the *Handbook of the Economics of Art and Culture Vol 1* review both aesthetic and economic theories in regard to artistic value. In ancient philosophical theories and throughout the medieval and Renaissance periods, a "realist" view of values prevailed, where "abstract"' descriptions such as beauty were assumed to be objective properties of things. This changed with Descartes, who emphasized a view of the world based on physical terms and measurable properties, such that properties not directly measurable in mathematical terms (for example colour, texture, and in particular aesthetic properties) came to be regarded as subjective. This is the historical background against which theories of taste emerged[2].

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[2] It should be mentioned here that there exists a substantial amount of literature on artistic or cultural value that deals with notions of value other than utilitarian, arguing that cultural goods provide values that are not necessarily reflected in a utility function and aiming to break the concept down further or even aiming to measure its aspects (see for example Klamer 1996; Throsby 2001; Hutter and Shusterman 2006; Hutter and Throsby 2008; Levinson 2014; Throsby and Zednik 2014). In this thesis we want to assess the role of aesthetic taste in demand for cultural goods, thus restricting ourselves to

Going back several centuries, the literature on taste in aesthetics and the philosophy of art is so rich, and theories of the concepts discussed are so many, that this chapter could easily grow into a book or thesis of its own. This would certainly be an interesting and rewarding endeavour, but would not fit the stated purpose of laying out the fundamental theories and thoughts that underpin the hypotheses to be developed and tested in this thesis that will connect aesthetic taste to consumer demand for cultural goods. The other extreme would be to remain content with picking out a handful of definitions of taste, possibly drawing on only one or two authors. Rather we aim to find the right balance between giving sufficient detail of the history of concepts developed and of the ongoing disputes to show that the notions discussed here have solid theoretical underpinning, but at the same time leaving out details, complexities and concepts that are not central to the aim of this thesis.

The concept of taste discussed here first emerged in the 18th century, at a time when the Age of Enlightenment was on the rise. At that time, the study of the beautiful (which, later on, came to be the field of aesthetics) and the good (which came to be ethics) were still closely related. Shelley argues that the notion and concept of taste "emerged, in part, as a corrective to the rise of rationalism, particularly as applied to beauty, and to the rise of egoism, particularly as applied to virtue" (Shelley 2012b).

Dozens of theories of taste were developed, but for the purpose of this thesis it is sufficient to focus on the few writers who have found the greatest recognition amongst their peers and in contemporary aesthetics: Shaftesbury, Addison, Hutcheson, Reid, Hume and Kant. Other philosophers and their ideas are briefly mentioned where appropriate. Another restriction will be made in the literature discussed here: According to Dickie (1996, p. 85) two notions constitute the core of any theory of taste: the nature of the faculty of taste (What is taste?) and the nature of the object of taste (What is beauty?). Interest lies primarily in the former and not in the later.

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the utilitarian framework. For that reason the literature on artistic and cultural value is not part of the literature review in this thesis.

2.2.1 EARLY THEORIES OF TASTE: 3ᴿᴰ EARL OF SHAFTESBURY AND JOSEPH ADDISON

Anthony Ashley Cooper, 3rd Earl of Shaftesbury, lived from 1671 to 1713. He was one of the most influential philosophers of his time and influenced many other, particularly German, philosophers later. He can be considered one of the founding fathers of modern aesthetics and was the first to write about taste. He defined it as a "special faculty that made moral judgments and aesthetic judgments by respectively discerning the Forms of Good and Beauty. This special attitude allows man to properly grasp and appreciate beauty in a disinterested manner, without the desire to possess or control it" (Shaftesbury in Hutter and Shusterman 2006, p. 174). For Shaftesbury, taste is an instinctive, natural human tendency; an internal or mental sense (Gill 2012; Shelley 2012a). He holds the position that training is required to develop taste, and to make correct aesthetic judgments. As Gill puts Shaftesbury's point of view: "To achieve the pinnacle of aesthetic appreciation and virtuous activity – to become fully natural – one has to have an education and acumen that most people do not possess" (Gill 2012).

Most importantly, Shaftesbury introduced the idea of disinterestedness into aesthetics, which Stolnitz regards as the divide between traditional and modern aesthetics (Stolnitz 1961). Shaftsbury does so by claiming (quite confusingly with regard to the terminology used) that one ought to aim for "Enjoyment of the rational kind", which is enjoyment that is not merely sensory or bodily in nature (Shelley 2012a). He gives as an example a coin that can be appreciated for its beauty of form and design, in which case he would speak of "rational" enjoyment, as opposed to appreciating the coin for what it might buy, in this case Shaftesbury would speak of interested or "non-rational" enjoyment. Stolnitz sees disinterestedness as the central concept in aesthetics, as can be seen when he writes that "Ultimately the subject-matter of aesthetics is taken to be the experience of disinterested perception and the nature and value of its objects" (Stolnitz 1961, p.99). Disinterestedness is properly applied in that sense if the reader or spectator of a work of art frees him- or herself

of any self-interest, any social or moral interest, and of any interest to possess or use it; instead the reader or spectator attends to the object for its own sake.

Stolnitz points out two ways in which disinterestedness influences aesthetic theory: On the one hand, the concept of disinterestedness when noted for the first time in aesthetic theory, allowed works of art to be valuable for themselves; for their intrinsic structure and significance, rather than for their value in representing some reality or having some moral intent. On the other hand, disinterestedness is also what comes to be seen as important when distinguishing fine arts from entertainment (Stolnitz 1961).

Only one year later but without reference to Shaftesbury, Joseph Addison also developed a theory of taste, but it differed in many ways from Shaftesbury's. Like Shaftsbury, Addison had great influence on how theories of taste developed in Britain in the 18th century.

Addison defines tastes as "that Faculty of the Soul, which discerns the Beauties of an Author with Pleasure, and the Imperfections with Dislike" (Addison 1712) by which he not only means the discernment of general beauties and imperfections, but very subtle details as well, such as peculiarities in an artist's style of thinking and working, and being able to draw out parallels and differences from other artists. He describes taste as a faculty of the mind, an intellectual faculty, but at the same time he expresses the importance of sensation when he draws parallels to the sense of taste.

Shaftesbury and Addison both agree in taste as a faculty, and of the faculty having to be disinterested, but they disagree on the nature of the objects of taste: for Shaftesbury objects of taste are first and foremost objects of intellect, whilst for Addison they are objects of imagination; of visual representation.

2.2.2 FRANCIS HUTCHESON

Hutcheson picks up Shaftsbury's notion of taste as an internal sense and equates it with perception of beauty and harmony. He writes that whilst many men have perfect sense of hearing or seeing in that they can distinguish different pitched notes, different length and width of figures and objects as well as colours, they do differ in the sense of pleasure they

get from musical compositions, paintings, architecture or natural landscapes. He calls this greater capacity for receiving pleasant ideas "a fine genius" or "taste". He notes that for music it is generally acknowledged that having "a good ear" is different from the normal sense of hearing, and that in the same way we would probably also acknowledge this distinction in other areas if we had also distinct notions to denote those "powers of perception" (Hutcheson 1729, p.9).

In his *An Inquiry into the Original of Our Ideas of Beauty and Virtue* Hutcheson does not explain what makes this sense "internal". Unlike Shaftesbury who argued that all objects of beauty are internal, Hutcheson allows for external (paintings, landscapes, music) as well as internal (theorems, universal truths) objects of beauty, so "internal" cannot refer to the objects of taste themselves. Shelley analyses Hutcheson's idea of "internal" sense as "secondary", in that it depends on the operation of other powers – similar to the powers of reason and memory – while external senses do not (Shelley 2012a).

Importantly, Hutcheson distinguishes taste from extensive knowledge "which is derived from external sensation" about details and measurements of the object in question, whereas men of fine taste have a "much more delightful perception of the whole" (Hutcheson 1729, p.10). He does add, however, that knowledge could possibly add additional "rational" pleasure.

Other philosophers further developed theories of taste (as outlined in Shelley 2012a): Edmund Burke followed Addison's ideas but broadens the conception of imagination to encompass not only vision but all five senses. Burke is most famously known for his theory of the perfections of taste – the sublime and the beautiful. Alexander Gerard's theory of taste combines elements from both: internal-sense theorists such as Hutcheson, and imagination theorists like Addison. For Gerard, taste is still an internal sense although unlike internal-sense theorists he argues that objects of taste must acquire their pleasurability by association with sense and the memory of something that is naturally pleasurable, which he equates with imagination.

2.2.3 THOMAS REID

Thomas Reid also developed a theory of taste, drawing on Burke, Hutcheson, Addison and Gerald. Reid agrees with Hutcheson's definition of what makes taste an internal rather than an external sense, but sees taste as having not only an affective but also a cognitive component that ascribes properties to the object of taste. Otherwise, he argues, it would refer to nothing in the object and thus would merely be a perception of the mind.

Like sensory judgments, judgments of taste are immediate; they don't require reason to be made. This does not necessarily preclude reasoning that might help understand the object of taste. As Reid put it: "Beauty or deformity in an object, results from its nature or structure. To perceive the beauty therefore, we must perceive the nature or structure from which it results. In this the internal sense differs from the external. Our external senses may discover qualities which do not depend upon any antecedent perception. (…) But it is impossible to perceive the beauty of an object, without perceiving the object, or at least conceiving it" (Reid 1785/1852, VIII, I, p. 459).

Reid defines taste as "that power of the mind by which we are capable of discerning and relishing the beauties of nature, and whatever is excellent in the fine arts" (Reid 1785/1852, VIII, I, p. 455). He distinguishes clearly between the pleasurable emotions a beautiful object produces, from the quality of the object itself that produces these emotions. He further distinguishes between people who experience pleasurable emotions when consuming something but don't know why this is so, from people who are "more enlightened"; who perceive the details of the object of taste and who understand the perceived beauty (Reid 1785/1852, VIII, I, p. 456).

Reid acknowledges that people tend to differ more when it comes to taste than when it comes to other standards of truth (for example judgments of "truth and error"); however, he strongly dismisses the idea that this greater variety in tastes is an indication that there is no standard of taste, as stated in the proverb, "*there ought to be no dispute about taste*" (Reid

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1785/1852, VIII, I, p. 457, emphasis in the original). A judgment of taste for him is composed of a pleasing feeling, as well as a judgment about a quality in the object of taste.

Reid also writes about the objects of taste, which for him are those qualities in things that are by nature adapted to please good taste. He cites Addison who reduced those qualities to novelty, grandeur and beauty, but from his writing it becomes apparent that he does not necessarily agree with this distinction. He understands the three qualities to be only those three, since for other qualities that might also qualify, there are no distinct names and are thus subsumed under the quality of beauty.

Interestingly, Reid also observes that people tend to ascribe qualities of the mind to material objects and vice versa. He observed that "… we shall find many qualities of mind denoted by names taken from some quality of body to which they have some analogy without any thing common in their nature" (Reid 1785/1852, VIII, II, p. 465). Examples he gives are sweetness, austerity, simplicity, duplicity. On the other hand he gives examples where the use of language commonly ascribed to living things is used for inanimate things in phrases such as "the sea rages, the sky lowers, the meadows smile, the rivulets murmur, the breeze whispers, the soil is grateful or ungrateful" (Reid 1785/1852, VIII, II, p. 465). These transfers of one subject's vocabulary to another's and its usage as metaphors makes objects of the mind more comprehensible and material objects more dignified, so he argues. "The man who is skilled in painting or statuary sees more of the beauty of a fine picture or statue than a common spectator. The same thing holds in all the fine arts. The most perfect works of art have a beauty that strikes even the rude and ignorant but they see only a small part of that beauty which is seen in such works by those who understand them perfectly and can produce them" (Reid 1785/1852, VIII, II, p. 468).

Based on this statement he goes on to distinguish between "instinctive" and "rational" beauty, where the former is experienced by every human and even animal instinctively, but without being able to express the reason for the experience of delight, for example in a bird's plumage, a butterfly or a shell. "Rational" beauty on the other hand is based on some quality in the object of taste that is "distinctively perceived, and may be specified" (Reid 1785/1852,

VIII, II, p. 470). In other words, people who experience rational beauty can give reasons for their pleasure as opposed to people who experience instinctive beauty.

2.2.4 DAVID HUME

The British philosopher David Hume has received increasing attention since the second half of the 20th century. Hume has not developed a different theory of taste but has, relying on Hutcheson's definition of taste as an internal sense and drawing on Addison's claim of objects of taste as objects of imagination, focused on developing a theory of the standard of taste. His most widely known work on taste "Of the Standard of Taste" was published in 1757.

Hume starts his essay "Of the Standard of Taste" with an observation, namely that there is a great variety of taste that is obvious to everyone (Hume 1757, p.1). He defines a "Standard of Taste" as "... a rule, by which the various sentiments of men may be reconciled; at least a decision, afforded, confirming one sentiment, and condemning another" (Hume 1757, p.2), where sentiment is a general label for emotions. He proceeds by arguing that there exists "a species of philosophy" which would declare such an attempt as futile, since there seem to be – so they say – no arguing over sentiments (all sentiment is right) whilst there is out of a thousand opinions in matters that involve reasoning, only one correct one. He goes on to explain this line of thought and cites, as also Reid did, the common proverb that it is fruitless to have a dispute concerning tastes. From then onwards though, his essay builds arguments against this view, and in favour of the existence of a standard of taste. He argues that there are certain general principles of taste that are "… nearly, if not entirely the same in all men" (Hume 1757, p.7), which thus also implies that every person is capable of engaging these general principles of taste. However, the problem is that the "organs of perception" are often clouded in people, so that true taste is rare. Thus, only people who have unclouded taste, that is, who have delicacy of taste, who have gained practice through experience, who know enough to make appropriate comparisons, who have a "good sense" and lack prejudice are for Hume the people who define jointly the standard of taste.

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Nevertheless, Hume acknowledges that there are two sources of natural variation in taste: "the one is the different humours of particular men; the other, the particular manners and opinions of our age and country" (Hume 1757, p.8). By "different humours" Hume refers to some deeply grounded preferences in a person's temper and character that ultimately affect our predilections. He states that such differences are natural and excludes them explicitly from any standard of taste. In terms of "manners and opinions of our age and country", Hume claims that education helps to understand and overcome the barriers that foreign ages and places imply, but that a common audience is not capable of enjoying objects that are totally foreign to them.

In his comprehensive article, Gracyk (2012) makes clear that Hume's aesthetic theory cannot only be found in his essay "Of the Standard of Taste" but that it is integrated into his philosophical system. He draws out parallels and connections to moral judgments in several of Hume's publications, since it was only with Kant, whose "Critique of Judgment" was published in 1790 – 14 years after Hume's death – and his redefining of disinterestedness that aesthetic judgments become distinct from moral judgments.

George Dickie argues that Hume's famous essay "provided the best expression that the theory of taste was ever to achieve" (Dickie 1996, p.3). Dickie was particularly concerned about the idea – as promoted by Hutcheson, Gerard and Kant – that there is one or many faculties of taste, which Dickie himself takes quite literally to be "a view that there is a specific mental structure or combination of mental structures that functions where matters of taste are concerned" (Dickie 1996, p.124). Hume, so Dickie argues, does not follow this tradition but merely says that taste involves sentiment. Hume does however talk about "the organs of internal sensation". This is where he locates the "defects" (such as the "lack of delicacy") "which prevent or weaken the influence of those general principles, on which depends our sentiment of beauty or deformity" (Hume 1757, p.4).

2.2.5 Immanuel Kant

Kant defines taste as "the faculty of estimating the beautiful" (1790/1987, p.476). He identifies two fundamental necessary conditions that make a judgment of taste: subjectivity and universal validity. A subjective judgment is a judgment that is based on imagination (acting perhaps in conjunction with understanding as he notes) and is grounded in the subject's feeling of pleasure or displeasure. He distinguishes subjective judgments from empirical judgments that are based on cognition and logic. Empirical judgments refer to something in the object; something that is objective as opposed to judgments of taste that refer to something (pleasure or displeasure) in the subject and are thus subjective.

The second characteristic of judgments of taste is "universal validity", which Kant derives from the already existing idea of disinterestedness as introduced by Shaftesbury. Being disinterested means that the person making the judgment has no interest or desire whatsoever in the real existence of the object of taste, since the delight, so he argues, that is connected with the real existence of an object always involves some desire. The sole important factor is whether or not the "mere representation" of the object is beautiful or ugly. Judgments that are made with even the slightest hint of an interest are partial and not pure judgments of taste (Kant 1790/1987, p. 477). It is this disinterestedness whereby the pleasure that judgments of taste are based on differ from pleasure in and judgments of the agreeable (such as food or wine); pleasure in what serves one's self-interest or moral satisfaction.

If one is free of interest, there are therefore no reasons to believe that one's delight might come from personal conditions that only apply to oneself. It is for that reason that someone free of interest must regard the delight in being founded upon what "he may also presuppose in every other person; and therefore he must believe that he has reason for demanding a similar delight from every one" (Kant 1790/1987, p. 479). It follows from there, so Kant argues, that one's demand for similar delight in others leads one to speak as if beauty were a quality of the object. Consequently, the judgment made resembles a logical

(objective) judgment, which, however, it is not, since pleasure derives from feelings in the subject and not from concepts or anything bearing upon the object. Kant thus sees judgments of taste as claiming validity for all men, not by attaching it to the object's but to the subject's disinterested pleasure.

Different from judgments of the agreeable where Kant sees the saying "each to their own taste" applicable, judgments of taste are judgments where the person making them demands of others to share this judgment. As Kant puts it, the beautiful is very different from the agreeable, or from what pleases the individual. Saying that something is beautiful is by definition claiming the subjective universality, so for Kant it is ridiculous if someone says "This is beautiful to me", since it is either beautiful and thus claims subjective universality, or it is agreeable to one personally, in which case one should not use the world beautiful. He writes:

> Many things may for him possess charm and agreeableness – no one cares about that; but when he puts a thing on a pedestal and calls it beautiful, he demands the same delight from others. He judges not merely for himself, but for all men, and then speaks of beauty as if it were a property of things. Thus he says that the thing (emphasis in the original) is beautiful; and it is not as if he counted on others agreeing in his judgement of liking owing to his having found them in such agreement on a number of occasions, but he demands this agreement of them. He blames them if they judge differently, and denies them taste, which he still requires of them as something they ought to have; and to this extent it is not open to men to say: "Every one has his own taste." This would be equivalent to saying that there is no such thing at all as taste, i.e. no aesthetic judgement capable of making a rightful claim upon the assent of all men (Kant 1790/1987, p. 480).

Kant made the concept of disinterestedness famous. He reinterpreted it to say that an interested judgment is one that involves a desire, such as when one judges an action as morally good because there is an underlying desire – to see a morally good action – underpinning the judgment. In contrast, a judgment of taste is disinterested in that there is no

underlying desire that it be anything in particular. In other words, there is no practical

intention behind our judgment.

2.3 AESTHETIC JUDGMENTS AND AESTHETIC QUALITIES

The characteristics that all these theories of taste have in common is that they portray

judgments of taste as sensory judgments in that they do not rely on reason to be made and

that they do not obey any rules or principles. However, as Shelley notes, this does not

preclude the involvement of reasoning in understanding the objects of taste, which may

require a lot of cognitive work. It is thus important to "…distinguish between the act of

grasping the object preparatory to judging it and the act of judging the object once grasped

…" (Shelley 2012b).

Zangwill emphasizes the normative constraint in a judgment of taste that is lacking in

judgments of the agreeable. Some judgments of taste are correct, whilst others are not.

Some judgments of taste are better than others. Whilst sometimes it might be impossible to

determine which of two judgments of taste are better, other times it might be very obvious.

Since judgments of taste are based on responses of pleasure, the same normativity (the idea

that some judgments are correct or better than others) also applies to these responses of

pleasure. Some responses of pleasure are more appropriate to its object than others. In fact,

it is the normativity of the responses of pleasure that implies the normativity of judgments of

taste (Zangwill 2012).

Normativity is a touchy subject. As Zangwill (2012) puts it: "Relativism about value of

all sorts is part of the *Zeitgeist* of a certain recent Western cultural tradition." A lot of

contemporary academics and non-academics feel more comfortable with the idea that there

is no right and wrong about matters of taste, that everybody's judgments of taste are equally

valid. This attitude seems to be very tolerant and anti-authoritarian and thus more in line with

the mores of contemporary Western societies that value equal rights, democracy, freedom of

speech and a free market economy. Zangwill, however, notes two points that show relativism

is in fact hypocritical and intolerant: firstly, he argues that not only is relativism in aesthetics very much out of step with common practice, but that, similar with moral relativism, "one can virtually always catch the professed relativist about judgments of beauty making and acting on non-relative judgments of beauty". Secondly, and more importantly, if all judgments are equal, then the relativists put their judgment – namely that all is relative – above everyone else's, since if there is no incorrect judgment, they cannot be wrong. "Only those who think that there is a right and wrong in judgment can modestly admit that they might be wrong."

Similarly to normativity, elitism has been an unpopular concept in recent times. One has to distinguish two kinds of elitism, though, as Etlin observes: "When elitism means unfair advantage it is wrong; when elitism means the recognition of superior achievement, it is ennobling. (…) The humanist studies genius to appreciate better the workings of the human mind, to understand better how value is achieved in art, and to marvel at the splendor of artistic creation that far exceeds anything that we can explain" (Etlin 1998, p. 103).

Drawing on Kant's theory and Zangwill's explanations, judgments of taste can thus be positioned according to two dimensions in relation to judgments of the agreeable (that is, judgments of liking) and empirical judgments (judgments that are either true or untrue): the location of the features the judgment is based on (subjective versus objective), and the judgment's validity (individual versus universal). Judgments of taste are like judgments of the agreeable in that they are made based on an internal sensation of pleasure or displeasure (they are subjective), and they are like empirical judgments in that they appeal to universal validity. These judgments are depicted in Figure 1.

Through the interpretation of judgment of taste as following no desire, Kant aligned the concept of taste with the concept of the aesthetic. The term "aesthetic" itself derives from the Greek term for sensory perception and was first used by Alexander Baumgarten; however it was through Kant that the term became an adjective corresponding to "taste" and eventually more popular than the notion of "taste" itself (Shelley 2012b).

Judgments of taste focus on beauty and ugliness. The contemporary notion of aesthetic judgment not only includes judgments of beauty and ugliness, but also judgments of other aesthetic characteristics such as elegance, gracefulness, dumpiness or delicacy. Zangwill (2012) argues that these "substantive aesthetic judgments" still have a close connection to the two "verdictive aesthetic judgments" of beauty and ugliness, and that it is only because of this intimate relationship that we can think of all these judgments as belonging to the same category of aesthetic judgments. Substantive aesthetic judgments, so Zangwill argues, show different ways of being beautiful or ugly and they imply beauty or ugliness, which remain thus the central aesthetic notions and give sense to the wider class of aesthetic judgments.

Several philosophers in the 18th century (for example Hutcheson and Kant) aimed to define certain rules or laws of beauty that aesthetic judgments about whether an object is beautiful or ugly follow. Hutcheson, for example, discusses "uniformity amidst variety" as a necessary and sufficient condition for beauty. Hume, on the other hand, talks about "beauties

and blemishes" in general, without trying to define explicit principles of beauty. In the middle of the 20th century, once again aesthetic philosophers argued about whether there are general principles and rules that can be derived to say that a work of art is beautiful if it has certain characteristics. Generalists argued that there do exist such rules and principles, whereas particularists rejected the existence of such rules and principles (see Shelley 2012b for a list of important contributers to both sides).

Together with Arnold Isenberg (1949) who holds a firm particularist view that negates the existence of any such principles, Frank Sibley has been one of the greatest influencers in this debate. Sibley distinguishes two broad groups of remarks or judgments one can make about works of art: non-aesthetic and aesthetic. Aesthetic terms require "the exercise of taste, perceptiveness, or sensitivity, of aesthetic discrimination or appreciation" (Sibley 1959, p.421; but see also Sibley 1965) which he defines as the ability to notice or discern aesthetic qualities. He remarks that although people with wide-ranging and refined taste are rare, most people are able to exercise taste "to some degree and in some matters" (p.423). He distinguishes three types of aesthetic judgments:

- judgments that use aesthetic terms such as "balanced" or "powerful";

- judgments that do not use aesthetic terms but do use non-aesthetic terms (examples he gives are "it's not pale enough" or "there are too many characters"); and

- purely evaluative judgments ("verdicts") that determine whether artworks are aesthetically good or bad, worse or better than others.

Sibley's interest lies only in discussing the first two types of aesthetic judgments that he deems more important than purely evaluative ones (Sibley 1965, p.136).

Aesthetic qualities, whilst not unique to the arts, are essential to artistic goods. Although aesthetic qualities are not directly observable facts – such as size, colour or the type of instrument used – they nevertheless convey important information about an artwork, because these aesthetic qualities describe how an artistic good is perceived; how it reacts

with one's senses and feelings. Thus it is not the descriptive non-aesthetic features but the aesthetic qualities they entail that are important in relation to artistic goods. Aesthetic qualities are what make artistic goods different from other goods whose primary or main purposes are practical. Artistic goods like recorded music, theatre plays, novels, paintings or sculptures can be described in terms of features that are clearly discernible, such as the number of instruments playing a piece of music, the length of a play or the size of a painting. No particular training is needed to perceive these features and there is rarely any disagreement between people when discussing these features. Although such non-aesthetic, descriptive terms can be used to talk about artistic goods, most people would agree that even if we describe the discernible features of an artistic good in great detail, we still would not be able to truly understand the artwork itself because artistic goods appeal as a whole to our senses and feelings.

As Sibley explains, there are different kinds of aesthetic qualities. Some terms, such as graceful, elegant, lovely or garish only function in aesthetic ways, whether they are used in everyday language or used for making aesthetic judgments of artworks. Other terms are rarely used for describing objects aesthetically, for example noisy, square, faithful or red. Often, however, expressions can be used in two ways, either aesthetically or for everyday usage, depending on the context. Examples Sibley gives are expressions such as "sets up a tension" or "holds it together". Some terms have their origin in some other realm of everyday life, but have become established as aesthetic terms by way of metaphorical usage. Examples are integrated, dynamic, delicate, moving (Sibley 1959, p.422).

Aesthetic qualities ultimately depend upon the presence of non-aesthetic, descriptive features that are visible, audible, or otherwise discernible without any exercise of taste or sensibility. Sibley firmly argues that "aesthetic words apply ultimately because of, and aesthetic qualities ultimately depend upon, the presence of features which, like curving or angular lines, color contrasts, placing of masses, or speed of movement, are visible, audible, or otherwise discernible without any exercise of taste or sensibility" (Sibley 1959, p.424). It is the combination of such non-aesthetic properties that makes an object graceful, moving or

dynamic. Zangwill (2012) points out that dependence implies the following supervenience relations: cross-object supervenience (two objects that differ aesthetically must also differ non-aesthetically); cross-time supervenience (an object that is changed aesthetically is also changed non-aesthetically); cross-world supervenience (an object could not have been aesthetically different unless it were also non-aesthetically different).

Despite the dependence and supervenience of aesthetic properties on non-aesthetic properties, there are no rules or laws between them such that one could say "if an object had this (insert any non-aesthetic properties), it would have (insert any aesthetic properties)". Sibley, for example, writes: "There are no sufficient conditions, no non-aesthetic features such that the presence of some set or number of them will beyond question justify or warrant the application of an aesthetic term" (Sibley 1959, p.426) (see also Isenberg 1949; or Zangwill 2012). Thus, aesthetic properties are anomalous. What Sibley does admit, though, is that taste concepts might be negatively governed by conditions, in that the existence of some non-aesthetic features precludes the object from having certain aesthetic qualities.

Zangwill argues that the anomalousness of aesthetic properties can be explained by the fact that judgments of taste are – unlike empirical judgments – subjective (Zangwill 2012). This subjectivity, as outlined by Hume and Kant, implies that judgments of taste are free of any concepts and interests. Thus, judgments of taste also do not obey the rules of logic and cognition that characterise empirical judgments. Aesthetic questions hence cannot be settled by any rule, they are not mechanical. At the same time, Sibley points out that this does not imply that the language of aesthetics is imprecise or extremely complex (Sibley 1959, p.434). Learning happens through samples and examples. Nevertheless, he warns, one should not mistakenly believe that any conditions or principles can be derived from these examples.

Aesthetic qualities arise from the totality of the non-aesthetic qualities, so if one non-aesthetic quality changes even only slightly, the aesthetic quality that the object had before might change completely (Sibley 1965). Sibley notes that essentially all aesthetic qualities are regional qualities – which Monroe Beardsley defines as "a quality that a complex has as

a result of the characters of its parts and the relationships among them" (Beardsley 1981, p.xxix). Beardsley further suggests that aesthetic qualities are in fact human regional qualities which he roughly defines as those qualities that apply to some human beings, for example restless, restful or dreamy. In other words, what seems to be argued here is that aesthetic qualities cannot be rule-governed because they are determined by the artwork as a whole; they are determined by all its non-aesthetic features as well as by all of the interactions between those non-aesthetic features.

Sibley mentions that in circumstances where the untrained observer cannot quite grasp what it is that makes a painting dynamic, the critic can often point out certain non-aesthetic features that help in an understanding of the aesthetic features. This is an important point. There are no rules to ensure that if a certain non-aesthetic quality is present, the object has a certain aesthetic quality. However, the reverse is possible for the particular case. Aesthetic qualities in a particular object can be explained by drawing on specific non-aesthetic features in the particular object rather than general non-aesthetic features. Sibley writes for example: "We say that it is delicate not simply because it is in pale colors but because of those pale colors, that it is graceful not because its outline curves slightly but because of that particular curve." (Sibley 1959, p.434). The critic points out "those features which are notably or especially responsible for its character" (Sibley 1965, p.139). As Isenberg puts it, pointing out non-aesthetic details gives "directions for perceiving" (Isenberg 1949, p. 336). Whilst it may seem like a contradiction that on the one hand all non-aesthetic features of an object are important in determining its aesthetic qualities and on the other hand one or a few non-aesthetic features explain the aesthetic feature of the same object, Sibley explicitly states that this is in fact no contradiction (Sibley 1965). In every particular case there will still be one or a few non-aesthetic features that are dominant in explaining the existence of one particular aesthetic feature.

Beardsley (1973) agrees with Sibley that there are aesthetic qualities that are different from non-aesthetic qualities. He makes contributions towards distinguishing aesthetic from non-aesthetic qualities by discussing several ways aestheticians see aesthetic

qualities as different from non-aesthetic qualities: phenomenologically, epistemologically, semantically, or by their connection to normative judgment. Beardsley himself favours the last distinction whereby aesthetic differ from non-aesthetic qualities in that they can be used in supporting a judgment of aesthetic value; they are reasons why something has aesthetic merit or not, or they are "value-grounding qualities" in that they contribute value to the objects that have them. Despite these efforts, there still seems to be a lot of discussion about how to distinguish aesthetic from non-aesthetic qualities.

Whilst Sibley is particularlist in regard to the relations between aesthetic and non-aesthetic properties – which means that no rules or laws can be established between the two kinds of properties – he holds a generalist view on a different level, namely that there are and can be general reasons for aesthetic judgments, a view he shares with Beardsley (Beardsley 1962; Sibley 2001). In making aesthetic judgments Sibley observes that, aside from neutral properties, we can appeal to properties that are inherently positive, such as grace, balance, dramatic intensity or comicality, or inherently negative such as garish, sentimental or ugly. Thus qualities that are inherently positive or negative can be generally thought of as being precursors for making an artwork better in terms of its overall aesthetic judgment. Interestingly, Hume much earlier makes a similar observation when he writes that "Every voice is united in applauding elegance, propriety, simplicity, spirit in writing; and in blaming fustian, affectation, coldness and a false brilliancy" (Hume 1757, p.1). This is where Sibley and Beardsley somewhat disagree, since Beardsley claims that in order to be a general rule, an aesthetic quality has to be either positive or negative in every possible circumstance, whereas Sibley argues that even though a particular aesthetic quality can be in general positive or negative, there might still be specific cases where the reverse is true, where grace or elegance can be regarded as a negative aesthetic quality in an artwork. Sibley attributes this to the fact that characteristics of artworks have interacting effects on the overall merit of the work, and thus, albeit a property might be *in vacuo* positive, through its interactions with other aesthetic qualities its overall effect might still be negative (Sibley 2001).

Nowadays, whilst most aestheticians agree on the existence of aesthetic qualities, no agreement has been reached in regard to their exact definition. Recent attempts to do so have for example been made by DeClerq (2002) who aimed to analyse the concept of an aesthetic property in non-aesthetic terms. Jerrold Levinson agrees with the view of aesthetic realism as rooted in the seminal essays of Sibley (Levinson 2006, chapters 20 and 21) but addresses some worries that have been raised, particularly in regard to the descriptive and evaluative component of aesthetic qualities. There are several other contemporary contributors to the discussion on the definition of aesthetic qualities or properties (see for example Cohen 1973; or Matravers and Levinson 2005 for critical views of aesthetic realism).

To explore and discuss all the details and blurriness of the concept of aesthetic qualities would go too far for the purpose of this thesis, so it will be sufficient to mention that the concept is still being discussed amongst aestheticians. Nevertheless in line with Sibley, and others who further developed his ideas and the concept of aesthetic qualities or properties, it will be assumed for the remainder of the thesis that there exist aesthetic qualities of objects that are distinct from non-aesthetic qualities in that they are not directly observable by the normal senses but that they require the exercise of taste to be discernible. These aesthetic qualities ultimately rely on non-aesthetic qualities, and relations can be established for the particular case. However no general rules or laws between non-aesthetic and aesthetic qualities can be established.

2.4 REFINEMENT OF TASTE

Refinement of taste can be defined as developing greater sensitivity of perception towards more subtle and complex aesthetic qualities. Already in the beginning of the 18th century, refinement of taste was thought possible. Although taste is in Addison's view to some extent a faculty one is or is not born with, he argues that there are several ways to "cultivate and improve it" (Addison 1712): exposure to great works of arts, conversations with

people who have developed taste, and reading ancient and modern critics' works. He argues that for mental taste as well as the common sense of taste there exist many degrees of refinement. In order to test how refined someone's taste might be, he explains that the person should read widely recognized works and see if he finds himself touched and delighted or cold and indifferent[3] (Addison 1712). In case of feeling the latter, Addison sees the responsibility on the side of the reader being tested to develop that certain faculty that will allow him to be touched and delighted, and not on the side of the author to develop a better work. This as the primary responsibility of the consumer rather than of the producer already indicates that taste contains a certain aspect of what Kant will come to call universality. The reader should further observe whether he can distinguish and be pleased not only in general by great works, but by the particular features that the work is most celebrated for. Thirdly, Addison suggests the reader should observe how far he is influenced by the author's reputation as that might affect his judgment.

Hume argues that essentially everybody is able to possess refined taste but that the "organs of internal sensation" are often disturbed or defected, so the general principles cannot apply fully. He lists several reasons why that might be the case:

Firstly, taste can be clouded by a lack of delicacy of imagination, where he means by delicacy that "the organs are so fine as to allow nothing to escape them, and at the same time so exact as to perceive every ingredient in the composition" (Hume 1757, p.4). A lack of such delicacy means consequently that the critic does not pick up subtle details and nuances but focuses on the more obvious characteristics of the object.

Secondly, and tied with a lack of delicacy is a lack of practice of a particular art, by which Hume means exposure to the aesthetic objects or contemplation about them. He explains the importance of practice for the development of delicacy of taste in the following way:

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[3] In the 18th century poetry was considered the greatest of all arts so most philosophers express their theories in terms of written poetry.

When objects of any kind are first presented to the eye or imagination, the sentiment, which attends them, is obscure and confused; and the mind is, in a great measure, incapable of pronouncing concerning their merits or defects. The taste cannot perceive the several excellences of the performance; much less distinguish the particular character of each excellency, and ascertain its quality and degree. If it pronounce the whole in general to be beautiful or deformed, it is the utmost that can be expected; and even this judgment, a person, so unpracticed, will be apt to deliver with great hesitation and reserve. But allow him to acquire experience in those objects, his feeling becomes more exact and nice: He not only perceives the beauties and defects of each part, but marks the distinguishing species of each quality, and assigns it suitable praise or blame. A clear and distinct sentiment attends him through the whole survey of the objects; and he discerns that very degree and kind of approbation or displeasure, which each part is naturally fitted to produce. The mist dissipates, which seemed formerly to hang over the object: the organ acquires greater perfection in its operations; and can pronounce, without danger of mistake, concerning the merits of every performance. In a word, the same address and dexterity, which practice gives to the execution of any work, is also acquired by the same means in the judging of it (Hume 1757, p.5).

Hume's statement shows clear parallels with Scitovsky's psychological investigations when he describes listening to music where, at first exposure, "my brain automatically keeps the subjective information inflow within the limits of its capacity by blocking out part of the harmonic complexity. Only as repeated hearing reduces the subjective novelty of what I have already heard and so frees part of my brain's information-processing capacity do I begin to notice the complexity I have previously missed" (Scitovsky 1976, p.54).

Hume's third reason why taste might be disturbed and closely tied with practice is the formation of comparisons between different objects of art. He states that by comparison alone can we learn to see different degrees of excellence and learn to form proper judgments

of taste. A lack of experience in making comparisons thus is another reason why somebody's taste may be obscured.

Fourthly, Hume further emphasizes the importance of taking on the correct point of view from which to survey an aesthetic object, and to focus on nothing else other than the object itself. This instruction is not to be taken literally, though, since Hume also sees the particular age and place as well as the audience the creator had in mind as important factors to consider for any critic.

Lastly, for Hume it "belongs to good sense" to check the influence of prejudice when making judgments of taste. By making that point he allows for reason to play a role in the exercise of taste, albeit not an essential one. He states it to be important to understand the aim the creator had in mind when producing the artwork as well as (rational) understanding of the artwork as a whole.

Sibley explains more specifically how we can learn about aesthetic qualities, despite the fact that they are not condition-governed. He draws parallels with colours that we simply "see", or to tea that simply "tastes" sweet, without knowing any rules *a priori*. In a similar manner we perceive (or fail to perceive) that objects of taste are graceful, balanced, and the like. He explains that our ability to discern aesthetic qualities differs from our normal senses in various ways: firstly, he notes that although our ability to perceive aesthetic qualities depends upon our senses such as seeing and hearing, there is no guarantee that if one has good eyesight and hearing then one can also perceive aesthetic qualities. Secondly, Sibley observes that unlike judgments from the senses, we support our aesthetic judgments by talking about them and by pointing out particular aesthetic and non-aesthetic qualities in the objects that support our judgment. This cross-referencing and pointing out of features that are easily discernible helps us see what the critic sees; it serves as a guide to discovering the aesthetic qualities of the object. In contrast, discussion does not help us to see or hear better.

Sibley poses and answers the question on how we learn to use aesthetic terms and how to discern aesthetic qualities. These abilities are cultivated and developed by our

contact with parents and teachers from an early age by using examples. He first explains how we learn to understand aesthetic terms that are used quasi-metaphorically, meaning that such terms have meaning outside aesthetic usage, such as "balanced", "dynamic" or "graceful". Obviously we first need to have an understanding of these words' literal meaning, outside of their aesthetic usage, and then shift the concept to an aesthetic one. Sibley notes that making use of metaphors in aesthetics is no more surprising than the use of metaphors generally. So he writes that to use words not in their literal sense but for aesthetic purposes, "… it is required that there be certain abilities and tendencies to link experiences, to regard certain things as similar, and to see, explore, and be interested in these similarities. It is a feature of human intelligence and sensitivity that we do spontaneously do these things and that the tendency can be encouraged and developed." (Sibley 1959, p.446). In order to encourage this natural ability, parents can simply call out certain aesthetic qualities when a child is exposed to the object, for example by calling a piece of music "hurrying" or "jolly", and by encouraging the child to pay attention to it. In that way, the parent does essentially what the critic does, helping the child to see or hear by pointing out certain features, drawing parallels and contrasts, making comparisons, gestures and using synonyms. There are also peripheral cases Sibley mentions where taste can be trained. The examples he mentions are when pointing out the smoothness of a fabric or the thinness of a glass, or by talking about warm or cool colours.

Sibley sees the above as a first step in developing taste, when one can point out more obvious aesthetic qualities but might miss more subtle aesthetic qualities.

In the same way as we learn about the metaphorical use of aesthetic terms, we also learn aesthetic terms that are not used metaphorically but have an exclusive aesthetic usage, such as lovely, pretty, graceful or elegant. The starting point here is in more obviously appealing objects such as colourful flowers, landscapes or other striking objects that teach us simpler aesthetic words: "It is not an accident that the first lessons in aesthetic appreciation consist in drawing the child's attention to roses rather than to grass; nor is it surprising that we remark to him on the autumn colors rather than on the subdued tints of

winter. We all of us, not only children, pay aesthetic attention more readily and easily to such outstanding and easily noticeable things." (Sibley 1959, p.448).

Some people remain on this lower level of subtlety and sophistication, such that they are only moved when confronted with aesthetically spectacular and outstanding objects, whilst others might want to move on to discover less obvious and more specific aesthetic qualities in more complex objects of taste, where again learning occurs through the methods that the critic employs, such as illustration, comparison and drawing out certain features.

Sibley notes: "…broadly speaking, aesthetics deals with a kind of perception. People have to see the grace or unity of a work, hear the plaintiveness or frenzy in the music, notice the gaudiness of a color scheme feel the power of a novel, its mood, or its uncertainty of tone." (Sibley 1965, p.137). Aesthetic qualities have to be perceived by people themselves, and not by rational understanding in being told that a piece of music is graceful. This is very much in line with 18th century philosophers who have claimed that judgments of taste are outside the reasoning faculty. Aesthetic perception is the basis on which aesthetic judgments are made.

2.5 The role of critics in taste refinement

Critics play two important roles for consumers of artistic goods: firstly, as Hume and Levinson argue, critics can distinguish what is artistically best. For Hume, only people who have "unclouded taste", that is, who have "delicacy of taste", who have gained practice through experience, who know enough to make appropriate comparisons, who have a "good sense" and lack prejudice define jointly the standard of taste (Hume 1757). In a similar vein, Levinson argues that aesthetically highly valued goods, that is, goods as identified by Hume's ideal critics, are "one's best bets, aesthetically speaking; that is, they are works most likely to provide artistic satisfaction of a high order" (Levinson 2010, p.226). If one is interested in aesthetic experiences that the consumption of artworks enable, one should thus be interested in what critics have to say about the artworks.

Secondly, critics help people with less refined tastes see the aesthetic character in artworks. According to Sibley, critics have two important tasks: They explain aesthetic qualities by providing reasons for their existence; and secondly, they help people to see the aesthetic character of objects for themselves (Sibley 1965). Whilst "we cannot prove by argument that something is graceful" (Sibley 1959, p.445), Sibley points out the various methods used by the critic that help others see what the critic sees (p.443-444):

- pointing out non-aesthetic features that may lead us to grasp an aesthetic quality. An example he mentions is: "Did you notice the figure of Icarus in the Breughel? It is very small." (p.443);

- pointing out aesthetic qualities themselves, for example "Notice how nervous and delicate the drawing is…" (p.443);

- remarks that link aesthetic and non-aesthetic qualities, for example: "Have you noticed this line and that, and the points of bright color here and there . .. don't they give it vitality, energy?" (p.443).

- using metaphors and similes to describe the effect, as in remarks such as: "… as though he had thrown on the paint violently and in anger," "… the light shimmers, the lines dance, everything is air, lightness and gaiety…" (p.443);

- using contrasts, comparisons, reminiscences: "Suppose he had made that a lighter yellow, moved it to the right, how flat it would have fallen." (p.443);

- repetition of the same words, similes or metaphors, reiteration of certain points by building up to them from different angles: "When someone misses the swirling quality, when one epithet or one metaphor does not work, we throw in related ones; we speak of its wild movement, how it twists and turns, writhes and whirls, as though, failing to score a direct hit, we may succeed with a barrage of near-synonyms." (p.444);

- supporting one's talk with one's behaviour, by using gestures, looks or facial expressions. Sibley writes: "A critic may sometimes do more with a sweep of the arm than by talking" (p.444).

Critics can thus help others on their path to refinement, by showing them aesthetically superior artworks, and explaining artworks in terms of their aesthetic qualities and how those aesthetic qualities arise because of directly observable non-aesthetic qualities.

2.6 AESTHETIC EXPERIENCE AND AESTHETIC ATTITUDE

In the tradition of aesthetics, refinement of taste in the arts is closely tied to the aesthetic experience one has when consuming artistic goods. Aesthetic philosophers, art connoisseurs and people who appreciate the arts in general often claim the aesthetic experience to be a major – if not the most important – aspect of consuming artistic goods. An aesthetic experience is an experience a person can have when engaging with a piece of art that has aesthetic qualities. An aesthetic experience is more than an intellectual understanding (Townsend 1997, p.16); it is an end in itself in that it does not satisfy some other desire (Townsend 1997, p.20); it is at least in some sense rewarding to the person having it (see Dewey 1934; Beardsley 1981); and it involves full engagement of our mental (perceptual, cognitive, affective) capacities and the felt intensity of the experience that results (Goldman 2005 referring to Kant's implicit characterization of aesthetic experience, p.262). "Great art challenges our intellects as well as our perceptual and emotional capacities. To meet all these challenges simultaneously is to experience aesthetically" (Goldman 2005, p.263).

Similar to the discussion between particularists and generalists who argued over the existence of general principles and rules between descriptive features and the value of aesthetic objects, there have also been two major strands of theories in relation to the aesthetic experience. Internalist theories argue that aesthetic experiences have certain features in common such that one could say "if an experience has this and this feature, it is an aesthetic experience". External theories argue that the aesthetic experience is an experience of objects that have aesthetic features. The dominating theory is that developed by Beardsley in 1982 and belongs to the strand of externalist theories.

It is widely recognized amongst aesthetic philosophers that aesthetic value manifests itself through the value of the aesthetic experience, meaning that an object is aesthetically valuable insofar as it affords valuable aesthetic experiences, also called "empiricism about aesthetic value" (Shelley 2012b). Artworks have different kinds of value – political, social, moral, historical – but aesthetic value manifests itself only in the experience of them (Goldman 2006). One has to experience the artwork for oneself in order to appreciate its value.

The pleasure that arises through the perception of greater complexity and more subtle variations and details (enabled by refinement) is part of what makes the aesthetic experience, the encounter with an artistic good, more intense. Some authors have suggested that the aesthetic experience seems to have a continuum of intensity, starting with mere entertainment at one end and a truly transformative experience at the other. Etlin for example observes that both Hegel and Ruskin saw aesthetic response as ranging from forms of pleasure and enjoyment that remain close to the surface of our psyche, to the most deeply moving feelings associated with tragedy, wisdom, love, or spiritual transcendence (Etlin 1998, p.9).

The concept of aesthetic experience is closely related to hedonic consumption, defined as "those facets of consumer behaviour that relate to the multisensory, fantasy and emotive aspects of product usage experience" (Hirschman and Holbrook 1982).

Adopting an "aesthetic attitude" makes it possible for the individual to have an aesthetic experience. An aesthetic attitude can be defined as "an attitude or state of mind that is entered into, voluntarily and consciously, by an individual, making that individual receptive to having an aesthetic experience" (Fenner 1998, p.154) Some features that theorists have traditionally ascribed to this attitude are: *disinterestedness* so to allow "full engagement with the properties of the object perceived"; *object-directedness* – a "disposition to dwell on the object perceived for its own sake"; *cognitive freedom* – "inclination to engage in imaginative activities of discovery, exploration, and connection-making with the object perceived, without confining oneself to conventional ways of classifying or categorizing it";

interpretive openness – "a disposition to interpret"; and *emotional receptivity* – "a readiness to register and respond to an object's expressive dimension, to be alive to its human content and not simply a passive admirer of its formal design or technical ingenuity" (Levinson 2009 , p.417).

On the question of why it would be desirable to pursue refinement of one's aesthetic taste, Hume argues that "…delicate taste of wit or beauty must always be a desirable quality, because it is the source of all the finest and most innocent enjoyments of which human nature is susceptible. In this decision the sentiments of all mankind are agreed" (Hume 1760/1998, p.143). Effectively Hume seems to be arguing that with refinement of taste, the aesthetic experience becomes "better" in some way. Scitovsky has explored arts encounters from the psychological perspective and refers to the rewarding experience that requires some effort when he writes that "…some books, plays, works of art, and other sources of stimulation are gripping, exciting; they are able to shake us up and heighten our consciousness. They do much more than merely keep off boredom, but they do so at the cost of that temporary raising of arousal beyond its optimum, whose strain is the price we must pay for the pleasures of mounting tension and its subsequent release" (Scitovsky 1976, p.76).

Levinson equates "good art" with "art with superior potential to afford valuable aesthetic experience" (Levinson 2010, p.226). It takes refinement of taste to enable us to perceive those better artworks, to perceive more subtle and complex aesthetic qualities that are in their composition more rewarding in terms of the aesthetic experience that they provide.

2.7 EMPIRICAL INVESTIGATIONS ON AESTHETIC TASTE

It is not the domain of philosophers to carry out empirical research, but for our purposes of understanding the role of aesthetic taste in consumption patterns for cultural

goods, it is of great interest to see what empirical research has been conducted on aesthetic taste.

In this thesis it is argued that aesthetic taste can be seen as a form of perceptive expertise, a well-researched concept in cognitive psychology. To support this claim, we will give a brief overview of the research on cognitive expertise so that we are able to point out parallels between the concept of aesthetic taste as discussed in aesthetics, and the concept of perceptive expertise in cognitive psychology. The purpose of grounding aesthetic taste in psychology is twofold: on the one hand, it allows for aesthetic taste to become less abstract and thus more real which makes it easier to comprehend. In other words, reviewing the literature on perceptual expertise will help us understand what actually happens in the brain when aesthetic taste is developed and will thus make the concept more tangible. On the other hand it shows that the concept has sound empirical bases, with related research having been conducted in psychology and even neuropsychology.

Before reviewing the literature on perceptual expertise, we need to understand expertise. Alba and Hutchinson (1987) define expertise as the ability to perform product-related tasks successfully. As Eisenstein (2010) notes, there is still considerable disagreement as to the concept of expertise, but the most widely accepted definition currently is Shanteu's Theory of Expert Competence, according to which competence is based on five factors: domain knowledge, psychological traits, cognitive skills, decision strategies, and task characteristics. In general, it has been found that expert performance is based mainly on retrieval from some stored (learned) memory and not on a search of possible answers (by thinking, which occurs in general problem solving). In general, as expertise is gained, several changes happen (Eisenstein 2010):

- different and more complex cognitive structure is acquired (knowledge about subordinate categories increases and becomes as easily accessible as basic level categories, see further below for more details);

- memory for and thus recall of domain-relevant facts improves (at least partially due to the more refined category structure);

- levels of reasoning and problem solving within their domains of expertise increase (e.g. to infer the benefits and costs of a product based on its features), thus experts are better able than novices to correctly predict feature-to-benefit inferences;
- compared to novices, experts only use different but not more pieces of information with regard to decision-making.

Perceptual expertise refers to a particular kind of expertise where learning improves perception and categorization (Gauthier et al. 2009). This is an important definition since it relates exactly to what is written about aesthetic taste. Perceptual expertise is a concept closely tied to categorization research in cognitive psychology, and in order to understand perceptual expertise one has to understand the concept of categorization.

Until the mid-1970s, researchers in psychology and anthropology assumed that the categories of the world that humans create to structure the infinite number of stimuli they are constantly faced with are largely arbitrary. However, such a view would only be reasonable if the world was completely unstructured. In a seminal paper, Rosch et al. (Rosch et al. 1976) established that the categorizations humans make of the concrete world are highly determined and not arbitrary for two reasons: firstly, because of the highly correlational structure that material objects of the world possess (some things are very similar to each other whilst others not at all), and secondly, because categorization occurs to reduce the infinite differences between stimuli to behaviourally and cognitively useful proportions and thus the most basic cuts between categories should yield the greatest amount of information for the least cognitive load. The term "basic categories" refers to these first categories in the world that group objects together that are highly correlated, and separate objects that are totally uncorrelated. Basic categories are more differentiated than "superordinate" and "subordinate" categories. Basic categories are generally what people think of first when they are asked to name an object they are presented with (cat, table, house) rather than subordinate categories (Burmese cat, dining table, Victorian mansion) or superordinate categories (animal, furniture, building). According to Murphy and Brownell (1985), category

differentiation is determined by two factors: how specific, informative or narrowly defined a category is; and how distinctive a category is. Subordinate categories tend to be more specific (informative) than basic categories in that one could think of more attributes of a "desk chair" (subordinate category) than a "chair" (basic category) or "furniture" (superordinate category). However, subordinate categories (sedan versus other cars) tend to be less dissimilar and thus less distinctive than basic (car versus other things that are not cars) and superordinate categories (vehicles). Since the two factors' specificity and distinctiveness generally oppose each other, basic level categories have relatively favourable values in both dimensions and thus represent the optimal level of categorization in terms of cognitive load.

Developing greater perceptual expertise in a subject field influences categorisation. Novices to a particular subject area tend to categorize objects first and fastest at their basic level (dog) rather than a superordinate (animal) or subordinate level (poodle) (Rosch et al. 1976). In contrast, experts in an area divide stimuli into finer categories than do novices since experts perceive more details in the objects. Thus, experts show a preference to identify objects at a level that is more specific, or subordinate to the basic level (Tanaka and Taylor 1991; Johnson and Mervis 1997). For example, a bird novice will identify a feathered animal at the basic level of "bird," in contrast to the expert bird-watcher, who will identify the same animal more specifically as a subordinate-level "sparrow" or "chipping sparrow." This downward shift in the level at which an object is first identified has become one of the behavioural hallmarks of perceptual expertise (Tanaka and Taylor 1991; Gauthier and Tarr 1997).

Johnson and Mervis (1997) specifically tested whether gaining expertise in an area changes the basic level of categorization. They found that experts were able to access sub-basic level information more rapidly and efficiently from semantic memory than non-experts. This implies that experts can use this sub-basic information as easily as others use basic level information. Intermediate bird experts produced significantly more sub-basic level attributes than novices and advanced experts produced significantly more sub-basic and

sub-sub-basic level attributes than did intermediate experts. Apart from these quantitative differences, the authors also observed differences in the qualitative nature of the categorization. Novices generated attributes relevant to *perceptible* features, intermediate experts generated both *physical (perceptible)* and *behavioural* attributes, and advanced experts' sub-basic level attributes were related to *behaviours* or *functions* – categories that are less directly observable. Advanced experts named objects at the sub-sub-ordinate level and verified category membership equally rapidly at subordinate and sub-subordinate levels, whereas intermediate experts showed an advantage only at the subordinate level. Johnson and Mervis describe the process of acquiring perceptual expertise as follows:

> Perceptual distinctiveness of objects is maximized at the basic level. As expertise on object domains is acquired, more information is learned about clusters of features indicative of subordinate and sub-subordinate-level categories. Although many of these features are perceptually grounded, they often are correlated with important functions and behaviours. By the time individuals reach intermediate levels of expertise, the degree of distinctiveness of categories at the subordinate level has increased to the point at which they also may function as basic-level categories. At more advanced levels of expertise, access to sub-subordinate category information is increased and the attribute structure of sub-basic categories becomes further enriched to the point where the sub-sub-ordinate level also attains basic-level privileges. One probable mechanism that drives these changes is individuals' ability to selectively attend to increasingly more subtle perceptual features of objects during the encoding of information relevant to categorization. The features associated with particular concepts change in strength throughout the continuum of expertise, resulting in increasing levels of precision at categorization. Expertise on object domains does not involve a simple shift to more abstract conceptual bases for object categorization. Instead, experts' knowledge of behaviours and other abstract conceptual relations within the domain interacts with perception, resulting in experts

attending to different and more subtle perceptual features than novices do (Johnson and Mervis 1997, p.274).

There is also an interesting connection between more complex categorization and utility. Eisenstein (2010) notes that expertise increases the utility of a given choice that an individual makes and that experts obtain more utility in complex situations than novices do. For example, it has been shown that increased categorization reduces satiation. In economic terms, the marginal utility decreases more slowly when more categories are perceived for goods consumed over a period of time (Redden 2008).

Smallman and Roese (2008) demonstrate that the link between enjoyment and perceptual expertise also works in the other direction. Preference in and of itself can further lead to more categorization because of focused thinking that is activated by enjoyment. They suggest that differentiation is an indicator of how much goods categorized are enjoyed, or in their words: "Wine connoisseurs love to split hairs, intensely reviewing the particulars of grape, vineyard, and vintage. Baseball fans love to split hairs, arguing over minutiae of performance, management, and statistics. Movie aficionados split hairs, comparing specifics of plots, acting and cinematography. What these sorts of people all have in common is that they love the hairs they are splitting" (Smallman and Roese 2008, 1230).

2.7.1 PERCEPTUAL EXPERTISE IN AESTHETICS

Having established a general understanding of perceptual expertise, the next question would be about what research on perceptual expertise in aesthetics in particular has brought forth. The relatively small field of psychology of aesthetics focuses on how people process aesthetical experiences (see for example Leder et al. 2004 who developed a model of aesthetic experience; or Jacobsen 2006 for an overview of the field). For the purpose of this thesis the research in this field is only of minor interest, since the point where this thesis originated was aesthetic taste and not aesthetic experience. To that point, research in the psychology of aesthetics is interesting only to the extent that it allows a better understanding of how novices differ from experts in aesthetic processing.

The ability for greater categorization in experts has been observed empirically with artistic goods. Belke et al. (2006) have shown that experts find more categories with which to distinguish paintings than do novices, and this can be interpreted as a more differentiated category structure in experts. Their research suggests that the perception and interpretation of contemporary artworks is characterised by general dimensions that are relevant independently of the viewer's level of expertise. At the same time, experts have developed art-specific approaches which are based particularly on concepts related to style. A drawback of their research, however, is that they did not use aesthetic qualities to categorize paintings but domain-specific knowledge categories (such as painting styles or eras).

Other researchers (Nodine et al. 1993) tracked the eye movements of art-trained and untrained viewers whilst observing paintings. It became apparent that untrained viewers not only form fewer categories but also look at paintings differently than do art-trained viewers. Untrained viewers focused more on individual objects and figure areas in the paintings whereas art-trained viewers wanted to discover patterns and relationships among compositional elements of the paintings. This is also consistent with Winston's and Cupchik's (1992, p.2) view that "training enables viewers to restrain the natural tendency to focus on subject matter, and instead explore the order and dynamics of visual structure". Experts obviously use a more complex category and also a different category structure than novices do, and this applies to a wide range of areas including artistic goods. Kirk et al. (2009) investigate whether gaining expertise influences aesthetic evaluation through the modulation of neural activity. In line with other studies, the authors found that having expertise influences cognitive and perceptual systems, but also modulates the response to some brain areas associated with the processing of reward. Jacobsen, in giving a brief review of the field of psychology of aesthetics (2009) notes that several concepts from cognitive psychology would also be applicable to the study of aesthetic processing, for example Rosch's cognitive model (as mentioned earlier), but that this transfer has not yet taken place. So whilst the links between the research on perceptive expertise and psychology of aesthetics are still rather

weak, researchers in the field have realized that there is in fact a strong connection that should be exploited.

Without explicitly referring to categorization research, Scitovsky has foreseen this connection between aesthetics and acquiring more complex cognitive structure when he mentions the human tendency to simplify perceived complexity of the environment by organising information into larger chunks ("supersigns"). Supersigns, so he argues, help us comprehend the world faster and get the essential information quickly in any moment, but he deems them contra productive in the case of art appreciation: "… In order to appreciate art we must overrule the brain's tendency to focus exclusively on supersigns and force it, so to speak, to look also at the information behind them. To a great extent that is an acquired skill, requiring deliberate effort and practice" (Scitovsky 1976, p.55). The parallel to perceptive expertise is obvious. Basic categories help us structure the world and filter relevant from irrelevant information in order to navigate through life without being constantly distracted. Through exposure and acquiring conceptual knowledge we increase the complexity in the cognitive structure for a particular subject matter or set of experiences, we discover new categories, new dimensions by which to categorize stimuli. These "new" categories existed before the individual got to know of them but knowing them makes the individual see the object of expertise in a more differentiated, richer way.

One could obviously argue that whilst art experts do require expertise/taste to truly make aesthetic judgments, consumers do not need these skills to consume artistic goods successfully. This is where many would disagree. Scitovsky for example famously coined the term "consumption skills" as those skills necessary to truly enjoy the kinds of consumption that are more rewarding but also require effort and active engagement on behalf of the consumer, as opposed to comfort where the consumer remains passive. He sees consumption skills as part of culture, and culture as the "preliminary information we must have to enjoy the processing of further information" (Scitovsky 1976, p.227). Refining one's aesthetic taste in the arts is exactly what Scitovsky meant when he wrote about consumption skills. Whilst it is obviously possible to look at paintings, listen to a piece of music or watch a

theatre play without actively engaging in it, to perform the product-related task successfully (in Alba and Hutchinson's (1987) terms) means to employ aesthetic taste, to actively look for and experience aesthetic qualities. Again the parallel with findings in cognitive psychology that show that utility increases with additional cognitive structure cannot be ignored.

2.7.2 WHY EXPOSURE IS NOT EXPERTISE

As noted before, Alba and Hutchinson (1987) define *expertise* as the ability to perform product-related tasks successfully. They define *familiarity* as the accumulated level of product-related experiences (any contact with the domain). The distinction is quite clear and research has shown that the two concepts cannot be regarded as the same. For example, Tanaka et al. (2005) showed in their experiment that perceptual exposure (that is, simple exposure to the objects without sub-categorical training) does not have the same effect (development of perceptual expertise and thus being better at categorizing the experimental stimuli) than when participants were exposed to the objects and trained on sub-categorical levels.

Scott et al. (2008) looked at electrophysiological effects of training at different category levels by recording Event-Related Potentials (ERPs) during and after training of three groups of participants. They used car models as experimental stimuli. One group was just exposed to pictures of cars without any cognitive training, the second group received basic-level training (that is, a simpler, more general level that might already be familiar to the subjects) and the third group received sub-category level training (more specific categories). They identify two different amplitudes N170 and N250 in brain activity, where the former is increased only through exposure (whether training is involved or not) and vanishes rather soon if exposure is not maintained as re-tests after one week of exposure showed. The latter only increases when perceptual expertise is developed (sub-categorical level training has occurred) and is still maintained after one week of training. They infer that the N250

component could be a marker of the long-term learning processes that underlie perceptual expertise[4].

Exposure to or experience with objects is one of two ways of acquiring expertise, the other being instruction such as taking a course. Instruction is seen as the more successful path (Eisenstein 2010). Learning through experience is seen as more difficult since the general conditions for the development of expertise are often not satisfied. These conditions are: the outcome and the feedback relating to that outcome should be unambiguous, the feedback as to whether the prediction was correct should be immediate, and the number of experiences should be large. Experience is a necessary but not sufficient condition for improved performance. The crucial key for experience to increase expertise, according to Eisenstein, is the intention to learn from the experience, to improve the gap between one's mental model and the true state of the world (Eisenstein 2010).

The major problem with consumer expertise is that consumers in most situations lack the intention to learn from the experience, so true expertise is rarely developed just through exposure. The role of incentives is an important one to regard here. To speak in Skitovsky's terms (Scitovsky 1976), acquiring production skills, that is, increasing one's expertise in a domain where it may be useful in one's productive activity (most importantly, job) has quite a lot of incentives – financial, career, approval from boss/colleagues. In terms of consumption skills, the acquisition does not immediately promise any extrinsic incentives such as more monetary rewards or more social recognition, but the incentive seems to be largely intrinsic; in the experience itself. Obviously one can communicate one's expertise to others but there seems to be far less recognition involved in being an expert in some consumption domain than in a production domain. Latour and Latour (2010) also note that when people consume for pleasure, they might not be motivated to make links between their perceptual and conceptual knowledge, a necessary condition for learning to occur.

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[4] See also Krigolson et al. (2009) for similar findings, who also note that particular brain regions are associated with the acquisition of expertise.

2.7.3 LANGUAGE USE AMONGST EXPERTS

Despite the clear distinction that was made above between experience and expertise, experience alone can also lead to incidental or unintentional learning. However, one major drawback of incidental learning is "the inability of subjects to articulate their reasoning process, which limits its usefulness in many decision problems" (Eisenstein 2010, p.8). This is an important point. Language use, the ability to name the categories by which one distinguishes objects seems to be an important feature of perceptual expertise that is lacking from pure exposure or familiarity. It has been known for a long time that verbal cues (words) enhance recognition memory performance (Tulving and Osler 1968). Thus it comes as no surprise that the same is true for perceptions. If we can describe in words what we experience, we memorize the experience in greater detail and more accurately than without words. Wittgenstein's words come to mind who wrote in the early 20th century that "*Die Grenzen meiner Sprache bedeuten die Grenzen meiner Welt*", the limits of my language are the limits of my world (Wittgenstein 1922, p.144).

A substantial amount of research has been conducted on wine expertise and the effect of developing a specific vocabulary on memory and recognition. Similar to aesthetic goods, wine is an experiential good and many have argued that one can refine one's taste for wine. In addition, the role of wine critics seems to be similarly important as the role of critics for aesthetic goods. Because of these similarities, it is useful to look briefly at research conducted in regard to language use in wine consumption.

Early research in the field (Lawless 1984) already showed that novices tend to use more abstract and general terms to describe their experiences than do experts, who use quite specific and precise terms. In 1990 Solomon noted that "experts appear to differ from nonexperts in their ability to use language to describe their perceptions" (Solomon 1990, p. 499). Melcher and Schooler (1996, p.231) point out that whilst we depend on language to memorize experiences and communicate them to others, "perceptual memories are one domain where language often falls short". A lot of times we simply find it hard to capture in

words what we experience. In particular, the authors look at the effect where verbalizing a perceptual memory (tasting a wine) "overshadows" the actual perceptual memory itself and leads to poorer recognition. Interestingly, the effect cannot be observed in novices – people who have not been regular wine drinkers nor have developed "verbal expertise" (the particular language used amongst experts in a field). Neither can the effect be observed amongst experts who score highly in exposure and verbal expertise. The only group of people that do in fact show an overshadowing effect is those who have had exposure to the objects in the past but without having developed any verbal expertise. In other words, only where there was a difference between the level of exposure and verbal expertise, did the verbal overshadowing effect occur. Melcher's and Schooler's research suggests that experts who have not only had a great amount of exposure to the underlying objects of study, but have also developed a certain vocabulary are able to capture and express in words their perceptual experiences reliably and in detail, whereas exposure alone does not help in memorizing perceptual experiences but in fact is distorting them. They speculate that the vocabulary specific to a certain domain might be more precise or specific as compared to ordinary language, which facilitates recalling nonverbal as well as verbal information. In their more recent paper the authors further show via experiments that the verbal overshadowing effect only occurs when participants are only exposed to objects (without receiving any training in verbal expertise), whereas it did not occur when participants were exposed *and* received verbal training (Melcher and Schooler 2004). The conclusion to be drawn from these studies is that connoisseurs – people who are exposed to particular experiences (such as wine drinking, theatre going, listening to music) frequently but have not (yet) developed a sufficiently rich and concise vocabulary – actually become not better but worse in their judgments of the (aesthetic) characteristics of their experiences. So when Eisenstein (2010) writes that exposure is not the easiest or best way to become an expert, it is plausible to assume that it is exactly this verbal expertise, these verbal categories, that are being missed.

Latour and Latour (2010) distinguish between pure familiarity with a product and expertise when they define aficionados as "those who consume a product frequently and are

enthusiastic about it but who have not obtained the highly developed product schemata and lexicon associated with expertise" (p. 688). They investigate in their research whether the development of verbal expertise (conceptual knowledge) is necessary for aficionados to learn from their experiences. They suggest that conceptual knowledge consists of two types of knowledge – general knowledge about the product category, and concrete "sensory descriptions" about product characteristics – and investigate the question whether, as they suspect, it is these concrete sensory descriptions about product characteristics that allow aficionados to extract more information from their experiences and develop expertise. They use wine as stimuli in their experiments. They find that what aficionados lack, is "the consistent interplay between perceptual and conceptual knowledge that experts have enjoyed" (Latour and Latour 2010, p.691).

In other words, aficionados are asymmetrical in their knowledge levels in that they have had a lot of product experience but lack the conceptual knowledge. They might have picked up different terms and chunks of knowledge but they have not structured their conceptual knowledge in a way that allows them to truly reflect their perceptual experience. Solomon (1990) found in his experiments on wine talk that wine experts were more precise in discriminating wines and more precise in their use of specific terms to describe their sensory experience. In his studies, experts were better at matching descriptions of wines written by other experts to the correct wines than were novices, they were better able to discriminate between similar wines, and they showed more agreement in ranking wines according to specific dimensions. Solomon is clear that although he observed both superior perceptual discrimination and superior precision of language use, no conclusion can be drawn as to the causal direction of these two abilities. This causality (i.e. whether perception influences language or language influences perception) can be determined with the research conducted on categorization. Perceptional knowledge alone does not increase perceptual discrimination nor does it influence language use. It seems that cognitive knowledge has to be developed simultaneously in order to increase expertise. In the case of wine, Hughson has shown that

cognitive knowledge about sensory characteristics in the product facilitates the process of detecting and distinguishing flavours when tasting wines (Hughson 2003).

West et al. (1996) look at how specific vocabulary influences preference formation and the ability to extract utility from consumption experience. They argue that vocabulary not only improves interpersonal communication but also improves intrapersonal information transmission. They find that indeed, when consumption vocabulary is provided, subjects' preferences became more consistent and better defined. Whilst the process through which vocabulary works is still not totally clear, the authors suggest that "an effective consumption vocabulary may change consumers' ability by helping them develop a category structure or schema. This makes greater cognitive resources available, which in turn allows them to 'see' a product's individual attributes while noting their overall reaction to the product" (West et al. 1996, p.133).

It becomes apparent from the literature reviewed here that exposure alone is by no means sufficient to develop expertise. This is particularly true for perceptual expertise in areas such as wine but also, we argue here, for aesthetic goods, since only through the development of a specific vocabulary, words that help describe the elements of one's experience, that describe new categories according to which to differentiate experiences, can help the consumer distinguish, memorize and recall specific features of the experience.

2.7.4 AESTHETIC TASTE AS A SPECIFIC TYPE OF PERCEPTUAL EXPERTISE

As mentioned earlier, embedding the concept of aesthetic taste in research on perceptive expertise and categorization sets the empirical framework upon which hypotheses will be developed and tested in this thesis. What we argue here is that aesthetic taste can be seen as a specific type of perceptual expertise. First the parallels between the two concepts will be emphasized, and later the specificity of aesthetic taste that makes it different from areas where perceptual expertise has been investigated will be drawn out. We can draw the following parallels between the two fields of research.

Firstly, aestheticians have argued that people with unrefined taste only perceive very obvious aesthetic qualities (stunning sunsets, colourful butterflies), but they don't perceive the more subtle aesthetic qualities of a cultural good and don't appreciate cultural goods that have exclusively more complex aesthetic qualities. Refinement in the form of exposure, learning and reflection is required to improve one's perception of the aesthetic character of artworks. Cognitive psychologists on the other hand have observed that humans categorize the world in order to deal with an immense load of stimuli, and that we start out with basic level categories that are most easily discernible. With acquiring expertise one's categorization increases in the relevant subject matter, which leads to perception of more subtle and less obvious details. This finer categorization can become efficient to such an extent that researchers found that experts' subordinate-level categories were as differentiated as their basic level categories and that they used subordinate level names more often and accessed them faster as compared to novices (Tanaka and Taylor 1991)[5]. The near universal human capacity to perceive some, more obvious, aesthetic qualities (aesthetic taste) can be expressed in the language of cognitive psychologists in that all humans have some basic level categories of aesthetic perception, of aesthetic taste.

Secondly, because of the way that aestheticians have written about aesthetic taste and aesthetic qualities, it seems feasible to argue further that refining aesthetic taste, that is, the ability to perceive more subtle and complex aesthetic qualities, involves in fact the same processes that humans go through when becoming bird experts, car experts, wine experts or sports experts, namely becoming better at categorizing objects according to finer categories (in this case, aesthetic qualities), that is, categories that are less distinctive and more specific. The two features that categorization follows, distinctiveness and specificity, can also be applied in terms of categories of aesthetic qualities. The distinctiveness with regard to aesthetic qualities would refer to the amount of effort required for an aesthetic quality to be

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[5] See also Johnson and Mervis (1997) and Tanaka et al. (2005) for similar results on how experts perceive objects at a different level of abstraction as compared to novices.

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picked up. Basic aesthetic qualities can be picked up more easily than sub-ordinate aesthetic qualities because the former are more distinctive. Specifity could refer to the particular combination of aesthetic qualities that appear simultaneously in an artwork. Presumably, some aesthetic qualities appear more commonly side by side (for example bleakness and drabness) whereas others would be found together less often (for example bleakness and dynamism). More common combinations are thus less specific than less common combinations.

The third parallel we note refers to the "graded structure" of categorisations: As is known from cognitive psychology, forming new categories takes effort, deliberation and practice. It also requires retrieval from memory, in the particular case of aesthetic qualities, of introspection and awareness of past aesthetic experiences one has had[6]. Learning that a painting is "balanced", requires the individual to take the concept of balancedness from his memory and use it in a different context, in a quasi-metaphorical sense. Other examples of aesthetic qualities outside the context of art are "the car engine runs smoothly" or "a wine smells earthy". The earthiness of the wine, the smoothness of the engine and the balancedness of the painting can all be linked back to non-aesthetic attributes such as the technical specifications of the engine, a particular ingredient added in the process of the wine (for example in the soil where the grape vines are growing), or line strokes in the painting. A person not familiar with car engines would have difficulty picking up this smoothness of the engine. A person unfamiliar with wines would have difficulty picking up the earthiness of the wine. A person unfamiliar with paintings would have trouble understanding the balancedness of one. Other aesthetic terms (categories) that are exclusively used in an aesthetic context such as graceful or elegant require us to first understand and memorize the experience of very obvious examples of those qualities in order to later be able to distinguish these

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[6] As Sibley points out, making the aesthetic qualities explicit by naming them, cross-referencing them, paraphrasing them and elaborating on why they are inherent in an artwork by showing the relations to non-aesthetic qualities is an essential task of critics (Sibley 1959).

qualities when they appear to a far lesser degree. This relates to the research on prototypicality or graded structure, where categorization research has established that membership in a particular category is a matter of degree rather than absolutely clear (Alba and Hutchinson 1987). Learning starts with prototypical examples of categories, that is, examples that are most obvious and gradually move towards less obvious examples.

We now turn to the differences between aesthetic taste and perceptive expertise. Earlier in this chapter, the distinction was made between judgments of the agreeable, judgments of taste and empirical judgments. Research on perceptual expertise thus far has only dealt with empirical judgments, whereas aesthetic taste is only concerned with judgments of taste, that is, judgments that are subjective (based on an internal sensation of pleasure or displeasure) and not objective (based on cognition and logic). Aesthetic taste thus has to be interpreted as a specific form of perceptual expertise that refers to judgments of taste and not empirical judgments.

More specifically, judgments of taste often refer to aesthetic qualities which are not directly observable with the normal senses. One can have the best hearing or the most perfect eyesight and still not be able to pick up aesthetic qualities. Aesthetic qualities are attributed to the object only because they cause certain feelings in the subject. To be able to perceive aesthetic qualities is to see that a painting is delicate, to feel the dynamic of the play or hear the serenity of a piece of music, not only to understand them rationally. This is very different from conventional areas of perceptual expertise explored generally where categories rely on directly observable features and can be reasoned about. Nevertheless, so it is argued here, aesthetic qualities are cognitive categories, though less "obvious" at first than categories in other fields where clear rules and cuts to other categories can be established simply by using one's normal senses. Whilst one could encourage a bird novice to "look more closely" to see the light blue patch on the tail feathers of a rare bird, one would have to encourage an art novice to "feel more deeply" and see the delicacy of a painting. However, it is argued here that aesthetic qualities are in fact a particular form of cognitive categories, in the sense that by deliberately thinking about and distinguishing aesthetic

qualities in artworks, people form cognitive categories that resemble these aesthetic qualities; thus, for example, a cognitive category called "graceful" contains the set of experiences or objects that the person perceived as graceful. Hearing a critic talk about the tranquillity of a painting, what the tranquillity entails and how tranquillity is connected to the specific, directly observable features of the painting help the listener learn about tranquillity in the context of paintings.

In addition, aesthetic qualities are not rule- or condition-governed in relation to non-aesthetic (directly observable) or other aesthetic qualities. Thus, there is not a finite number of rules one has to know in order to become a complete expert. Speculation could lead one to assume that expertise in aesthetic qualities not only involves retrieval from memory but also always entails a cognitive search process (as it is observed in general problem solving), when faced with a new artwork. Despite the fact that aesthetic qualities are not rule-governed, similarities between refined taste and perceptual expertise can be envisaged. People with refined aesthetic tastes (people with perceptual aesthetic expertise) can pick up more and different aesthetic qualities than can less refined people. The two extremes would be the following: a person with no aesthetic taste refinement would not be able to perceive any aesthetic quality; a person with absolute refined aesthetic taste (Hume's ideal critic) would perceive all aesthetic qualities when confronted with an artistic good. Both the "naïve" and "the ideal critic" would perceive non-aesthetic qualities equally well. Furthermore, one would assume that the ideal critic uses aesthetic qualities to distinguish, memorize and recall his aesthetic experiences on a regular basis, whereas the naïve would never use aesthetic qualities to do so. The naïve consumer of aesthetic goods has no understanding whatsoever of what a particular aesthetic quality, when verbally mentioned, means. There is no cognitive category, no mental construct he can draw on and the notion is thus meaningless and unclear to him. Not so for the ideal critic, who has an excellent command of the vocabulary used to capture aesthetic qualities.

Despite the distinct differences between judgments of taste and empirical judgments, it has been argued here that perceptive expertise is a useful framework in which to embed

aesthetic taste, since it shares many features that have been described for the refinement of aesthetic taste.

2.8 CHAPTER SUMMARY

The aesthetic concept of taste was distinguished from taste as commonly used in economics, where "tastes" are generally referred to as underlying individual preferences, and from its usage in sociology, which uses the notion as a judgmental ability to understand a culturally introduced code. It was shown that in aesthetics the notion has been used differently. Whilst the concepts of taste, aesthetic qualities, aesthetic experience and aesthetic attitude are still being shaped and discussed in aesthetics, for the purpose of this thesis their definitions can be summarized as follows:

(1)   **Taste** is a form of perception, the perceptive faculty or faculties in humans that perceive(s) aesthetic qualities. Judgments of taste (synonymous with the notion of "aesthetic judgments") are based on subjective feelings of pleasure and displeasure in response to art encounters, but at the same time claim to be universally valid rather than being only valid for oneself. Judgments of taste can be distinguished from judgments of liking ("I like …") on the basis of disinterestedness in the person making the judgment that is required to exercise taste. Judgments of liking do not appeal to universal validity because in making them the person makes reference to his own desires or needs. When making aesthetic judgments, personal desires and needs are irrelevant and ignored. In line with Sibley, this thesis will focus on non-evaluative aesthetic judgments that describe the aesthetic character of an artwork rather than purely evaluative judgments of taste (good vs. bad). It is this essential aspect of taste that has been most neglected by researchers.

(2)   **Aesthetic qualities** are qualities in artworks, the perception of which requires taste. They cannot be directly observed with the normal senses. They ultimately depend upon non-aesthetic qualities but the relationship between them is not condition-

governed. The overall richness and arrangement of aesthetic qualities (the aesthetic character) of artworks are what makes artistic goods different from non-artistic goods. Whilst non-artistic goods might still have some aesthetic qualities, these qualities are not central to their existence and these goods are rarely, if ever, as complex and rewarding in their aesthetic experience as artistic goods are.

(3) **Development of aesthetic taste** leads to greater sensitivity towards more subtle and complex aesthetic qualities. Aesthetic taste development takes place through experience and learning from people with more refined taste who make their aesthetic experiences and their perceptions of aesthetic qualities accessible.

(4) **Aesthetic experiences** arise when people encounter aesthetic qualities. A prerequisite for aesthetic experience is a certain point of view or attitude a person has to adopt that can be described as "openness of the heart" or "disinterestedness". Refinement of taste leads to better aesthetic experiences since understanding more aesthetic qualities and their interactions (grasping more of the character of an artwork) allows for more intense aesthetic experiences. Aesthetically valuable artworks are artworks that are rewarding in their aesthetic experiences.

(5) **Aesthetic taste can be seen as a form of perceptive expertise,** which allows for the concept of aesthetic taste to be firmly grounded in empirical research in cognitive psychology. It has been shown for a variety of categories of goods that greater perceptive expertise leads to a more complex category structure in the brain which allows the perceiver to pick up more and more subtle aspects of the goods in question. Perceptive expertise is not the same as familiarity with a category of goods, but refers to an enhanced ability to perceive and categorize. People who possess perceptive expertise have a greater ability to describe with specific language their perceptions and have a greater knowledge stock of the category of goods.

For the remainder of this thesis, "taste" is used in the economic sense and "aesthetic taste" is used to refer to the aesthetic meaning of taste.

3 INCORPORATING AESTHETIC TASTE IN ECONOMIC DEMAND MODELS: A REVIEW OF THE LITERATURE

In the previous chapter we derived the concept of aesthetic taste from centuries of aesthetic thought, drawing on works by dozens of highly regarded philosophers. We then tied the concept of aesthetic taste to empirical research on perceptive expertise in cognitive psychology and revealed strong parallels that allowed us to see aesthetic taste as a specific form of perceptive expertise for cultural goods. For an economist, however, perception is not the domain to focus on, but behaviour. Specifically, in this case we focus on consumer behaviour and demand for cultural goods. This chapter will thus review selected economic research in and models developed with respect to demand for cultural goods. Since the field is quite large, we will restrict this review to the performing arts, and in particular theatre. The decision to focus on demand for performing arts exclusively has been made because these cultural goods have been subjected to substantial high-quality and innovative empirical research, and will also be the focus of the empirical investigation conducted to test the model in this thesis. This does not imply, however, that the general model that will be developed in the next chapter is not applicable to cultural goods in general, since aesthetic taste, the central concept discussed here, is in fact applicable to all cultural goods.

Economic research on demand for performing arts commonly focuses on one or more of the following topics:

(a) estimating income and price elasticities;

(b) assessing the effect of particular attributes of the performance or of the consumption situation on demand (there are many publications that focus on the effects of subjectively or objectively measured quality on demand);

(c) assessing the effect of consumer characteristics (socio-demographics) on demand, with a strong focus on "taste cultivation" or similar ideas of "learning-by-consuming".

The first part of this chapter will follow this logical structure of the literature, covering research that addresses topics (a) and (b) above. We will then review theoretical models and empirical arts demand studies that aim to incorporate or at least address the idea of aesthetic taste. Economic research relating to aesthetic taste has been conducted under many names, such as "taste development", "taste formation", "cultivation of taste", "taste refinement", "cultural capital" or simply "the effect of an individual's past experience and knowledge". At the same time, some research that discusses taste or uses the above terms has nothing to do with aesthetic taste. Since aesthetic taste is a person-specific characteristic, a necessary condition for incorporating aesthetic taste in economic demand models is either to allow for tastes (in the economic sense) to change across time within a person ("taste change" across time periods), or to allow tastes between people to differ ("taste heterogeneity" across people at a given time period).

3.1 A GENERAL REVIEW OF EMPIRICAL RESEARCH ON DEMAND FOR THE PERFORMING ARTS

3.1.1 PRICE AND INCOME ELASTICITIES

The standard model of household consumption applied to the performing arts assumes demand to be dependent on ticket price, consumer income and price of substitutes (Moore 1966; Throsby and Withers 1979)[7].

Still today, the majority of economic studies on the arts focus on analysing aggregate data and on deriving price and income elasticities. Seaman (2006) found 44 econometric studies on demand for arts conducted between 1966 and 2005, half of which rely on US data. Approximately two-thirds of these studies report time-series results, and most rely on data aggregated across several arts organisations and art forms. Twenty-nine of the 44

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[7] Withers (1980) also includes a leisure price variable in his "time allocation model" whose negative substitution effect partially offsets the large income effect.

studies state own price and/or income elasticity estimates. Most studies found that demand for the arts is price inelastic, which is also consistent with more recent studies (Gapinski 1986; Heilbrun and Gray 2001; Levy-Garboua and Montmarquette 2003; Zieba 2009; O'Hagan and Zieba 2010; Ringstad and Løyland 2011). However, Seaman in his comprehensive review, shows that not all research conducted comes to the same conclusion. He lists 12 studies that found price-inelastic demand, five studies that found mixed results and four studies that found price-elastic demand. Throsby and Withers (1979) and Withers (1980) also found mixed evidence in relation to this; however, any statistical significance disappears when the price of leisure is added to the model.

In general, results for price-inelastic demand come from analyses of very aggregate data, without distinguishing between different groups of arts consumers, different arts organisations or even different art forms, and therefore a finding that demand for the arts are price inelastic is "highly simplified" (Seaman 2005, p.58). Several publications analysing data separately for different performing arts companies or different groups of patrons confirm Seaman's conclusion. For example, Colbert (1998) found two types of arts consumers; the first being poor in money but rich in time, and the second rich in money but poor in time. He found that only the first group was highly price sensitive, whilst for the latter group demand was much more inelastic. Abbe-Deccaroux (1994) estimated separate models for normal-price and reduced-price tickets respectively, and found the price coefficient to be insignificant for normal-price tickets (indicating inelastic demand), but found price-elastic demand for the reduced ticket-price category. Analysing performance-level data from three theatre venues, Corning and Levy (2002) also found different price and income elasticities depending on the theatre venue, and Felton (1992), in her analysis of 24 orchestras, 14 ballets and 12 opera companies concluded that demand is on average price-inelastic, but it varies by company so that some performing arts companies have price-elastic demand and others price-inelastic demand. Akdede and King (2006) found evidence that in Turkey price elasticity for theatre plays is lower in more developed than in less developed cities, and Laamanen (2012)

reports inelastic demand for Finnish opera in the premier season but price-elastic demand for reprises.

In relation to income elasticities, Seaman observes that "the income elasticities of demand for the arts are not compellingly high" (2005, p.72), and Withers finds that they are more likely to be high when the price of leisure is separated from the pure income effects (Withers 1980). More recently, Ringstad and Loyland (2011) conclude that demand for the performing arts is income-inelastic whilst demand for cinema is income-elastic.

3.1.2 DETERMINANTS OF DEMAND: BREAKING THEATRE PLAYS DOWN INTO ATTRIBUTES

A substantial amount of economic research on demand for performing arts has included some form of quality in the model. The notion of "quality" is used in three different ways:

- quality in the sense of "objective quality", as assessed by experts or reviews in newspaper;
- quality as assessed by popular demand (where the more appropriate term would be "popularity" unless one wants to assume that whatever is popular is also of high quality); and
- quality in the plural sense of qualities, that is characteristics (attributes) of arts performances[8].

The impetus for including any of the above kinds of quality variables in economic demand models is that price, substitute prices and income do not seem to be able to explain demand for the performing arts all that well. As Throsby notes, "qualitative characteristics of events ... are likely to dominate price in determining demand" (1994, p.7). In that vein, the focus of other research in arts demand studies has been to specify and measure the effect of

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[8] O'Hagan and Zieba (2010) use the somewhat clunky term "output characteristics".

attributes of cultural goods, other than price, on demand (Throsby 1990; Urrutiaguer 2002; Ginsburgh 2003).

Originally, quality was either assumed away in demand models or held constant. Throsby (1983; 1990) was the first cultural economist to observe that the "search for systematic components in individual or group choice in artistic matters as a means of explaining, at least in part, why decision-makers behave as they do" (Throsby 1990, p.66) as an interesting and necessary endeavour for the economist. Throsby draws on Lancaster (1966) when he suggests that several aspects of "quality" could be included in choice analyses of theatre plays. He assumes quality to be a multi-dimensional characteristic of the artistic good, not exclusively determined on aesthetic grounds but influenced by several observable characteristics of the play, such as the theatre company, the venue and the production. Throsby distinguishes five quality variables for plays: repertoire classification (pre-1900, post 1900 by well-known author, post 1900 by unknown author, performance of entertainment or musical); standard of source material; standard of acting; standard of production; and standard of design. The last four variables were constructed from reviews in newspapers. In his analysis of aggregate demand for plays at three theatres, Throsby finds some significant effects for repertoire and acting, and for an aggregate measure of quality (the four quality variables combined). In the same paper Throsby (1990) describes a rating (conjoint) experiment he conducted at four theatre venues in 1982, where theatre patrons were asked to respond to hypothetical theatre scenarios. This seems to be the very first attempt to investigate demand for artistic goods from a discrete choice point of view rather than the conventional way of treating the dependent variable (demand) as a continuous variable. Due to restrictions in complexity of experimental design and length of the questionnaire, only three attributes with three levels each were used: price ($5, $10, $15); appeal (of little interest, moderately interesting, extremely interesting); and standard (poor, average, excellent). Linear models were estimated, with the initial model estimation showing that – providing the same spacing of attribute levels – the attribute "appeal" had a somewhat larger effect on demand than "standard". In a second round of analysis, Throsby

distinguishes two groups of respondents by how important aspects of the play versus aspects of the production were to them, and re-estimates the model for these two groups separately, finding evidence that respondents who rated aspects of the play as more important also made their choice in the rating task more dependent on the "appeal" of the play. In contrast, respondents who rated aspects of the production highly weighed "appeal" and "standard" approximately evenly in their choice of theatre play. For the attribute price, Throsby finds negative significant coefficients throughout.

Abbe-Deccaroux (1994) also assesses the role of quality in demand for theatre plays using data on 64 productions from a theatre in Geneva, Switzerland. He argues that quality cannot be observed ex-ante, so that there is a certain amount of risk involved in making the decision to attend a play, and that reviews in newspapers help the decision-maker to better assess the quality before having attended the play. Abbe-Deccaroux uses the following criteria to assess quality: newspaper reviews (very poor, poor, average, good, very good, excellent); repertoire classification (pre-1900, post-1900 but playwright deceased, post-1900 and playwright alive, atypical show); and reputation (of the playwright, play, actors and producer, where reputation is equated with being well known in the general population for playwright and play and, in the case of actors and producers, having appeared on TV or in newspapers). In Abbe-Deccaroux's models, the quality judgments of the press reviews are highly significant and positive, as is "atypical play" – which is equivalent to Throsby's "entertainment" – as well as the reputation of the playwright, the producer and the actors. He concludes that the aversion to risk is less than 1.

Urrutiaguer (2002) follows Rosen's hedonic model (1974) in assuming that consumers perceive quantities of characteristics of goods in the same way, but differ in how they evaluate different bundles of a good's characteristics. Urrutiaguer's research therefore differs from Throsby's (1990) and Abbe-Decarroux's (1994) in that he allows for a subjective assessment of quality. Rather than conducting the analysis on a theatre play level, he analyses data on the theatre level, thus aggregating across the productions of a theatre company. He uses the following variables to assess quality in theatre plays: repertoire

classifications (pre-1900, plays written pre-1980 and playwright dead, play written post-1980 and/or playwright alive, foreign contemporary playwright); an average and weighted newspaper review score (+1 for mostly positive remarks, 0 for neutral review, -1 for mostly negative remarks); amount of subsidies received from local and state authorities as a measure for public recognition; and status of the play's director. He proposes two groups of theatre venues that differ in the way their audiences use the quality indicators. In one group the audience relies mostly on expert reviews and tend to use price as an indicator for quality (positive price coefficient), whilst in the other group they rely predominantly on the director's reputation.

Corning and Levy (2002) use performance level data for three theatre venues in California to understand taste heterogeneity between theatre attendees at the different venues, using data on 2113 performances over an eight-year period. Apart from price, income and leisure price variables, they also included a quality variable which was coded from newspaper reviews (poor, slightly negative, neutral, good, excellent), as well as dummies for the type of play (comedy, musical, drama, one particular annual show titled "Tommy") in their model, finding that at one of the venues only did critics' reviews have a significant (positive) effect on demand, whilst at the other two venues critics' reviews did not have any effect. Strongly significant effects were found for type of play.

Krebs and Pommerehne (1995) distinguish between a popular understanding of quality and highbrow quality as determined by the "art world". They estimate the annual aggregate demand for German theatre between 1961/62 and 1991/92, using as proxy for a popular understanding of quality the ratio of plays that have more than 75 performances, arguing that more popular productions tend to run longer, whereas highbrow productions have shorter life-cycles, finding the expected positive effect on demand with the coefficient being close to significance, but two other proxies for quality being insignificant.

Felton (1989) also included a popularity rating (five-point scale) in her analysis of demand for opera in the US but finds a positive significant effect on demand for only one opera company.

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Instead of "quality" Ginsburgh and Weyers (2008) measure "beauty" in three different ways for the motion picture industry: as an intrinsic attribute of the movie; as determined by experts; and as confirmed by time through popularity of demand. Using a dataset on Oscars awarded by the Academy of Motion Picture Arts and Sciences between 1950 and 2003, the authors show that the decision which movie was awarded "best picture" in a particular year can be modelled by using five other Oscars (for actor in a leading role, director, screenplay, costume design and film editing) as explanatory variables; they argue that the experts who determine the Oscar awards do in fact use a weighting scheme of individual properties of movies to determine the overall value. In order to compare expert versus "test of time" assessment of "beauty" (although "quality" seems to be the better word to use here), the authors compare movies that gained awards such as an Oscar, Golden Globe, New York Film Critics Circle and the National Board of Reviews award with the top 100 movies lists (that show which movies were most popular amongst consumers) and find only little overlap between awards and top 100 lists.

Werk and Heyndels (2007) analyse demand for Flemish theatre and, in addition to the conventional price, income and substitute price variables, include several attributes of theatre plays in their demand model, using an unbalanced panel data set of 59 theatre companies over 20 years, totalling to 544 observations. They distinguish five attributes of theatre plays: original language of the play; age of the playwright; whether or not the play is an adaptation; the number of actors; and whether the production is new or a remake. They follow Urrutiaguer (2002) in analysing data on the theatre venue level rather than the theatre play level, which implies that they had to convert the characteristics of the plays to characteristics of the theatre, finding positive significant effects for number of actors and Dutch-speaking playwrights, and a significantly negative effect for new productions, but found no significant effects for age of the playwright, nor for whether or not the play was an adaptation.

In terms of stated preference data, Willis and Snowball (2009) conducted a choice experiment on theatre plays in a South African theatre venue and used the following

attributes: type of cast (professional, semi-professional, amateur); reputation of the producer/director (famous, unknown); the context or setting (South African, other African, developing country, west); production type (comedy, drama, musical); and ticket price (6 levels). They presented 483 attendees at a theatre venue in South Africa with 4 choice cards each, where each choice card comprised two attribute combinations (alternatives). They estimated a conditional logit, mixed logit and conditional logit with interactions (allowing for socio-demographic effects). Signs of the coefficients are as expected for the general conditional logit model: a negative price coefficient, positive for director's reputation, positive for the professionalism of the cast, positive for comedy, and positive for local (South African) play context.

Tobias (2004) investigated the question to what extent can quality of performing arts companies as perceived by experts be explained by a company's production costs. He asked critics and directors of ballet, theatre and opera companies in Germany to judge the quality of performing arts venues on a five-point scale from 1 = excellent to 5 = poor, and whether they knew the company well or very well. He then transformed the ratings given by a particular expert into a personal ranking of companies and combined rankings across experts to obtain one score for each performing arts company. Tobias finds different results depending on the art form: interestingly, in the case of theatre, production-cost variables seem largely incapable of explaining experts' perception of quality. In ballet and opera the model performs better, giving evidence of positive but decreasing marginal returns.

Akdede and King (2006) use data from 99 plays performed in 26 theatres within an eight-month period in Turkey. They include the following quality variables in their model for theatre demand: Turkish playwright; author has published work other than theatre plays; and dummy for comedy involving music and dance. They estimate separate models for less developed and more developed cities in Turkey and find that only in the latter case some qualitative variables, namely known author and comedy, contribute to explaining demand with the expected positive sign.

Laamanen (2012) estimates demand for Finnish opera using ticket sales data from the sales system of the Finnish National Opera. Apart from price, substitute price and income they also include several variables characterising the performances: type of performance (classical pre-1916, modern, other); Finnish (Y/N); premiere performance (Y/N); premiere season (Y/N); critical appraisal in the largest Finnish newspaper (positive/negative vs. neutral); overall popularity of the opera (log number of times the opera was performed worldwide during five seasons); and four dummies for star performances. They find significant positive effects for all variables in both premier and other seasons, apart from classical opera (significantly negative in the premier season and other seasons), modern opera (not significant in premier season, significantly negative in non-premier seasons), and negative press review (significantly negative in premier season, not significant in other seasons).

Using a large panel data set for German theatre, O'Hagan and Zieba (2010) investigate the role of "unique output characteristics" on demand, and conclude that those have a significant effect on demand for theatre in Germany, more so than the standard economic variables. They include three groups of output-related variables in their analysis relating to the quality of the artistic output (reputation of the theatre as measured by attendance of guest performances of the theatre's ensemble as a proportion of total attendance, average expense on artistic personnel, décor and costumes), finding highly significant positive effects for all variables. Other output variables included in the analysis are the theatre's propensity to stage new productions (significantly negative); the production size measured by average staff-complement size (significantly positive); and the mix of performances of different genres (drama, opera, musical, etc.) (significantly positive).

Whichever form of quality these various investigations focus on, almost all of the variables included in the respective models are significant, often quite strongly, so that the most important message to take away from this line of research is that the attributes of individual cultural goods do indeed matter and therefore must be included in any analysis of consumer demand for those goods.

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This concludes our general review of economic studies of demand for cultural goods. Next we review those investigations that focus specifically on the inclusion of concepts related to aesthetic taste in their analyses; first in studies of taste heterogeneity and then in studies of taste change.

3.2 AESTHETIC TASTE IN ECONOMIC RESEARCH ON ARTS DEMAND ALLOWING FOR TASTE HETEROGENEITY

Even early studies on arts demand – that were effectively surveys of audiences of theatre, opera and museums rather than econometric investigations – allowed for taste heterogeneity, focusing on observable socio-demographic information. Starting with the landmark study by Baumol and Bowen (1966), who were the first to assemble credible data on arts consumption patterns, empirical studies on arts participation and demand have found over and over again that arts audiences are characterised by higher education, income and are from the more "elite" professions than people who don't attend arts performances. Another widely-cited study by the Ford Foundation (1974) found "striking confirmation that the people who attend are indeed disproportionately well-to-do and well-educated" (p. 13). A US-wide study by DiMaggio, Useem and Brown (1978) looked at 270 performing arts and museum audience surveys that were conducted by arts organisations since 1970. They find the same results, namely that "the culture-consuming public is more educated, has higher incomes, and has higher status jobs than the general public" (p. 3). The research of Throsby and Withers (1979) comparing data from different countries contributed substantially to showing that this elitism of arts demand was not restricted to the US but is in fact strikingly similar across countries. Seaman (2005) conducted a comprehensive review of empirical studies of arts demand, including surveys of the arts audience, econometric studies focusing on determining elasticities, and econometric studies focusing on examining determinants of arts demand or participation and finds ample evidence of arts demand being highly correlated with higher income, education and professional level. His study, which is arguably

the largest and most concise review on arts demand up to 2005 lists several studies that conclude that education has a more dominant role than income in explaining arts demand. Most contemporary studies on arts demand allow for some taste heterogeneity by including some socio-demographic variables. The present review will focus on those publications that are most relevant in regard to the aim of this thesis.

Andreasen and Belk (1980) were among the first researchers to expand the scope of arts demand and arts participation research beyond socio-demographic audience descriptions and conventional demand studies. In their empirical study on attendance at performing arts events, in addition to the usual socio-demographic variables, they included data captured by questions on life-style, attitudes towards the arts, past arts exposure as a child, and parents' arts consumption. They conducted nearly 1,500 telephone interviews with households in four southern US cities, focusing on "marginal attenders" – those who currently do not attend theatre plays or symphony concerts frequently, but who might be enticed to do so – by excluding people who had a zero likelihood of attending an arts performance and deliberately undersampling heavy arts performance attenders. To determine the best predictive variable of future arts attendance they conducted stepwise regressions for theatre and symphony attendance separately, with "likelihood to attend theatre/symphony in the next year or two" as dependent variable and 56 independent variables. The respondents' attitude towards theatre, interest in theatre when growing up, theatre attendance during the past year as well as three life-style variables were significant and thus the variables that contribute most to explaining future arts attendance (Andreasen and Belk 1980). The stepwise regression on symphony attendance showed similar results. Interestingly, although socio-economic variables like age, gender, education or income were significantly correlated with the dependent variable, none of them was a significant predictor of likely attendance when these other variables were included in the analysis.

A substantial report prepared by the U.S. National Endowment for the Arts in 1981 concluded that "interest in the performing arts while growing up is high on the list of predictors of adult attendance" (1981, p.6). Their analysis focused on theatre and symphony

audiences, and included socio-demographic variables but also attitudinal and life-style variables. For both theatre and symphony attendance the report concludes that the best predictors for attendance are attitude towards attending, showing interest as a child, recent attendance and membership of a particular life-style group.

Morrison and West (1986) look into the determinants of demand for the performing arts. They summarize the existing audience studies that identify characteristics of demand for the arts: arts audiences are quite wealthy, well-educated and many have been exposed to performing arts as children. They note, however, that such demographics are "little more than casual empiricism" (p. 17) and that causation cannot be assumed. In their research they aim to identify the variables that are responsible for creating new demand for the performing arts, rather than in increasing demand for existing audiences. In particular they looked at exposure to the arts as a child, either in the form of attendance at arts performances or in the form of active participation in the arts, and found a strong effect from having *participated* in the arts as a child as being an influential variable, but found no significant effect from being taken to arts performances as a child on current arts demand.

Whilst these early research endeavours hinted towards some form of aesthetic taste by including proxies such as education, childhood exposure or past attendance, or attitudinal questions, research *explicitly* aiming to capture aesthetic taste (or related concepts) has only emerged more recently.

Ateca-Amestoy (2008) uses US data from the 2002 Survey of Public Participation in the Arts to investigate determinants of arts participation. She follows along the lines of Stigler and Becker (1977), assuming that tastes are stable and similar amongst people, and that differences in observed behaviour can be explained by differences in constraints. She distinguishes between true preferences and observed behaviour; the latter being subject to influences from various social, financial, time or cultural capital endowment constraints. Since only 12.3 percent of the adult US population had attended a theatre play in the year 2001/2002, the frequency distribution of the dependent variable in her model, number of theatre attendance in that year, has a large number of zeros. She assumes that motivations

amongst non-attenders are heterogeneous, in that some non-attendance in the data is truly due to people not getting any utility from attending a theatre play and thus having a zero probability of attending, whilst others not attending a performance that year was because of them having faced some constraints, but having nevertheless – in general – a positive probability of attending. She defines "cultural capital stock" as "a personal resource accumulated by past consumption of cultural goods", which "makes individuals more productive in the fulfilment of their cultural needs" (Ateca-Amestoy 2008, p. 129)[9]. Proxy variables included in the model to measure cultural capital are the parents' formal education level, the respondent's formal education level, whether the respondent had taken theatre classes, and whether the respondent is an actor. Apart from cultural capital the model includes a stated preference variable related to unconstrained consumption ("would go more if no restriction"), social capital variables (other family members participate), other forms of related participation (e.g. watching theatre plays on video, TV), and a set of socio-economic variables. She uses a zero inflated negative binomial model to estimate her model, including the same set of variables for the binary outcome (whether the probability of attending is zero or greater than zero) and for explaining the count data.

Ateca-Amestoy found that being male, living in rural areas, having lower income and education and having no experience in any active arts participation, as well as not consuming theatre in any other form (for example via TV or DVD), and not being single are all positively related to having a zero probability of attending theatre performances. For those people who have a non-zero probability of attending a theatre play, the most influential explanatory variables are age, being female, being single, living in an urban area, having higher education and consuming theatre in other forms as well as active arts participation. Interestingly, income is not a strong predictor of how many times people attend theatre plays.

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[9] Note that the notion "cultural capital" in Ateca-Amestoy's research is used in the sociological rather than the economic sense where cultural capital is understood as a form of capital alongside other forms of capital such as natural, human or physical capital (Throsby 2011).

In regard to parents' education (as a proxy for the initial endowment of cultural capital a person receives as a child), the mother's education is insignificant in both models, whereas the effect of the father's education seems inconclusive since the second-highest education level of the father has a negative coefficient, and the highest level of father's education a positive coefficient.

Grisolia and Willis (2010) investigate preferences for a regional theatre in England. Unlike other economic demand studies, they are interested in people's choice of a specific play at a specific venue rather than in the more general choice of attending any theatre play (or not) and the frequency with which people might attend theatre plays. They follow Lancaster (1966) in assuming that the value of complex goods can be broken down into their attributes of value. They use a discrete choice experiment to collect stated preference data on people's preferences of different theatre play alternatives (that is, attribute combinations) via self-completion questionnaires. The attributes used to construct the alternatives for the choice experiment were: five different venues (all existing theatre venues in and around Newcastle, UK); type of play/genre (comedy, drama, experimental); repertory qualification (classic, modern, contemporary, modern adaptation of classic play); critics reviews (poor, average, very good, must see); word of mouth (non-available, poor, average, very good, must see); and the playwright (known/not known). The coefficients for *word of mouth* and *reviews* are overall increasing the better the quality indicated is. This means that respondents are more likely to choose a play that has very good reviews as compared to a play that has average reviews, and are more likely to choose a "must see" play compared to a "very good" play, as judged by word of mouth. There seem to be quite heterogeneous tastes however, since when interacted with certain socio-demographic variables such as "being cultured" (see below), being female, being old or having a family, word of mouth as well as reviews show negative coefficients.

The authors also generate a binary variable of whether respondents have "cultural capital" or not, using education, frequency of theatre visits, number of books read and frequency of cinema attendance. They find highly significant effects of possessing cultural

capital and having a preference for experimental adaptations and drama, which implies that these respondents enjoy plays that have greater complexity and are more serious than other plays. The authors interpret this as a confirmation of Bourdieu's view on cultural capital, namely that certain skills are required to understand the cultural code and therefore to enjoy culture. Cultured people also tend to rely less on critics reviews. Regardless of which model they use to estimate the probability of choosing a particular theatre play, they find a considerable degree of heterogeneity amongst theatregoers for productions.

The Grisolia and Willis paper is the first study that aims to determine the effect that different attributes have on people's *choices* of particular plays. One of the major drawbacks of their study, however, is that the plays presented are artificial and not real plays. Nevertheless their research shows interesting effects of the interaction of critics' reviews and quality as perceived by "normal" people with certain characteristics of individuals such as being cultured.

In a more recent paper, drawing on the same data set of theatre-goers in a regional theatre in England, Grisolia and Willis (2012) estimate a latent class model of theatre demand – the first in the literature of performing arts demand – and identify three classes of theatre-goers: a main class, a popular class and an intellectual class.

The "main class" accounts for 43 percent of respondents, who are better educated and somewhat more affluent than the other two classes. They are less likely to be frequent attenders as compared to the intellectual class and tend to be middle-aged. Respondents in this class are most affected by reviews and word of mouth in their choices and have preferences for two of the five venues, one of them being the most prestigious venue in Newcastle, the Theatre Royal. Knowing the playwright positively affects this class' utility.

The second class is a young "popular class" who has the lowest willingness to pay for theatre tickets, is less likely to have attended a play by the Royal Shakespeare Company (i.e. a "serious" play) and prefers comedy. Members of this class are also less likely to be frequent attenders, as compared to the intellectual class, accounting for 25 percent of respondents. They don't have a preference in regard to the theatre venue and are the ones

least influenced by critics reviews in their choice of play. The popular class has a dislike for drama and experimental adaptation, and a preference for comedy and plays written by playwrights they know.

The "intellectual class" (32 percent of respondents) tends to be older and is characterised by more frequent attendance at theatre performances, with a lower income as compared to the main class. People in this class have the highest willingness to pay for theatre tickets, prefer drama and experimental plays and are less swayed in their choices by word of mouth. It is it not important for them whether the playwright is known to them or not, also indicating a preference for more novel (less mainstream) plays.

It is interesting that it is not the intellectual class but the main class that is characterised by a higher level of education. The authors attribute this to the fact that education and income are highly correlated. Another explanation could be that general education and arts-appreciation education are distinct. Regrettably, the authors have not included some proxy of taste refinement in the latent class analysis (e.g. the measure they used in their 2010 paper and called "cultural capital"). This paper is a very interesting starting point in investigating social influence (word of mouth) and quality (expert reviews) in demand for the performing arts.

In a different study Grisolia et al. (2010) look at the factors that distinguish theatre-goers from non-theatre-goers. They merge postcodes collected from people who purchased a ticket for a play at a regional UK theatre within a one-year period (spring 2007 – spring 2008) with socio-economic data taken from the Census. Averaging the socio-economic variables for different geographical areas (they call "output areas") allows them to distinguish output areas with high density theatre attenders and output areas with zero attendance. Using this binary variable as a dependent variable in a discriminant analysis, they aim to predict membership in these two groups, where the socio-economic variables included in the model function as predictors. They find that having a higher educational level is by far the most important predictor. Other variables that contribute are: having no confession (religion), and having a higher, more prestigious occupation (in the sociological sense of status).

Willis and Snowball (2009), in their choice experiment of theatre plays in South Africa, collected data on age, income, and language spoken to include in their model. They find a declining utility with age in regard to comedy and drama (i.e. older people prefer shows with music), a negative effect of income on the classic genre. Considering the particular situation in South Africa, they find increasing utility with increasing income for western shows, as well as increasing utility for western shows if English is spoken.

Borgonovi (2004) hypothesises that in past research efforts on cultural consumption, socio-economic variables such as education and income, racial background and occupational status were highly correlated with participation in the arts because variables truly affecting arts consumption, such as social class (family background) and arts education, were omitted from the analysis. She draws on the 2002 US Survey of Public Participation in the Arts and distinguishes in her analysis between non-visitors (zero attendance in the year 2001/2002), occasional attenders (attended one or two performances in the past year), and frequent attenders (three or more attendances per year). She estimates (a) a logit model to determine influential variables on the probability to attend a play at all; and (b) an ordered regression model to determine variables that distinguish non-attenders from occasional and frequent attenders. In regard to theatre, art-specific education (in relation to the art form) is more relevant than general education in determining whether a person consumes theatre or not, but art education in other areas (e.g. music or opera) affects neither the probability of attending a theatre play at all nor the number of theatre plays attended. In addition she finds positive evidence of the "omnivore" hypothesis, namely that people who are consumers in one art form are more likely to be consumers of other art forms as well. This is true for other performing arts (ballet, opera, classical music) and for museum visits. Another variable that positively affects the probability of attending as well as the number of theatre visits per year is the number of performing art venues that exist in the respondent's county. Number of hours of TV watched per day negatively affects the probability of going to the theatre but does not affect how many times per year a theatre play is attended.

Interestingly, whether one is an occasional or frequent attender in her model is not significantly affected by art education or general education. Rather, being older, being female, having higher income, not working in a less prestigious occupation (white collar or manual worker versus professional) and the amount of public funding the performing arts receive in the respondent's county (which she uses as a proxy for lower ticket prices), positively influence the probability of being a frequent visitor.

Redondo and Holbrook (2010) allow for taste heterogeneity in their model of movie demand by way of canonical correlation. Apart from age, gender and education they also use social class as defined by profession and education of the household's main income earner as an explanatory variable in their model.

Wen and Cheng (2013) use data from a national survey conducted with over 1800 residents on performing arts attendance in Taiwan. They find that education and income both affect the likelihood of attending, however both variables are not significant in explaining frequency of attendance. Apart from the usual socio-demographics, the survey asked respondents for their personal involvement with performing arts, in particular, whether they had made donations to any performing arts company, whether they had relatives or friends who were involved in the performing arts, whether they consumed performing arts through TV or radio, and whether they were interested in information about performing arts. They find strong significant effects of those variables on the likelihood to attend and on frequency of attendance.

Latour and Latour (2010) never mention the words "cultivation", "refinement" or "taste", yet their research is relevant here. In their research on wine drinking and expertise they distinguish between three types of consumers: aficionados who consume a hedonic product (in their case wine) often and enjoy doing so; experts who are similar to aficionados in that they have had many consumption experiences and enjoy consuming the product, but in addition have also developed general knowledge about the product category as well as concrete sensory descriptions about product characteristics that helps them "encode and retain their experiences in memory" (see also Shapiro and Spence 2002; Latour and Latour

2010, p.688)[10]; and novices, who have not had any significant amount of consumption experiences nor a lot of knowledge. Aficionados have failed to develop a specific vocabulary to describe their consumption experience. For that reason aficionados do not learn from their product experiences, they are inefficient in capturing their product experience in words, which leads them to remember their product experience incorrectly. Specifically, in their experiments they found that expert consumers use more specific sensory terms to describe the tasting experience of the test wine and are thus better at accurately picking the same wine out of a set of five different wines.

In their research they find evidence for several hypotheses: (1) that frequent consumption of a product alone (or the provision of general product knowledge) does not lead to development of product expertise, but that in order for learning from product experience (i.e. wine drinking) to occur, consumers need specific sensory language to encode and memorize their experience; (2) that experts have ample product experience as well as possess sensory vocabulary to correctly describe and memorize their consumption experience; (3) that because of their lack of conceptual knowledge aficionados are more susceptible to being influenced by attempts to verbalize their experience than that of experts; and (4) that providing aficionados with sensory vocabulary (in the form of a wine wheel) to help them describe their sensory experience facilitates the development of expertise.

Advantages of developing this conceptual knowledge, so the authors argue, could provide consumers "with more confidence in their ability to choose wines that match their own preferences" (Latour and Latour 2010, p. 695). In order to transform from an aficionado into an expert consumer, the aficionado needs to learn conceptual knowledge and integrate perceptual and conceptual knowledge. What their research makes clear – in line with insights found in cognitive psychology on perceptive expertise – is that exposure alone does not

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[10] They define an expert as someone who is either a wine professional or had taken multiple wine seminars (in line with Melcher and Schooler 1996).

automatically lead to aesthetic taste development. For that reason it is important to distinguish past consumption from aesthetic taste development.

In light of the above review of literature focusing on incorporating aesthetic taste (or a related concept) into economic models of demand for or choice of cultural goods, we can observe that because economists often use secondary data, aesthetic taste – a non-observable, "soft" variable – is either left out or represented by proxies such as parents' education, general education, art-specific education, frequency of past consumption of cultural goods, active arts participation or other personal involvement (e.g. as a donor or as a family member of an artist) in one or more art forms. Even in the case of primary data collection, economists have been hesitant to measure aesthetic taste (or "cultural capital accumulation" or "taste stock") directly, and have therefore been unable to distinguish the effects of aesthetic taste on consumer behaviour from other variables such as habit or consumption of cultural goods for reasons of social signalling or distinction.

3.3 AESTHETIC TASTE IN TASTE CHANGE MODELS

Taste changes are much harder to detect empirically than taste heterogeneity, since this requires panel data that is usually expensive and time-intense to obtain. Research on taste changes has thus been mainly theoretical or, if empirical, on an aggregate level.

Initial models of taste change, mostly termed "habit-formation models", did not specifically focus on arts consumption. They aimed to account for an inter-temporal positive correlation between past and current consumption by including a one-year lagged dependent variable as an explanatory variable (Houthakker and Taylor 1970; Goudriaan et al. 1983; Oteri and Trimarchi 1990; Krebs and Pommerehne 1995; Urrutiaguer 2002), which turned out to be positive and strongly significant. However, three models of changing tastes have been developed specifically for arts consumption (although the first model sees arts consumption just as one case out of several). We will review these three models and discuss them in light of aesthetic taste.

3.3.1 STIGLER AND BECKER'S THEORY OF CONSUMER CHOICE APPLIED TO ADDICTION

One of the most widely discussed models that claims to account for (seemingly changing) tastes is by Stigler and Becker (1977) and further by Becker and Murphy (1988). As opposed to myopic habit-formation models, rational-addiction models such as this one characterise consumers as consistently forward-looking, meaning that consumers sacrifice some utility by investing in human capital, which leads them to experience greater utility in the future.

Conventionally, the phenomenon of past consumption affecting current consumption – where consuming goods increases the desire for them and thus causes the consumption to grow over time – can be explained by an increase in their marginal utility because tastes shift in their favour. Stigler and Becker, however, offer a different view on tastes in their influential paper, namely that "tastes neither change capriciously nor differ importantly between people" (1977, p.76) but that all differences can be explained away by changes in underlying (unobservable) household functions. They build on Michael's and Becker's (1973) new consumer theory which postulates households as active maximisers of commodities Z_i that they themselves "produce" with market goods, skills, time and other human capital as input variables that enter the household production function. Since the commodities Z_i are not traded in the market they do not have market prices; however, they have "shadow prices" determined by the cost of all the input variables that enter the production functions. Consumers thus only consume market goods indirectly, as one of several inputs in their production function.

The main advantage of relying only on changes in arguments entering the household production function rather than tastes is that all changes in behaviour can be explained by changes in prices and incomes and thus become subject of economic analyses. In their original paper Stigler and Becker take four phenomena where common changes in tastes are assumed and then show the reinterpretation of these phenomena in terms of their theory: addiction, custom and tradition, advertising, and fashion and fads. As an example, for a

beneficial addiction they use the addiction to "good music", namely that the exposure to good music increases the subsequent demand for good music.

They assume that an unchanging utility function depends on two commodities produced by the household:

$$U = U(M, Z)$$

where M denotes music appreciation and Z all other commodities. Music appreciation is itself a function of input variables:

$$M = M_{m_j}(t_{m_j}, S_{m_j})$$

where t_{m_j} is the time allocated to listening to music at time j and S_{m_j} denotes music human capital at time j. They assume that $\frac{\partial M_{m_j}}{\partial t_{m_j}} > 0$ and $\frac{\partial M_{m_j}}{\partial S_{m_j}} > 0$ and $\frac{\partial_2 M_{m_j}}{\partial t_{m_j} \partial t s_{m_j}} > 0$, which implies a deterministic relation between music human capital and music appreciation. Music human capital S_{m_j} is accumulated partly by "learning by doing":

$$S_{m_j} = h(M_{j-1}, M_{j-2}, \dots, E_j)$$

where M_{j-v} denote effects of earlier music appreciation experiences on the accumulation of music consumption capital S_{m_j} and E_j denotes the combined effects of education and other human capital variables on S_{m_j} where they assume $\frac{\partial S_{m_j}}{\partial E_j} > 0$. They define addiction to be beneficial if $\frac{\partial S_{m_j}}{\partial M_{j-v}} > 0 \ for \ all \ v$, in words, only if all past music appreciation experiences lead to an increase in music human capital. This increased music human capital leads to a decrease in the shadow price of the music appreciation commodity which in turn increases demand for music appreciation; "…the marginal utility of time allocated to music is increased by an increase in the stock of music capital. Then the consumption of music appreciation could be said to rise with exposure because the marginal utility of the time spent on music rose with exposure, even though tastes were unchanged" (Stigler and Becker 1977, p.79). However, just because demand for music appreciation increases this does not imply that an increase in the time spent listening to music or an increase in demand for goods used to

produce music appreciation will occur. According to Stigler and Becker, it is the elasticity of demand for music appreciation that affects the demand for the goods used to produce music appreciation, such as the market goods. In the case of beneficial addiction, the more elastic the demand for music *appreciation*, the more likely it is that demand for goods used to produce music appreciation increases.

The opposite is true for harmful goods such as drugs. Consumption capital is assumed to decrease with "drug appreciation" experiences, which reduces the stock of consumption capital available and thus raises the shadow price of "drug appreciation". If the demand for "drug appreciation" is inelastic, the demand for input variables (such as the amount of heroin consumed) is likely to rise with exposure. Stigler and Becker argue that addiction – whether to heroin, tennis or music is a *result* of inelastic or elastic demand, and not the cause of the elasticity. They argue that one could use the elasticity to determine whether a particular addiction is beneficial, in which case demand would be highly elastic, versus when it is harmful, in which case demand would have low elasticity.

McCain (1995) sees two short-falls in Stigler's and Becker's model: (1) its inability to predict differences in people's consumption levels in the long run since, if equipped with the same input variables such as skills and human capital, they would all end up consuming the same amounts; and (2) its inability to explain the bimodal or multimodal distribution of arts demand that can be observed in society.

Other critics have also welcomed the model proposed by Stigler and Becker with some reservation, emphasising that "…a pluralistic approach to utility theory is likely to yield the most fruitful results" (Cowen 1989, p. 134), and that "…economists need to approach this with a degree of modesty … We have much to learn from other social scientists who have thought long and hard about consumption" (Swann 1999, p.294). Simon views Stiger's and Becker's approach as not very illuminating, having "merely relocated 'taste' from the utility function to that hypothetical new production function" (Simon 1981, p.58). In a similar vein,

Pollak interprets their approach as a "matter of semantics, not substance" (1978, p.375)[11].

Another point of criticism of the Stigler/Becker model is in its determinism that no one seems to be able to escape. Past exposure to music leads to accumulation of music appreciation capital for everybody. Taking this idea to the extreme, one could "force" people to appreciate artistic goods just by force-exposing them.

3.3.2 MCCAIN'S DYNAMIC LEARNING-BY-CONSUMING MODEL

Following Pollak (1970) and Stigler and Becker (1977), McCain considers tastes as at least a partly endogenous variable in economic theory, and was the first to suggest a way to account for cultivation of taste in a demand model for artistic goods. He notes that tastes for artistic goods "… are cultivated through experience … Cultivation of taste is learning-by-consuming", and thus artistic goods form an exception to the neoclassical assumption of given tastes (McCain 1995, p.1). He argues that goods such as addictive drugs, wine and spectator sports are similar to artistic goods in that tastes for them are also cultivated through experience, and distinguishes these goods from others that only a subpopulation of people consume – for example a rice- versus potatoes-eating culture – by the fact that these customs are formed in childhood whereas tastes for art, wine and drugs are formed at a time when consumers make their own choices in adulthood.

McCain models changing tastes as constant underlying preferences (i.e. they do not change), and taste cultivation resulting in a change in the form of how these underlying preferences are expressed. In 1979 he proposed a simple formal theory of demand when tastes are cultivated, drawing on literature from economic theory and applied catastrophe theory (McCain 1979). He assumes a utility maximising framework where

$$U = f(y_1, y_2, \ldots, y_n)$$

but where y_i is not, as usually assumed in demand theory, a *physical* quantity of good i, but a *subjective* quantity of good i that depends on the consumer's perceptions and usage of good i:

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[11] See also Blaug (2001).

$$y_i = \beta_i x_i,$$

where β_i is a sensitivity variable and x_i the physical quantity of good i.

Phenomena such as addiction, habituation or cultivation of taste can then be seen as changes in the relationship between subjective quantity y_i and physical quantity of good i. This parallels Stigler and Becker's (1977) approach, where the underlying utility function is also given in terms of subjective sensations rather than in terms of goods, and preferences for *sensations* do not change. The sensations are produced by means of goods and services, and are determined by the sensitivity of the consumer to the goods and services, which is itself a function of the consumer's experience with the goods. Individuals then combine objective goods in order to obtain the subjective sensations they prefer. As McCain (2003) observes, this was not a new idea in 1977. Already in 1871 Menger wrote in his *Principles of Economics*: "Usually not a single good but a quantity of goods stands opposite not a single concrete need but a complex of such needs" (1871/1976/2007, p 129). Like Stigler and Becker and Pollak, McCain assumes the relationship between y_i and x_i to be linear in the interest of simplicity.

In the case of habituation (as modelled by Stigler and Becker), β_i decreases, i.e. sensitivity to good i declines and utility for the consumer decreases since

$$\frac{\partial U}{\partial \beta_i} = x_i \frac{\partial U}{\partial y_i} \geq 0$$

McCain suggests to treat β_i as an adjustment to the price of good i, such that if p_i is the "objective" price of good i, then $\frac{p_i}{\beta_i}$ is the subjective price of good i and

$$y_i{}^d = \beta_i x_i{}^d = h_i(\frac{p_i}{\beta_i})$$

where h_i is the demand curve. Thus if β_i decreases, the subjective expenditure increases. Depending, then, on whether demand is elastic or inelastic, demand for x_i increases or decreases.

McCain is referring to Scitovsky (1976) when he suggests that cultivation of taste may lead to an increase in the very same sensitivity variable β_i, since the individual's sensitivity to

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good i supposedly increases with exposure to x_i. β_i is constant in the short run, but the hypothesis of cultivation of taste according to McCain is that β_i changes predictably over time, contingent on the rate of consumption of good i.

Thus, for McCain, habit and cultivation are both subsumed by a "sensitivity" variable (β_i) the change in which can have different effects on demand for good i, depending on the elasticity of demand for the underlying sensation (Table 1).

	β_i increases (cultivation of taste)	β_i decreases (habituation)
inelastic demand for y_i	demand for x_i decreases	demand for x_i increases
elastic demand for y_i	demand for x_i increases	demand for x_i decreases

Table 1: joint effects of elasticity of demand and sensitivity variable β_i on demand for good in McCain (1979)'s cultivation of taste model

Writing in 1995, McCain further elaborates his idea by saying that the distinction between addiction (habituation) and cultivation in a Stigler/Becker-style model is that elasticities and income effects are opposite in the two cases. In the case of addiction, demand for the sensation is inelastic and thus the individual spends more on the sensation at the higher effective price, spending more on buying the addictive substance though she or he is worse off through the income effect of the rise in the effective price (McCain 1995, p. 3 and footnote 6). In the case of cultivation of taste, demand for the underlying sensation is elastic and sensitivity increases with experience, so that the consumer's demand for the good is increased and the individual is better off by the income effect of the reduction in effective price. McCain argues that one can think of this process as accumulation of taste capital.

Apart from cultivation of taste (i.e. that demand for artistic goods differs in proportion to consumers' experience with them; "learning-by-consuming") what distinguishes artistic goods from other goods according to McCain is that demand for artistic goods is bimodally or multimodally distributed. He bases his suspicion on the casual observation that there seem to be few who consume opera moderately (McCain 1979; McCain 1995) but that instead it seems to be much more common that one either is an opera maven or does not attend opera

performances at all. Multimodal distribution, so he argues, could explain sudden trends and fads, diverse groups of consumers with different preferences and cultural traditions. The elasticity of the underlying demand curve implies that greater sensitivity is associated with greater demand for the good, which is a necessary condition for multiple equilibria (McCain 1981).

To test the cultivation-of-taste model, McCain uses data on wine consumption in the US between 1955 and 1976 (1979). As a proxy for habitual consumption (which determines β) he includes a one-year lagged wine consumption variable. He assumes a cubic demand function since it allows for multiple equilibria if demand is elastic, and compares it with two linear demand estimates. He finds evidence that the cultivation-of-taste demand estimate performs better than the linear estimates with all parameter signs as expected and significant.

McCain uses bimodal distributed demand as a "stylized fact" in one of his papers (McCain 1995), where he extends his cultivation-of-taste model by grounding the model explicitly in bounded rationality rather than assuming consumers as optimizers. He uses a simple grouping model that assumes minimum cognitive processing. Consumers are assumed to choose an alternative at random, compare it with the last alternative chosen and making the final choice the better of the two. Depending on the initial conditions of the simulations and the groping process, the simulation leads to different proportions of simulated consumers developing cultivated tastes and thus greater overall demand and higher average utility. His simulations also show a bimodal distribution of β which leads him to conclude that cultivation of taste can explain heterogeneity of demand for artistic goods whether consumers are rational or not.

MCain's model is less restrictive than the Stigler/Becker model, since it allows for changes in tastes. However, like the Stigler/Becker model, McCain's cultivation-of-taste model assumes a sensitivity towards a whole category of goods (theatre, wine), but does not address whether cultivation of taste leads to people demanding different goods within a category. Empirically, McCain's measure for the sensitivity variable is a one-year lagged

consumption variable, which is the same proxy that earlier habit-formation models used. He does not aim to measure cultivation of taste more directly.

3.3.3 LEVY-GARBOUA'S AND MONTMARQUETTE'S MODEL OF LEARNING-BY-CONSUMING

Levy-Garbuoa and Montmarquette (1996) use a different way to integrate the role of experience in demand theory. As a starting point they take the claim of "educated people, who are generally lovers of the classical arts", namely that "taste for arts is acquired or discovered and the rate of art consumption increases over time with exposure" (2003, p.202). They argue that, apart from taste for arts, taste for many goods such as popular culture, and even vegetables, may be acquired or discovered. The difference between the former and the latter, however, so they argue, is that most children have had a broad exposure to popular culture or vegetables, but most likely not to classical arts.

They criticize the determinism of the habit/consumption capital hypothesis (where more consumption leads to more taste) as far-fetched outside consumption of drugs and the like. Instead they assume that "consumers are unaware of their own tastes and depend on experience to discover them at the end of a process of learning by consuming that will take some time" (Levy-Garboua and Montmarquette 1996, p.28). They postulate that some people have an innate taste for theatre and some do not, and that consumers are initially unaware of these pre-determined preferences for or against theatre and discover them through pleasant or unpleasant surprises when going to the theatre. This process they call "cultivation of taste". When a consumer experiences a good, his taste unexpectedly shifts in favour or against the good, depending on whether the experience was positive or negative. Consumers' expectations rely only on their own past experiences and not on some external "objective" quality, which means that expectations about future experiences are identical for all future periods.

Levy-Garbuoa and Montmarquette argue that interpreting the role of experience in demand in such a way is advantageous for three reasons: it allows for heterogeneity of tastes and choices between people; it allows for the irreproducible nature of individual artistic

goods and consequently long learning periods; and it allows for a convenience in the modelling, namely the intertemporal separability of the utility function conditional on past consumption since consumers cannot anticipate their future tastes, which makes the learning-by-consuming model more parsimonious in comparison with the habit-formation model.

In a later paper, Levy-Garboua and Montmarquette (2003) compare the two types of models; habit-formation/consumption capital (Stigler and Becker 1977; Becker and Murphy 1988) and learning-by-consuming (Levy-Garboua and Montmarquette 1996) to a common framework. They assume two goods ($I = x, y$) and three periods (t = 1,2,3), where x is the objective art good and y any other good. Both types of models assume that instead of x directly entering the utility function, an individual "art appreciation" X enters a time additive utility function

$$U(X_1, y_1) + \beta U(X_2, y_2) + \beta^2 U(X_3, y_3),$$

where β is the discount factor and the art appreciation X is a quality-adjusted quantity:

$$X_t = s_t x_t \text{ for t} = (1,2,3).$$

Both, the habit-formation and learning-by-consuming models aim to account for cultivation of taste by providing different ways of endogenizing s_t, a subjectively perceived quality-adjustment of x_t by allowing it to be updated according to past behaviour.

In the case of rational addiction, a music-specific capital raises appreciation of music in future periods. In essence,

$$s_t = s_{t-1} + r x_{t-1} \text{ for t} = (2,3),$$

with $r > 0$ in the case of beneficial addition (such as artistic goods) which implies that a consumption experience of x always leads to an increase in s.

In the learning-by-consuming model, on the other hand, the development of s_t over time is stochastic rather than positive. Levy-Garboua and Montmarquette explain the inclusion of a stochastic term with $E_{t-1}(\varepsilon_t) = 0$ arguing that consumers are unaware of their (existing) taste about artistic goods because they have not had sufficient exposure to them.

Instead consumers discover their taste through consumption experiences in an unsystematic manner. They define

$$s_t = E_{t-1}(s_t) + \varepsilon_t \quad \text{if } x_t > 0,$$

where $E_{t-1}(s_t)$ is the expected value of s_t before the consumption choice is made, and ε_t is the difference between the expected and the actual value of s_t, and represents the surprise element in the appreciation of the consumption experience, which can be negative (consumption experience is worse than expected) or positive (consumption experience is better than expected) with an expected value of zero. Repeated positive surprises will lead to expectations being revised upwards.

Levy-Garboua and Montmarquette (1996) test their model using individual-level survey data of a large-scale random sample survey conducted in France. They interpret the subjective quality of the performance(s) as being influenced by intrinsic taste for theatre on the one hand, and level of familiarity with theatre on the other. They use several proxies to measure these two factors. For "intrinsic taste for theatre" they use proxy variables such as appreciation scores for writers, directors and actors, and quality of the text. As proxies for familiarity with theatre they include the percentage of actors, writers and directors known from a list, where knowing more actors (or directors or writers respectively) equates to a greater degree of familiarity with theatre.

Using a probit model, they find the most important determinants for the *probability P(T) of attending a theatre play in the past four years* (estimated from the full sample of nearly 8,000 people) to be almost exclusively socio-demographic variables. People living in Paris, working in a more prestigious profession, having no children and owning certain assets such as a car, dishwasher or a computer (as proxies for income) are more likely to have attended a theatre play in the past four years. The only "knowledge and taste" variable that turns out to be significant is frequency of having watched theatre performances on TV, although the frequency of having watched theatre performances on TV did not make a difference in explaining the probability of attending a theatre play in the past four years.

Socio-demographic determinants of the *frequency of theatre attendances in the past four years* (using as sample only people who attended at least once in the past four years and OLS), are similar to the variables influencing probability of attending a theatre play in the past four years, but in addition, some taste variables such as great number of actors appreciated, number of cinema visits per year and having seen theatre plays on TV are also significantly positive, whereas not having a season ticket and various cost variables associated with a theatre visit are expectedly significantly negative.

Levy-Garboua and Montmarquette also used the *conditional probability that a person went to the theatre in the past year*, given that he or she went to the theatre in the past four years $P(T_1|T)$ and the *number of theatre attendances in the past year* as dependent variables. Several taste variables such as appreciation of actors and of the text of the play, as well as knowledge of directors and actors are significantly positive, as is number of cinema visits per year. Interestingly, appreciating writers and reading magazines is significantly negative, which leads the authors to suspect different tastes amongst the respondents – people who read as a substitute for theatre attendance and people who attend theatre plays.

Another interesting fact is that being the child in the household (as opposed to the head of the household) also has a positive effect on the conditional probability of attending a theatre play in the past year and on the frequency of attendances in the past year.

Levy-Garboua's and Montmarquette's learning-by-consuming model measures the variable in question (what we call "aesthetic taste" and they call "subjectively perceived quality-adjustment") with a variety of proxies available. Since they are using an existing data set, they pick the proxies that suit their purpose best. They seem to capture the knowledge aspect of aesthetic taste, but do not capture the aesthetic skill aspects. As in the earlier two models, they cannot and do not make any claim as to how people might differ in their demand for theatre depending on their subjectively perceived quality-adjustment. Since they use cross-sectional data to test their model, they could not test the core of their theory, the stochastic learning process.

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All of the models described above try to explain causality between past and current or future arts consumption but fail to draw on established theories from other disciplines such as psychology or aesthetics. In his comprehensive review of arts demand problems, Seaman (2005) reveals the circularity of dynamic demand models as major problem: "No matter how well-specified and no matter what the exact causal connection, all such models ... can be interpreted as imploring organisations to increase attendance by increasing attendance" (Seaman 2005, p.108). However, if instead of focusing purely on observable behaviour one allows for the inclusion of psychological variables, this circularity is interrupted and real causal connections can be detected.

3.3.4 OTHER THOUGHTS ON TASTE REFINEMENT

Loewenstein and Angner (2003) mention refinement briefly in their discussion of endogenous preference changes. They define it as increasing one's appreciation for higher-quality goods or experiences. According to them, habit has a deterministic effect on utility. The effect of refinement on overall utility, however, is unknown, since refinement, so the authors say, would also mean a decrease of one's enjoyment of low-quality goods. In this case overall utility would depend on (a) any direct effect refinement has on utility; and (b) on whether one can afford the goods one has obtained a refined taste for. Loewenstein and Angner also note that having refined taste can be a source of utility in and of itself but that it cannot be assumed that having refined taste increases one's overall utility of consumption. Figure 2 shows their hypothesis in a graphical representation. Although they did not develop a full model and did not test it with empirical data, theirs is the only publication we could find that directly addresses the relationship between aesthetic taste development (they call it "refinement") and consumer demand. Note that they do not focus exclusively on artistic goods.

Figure 2: Refining Tastes (Loewenstein and Angner 2003)

Their thoughts provide the basis for an interesting hypothesis that will be tested in this thesis.

3.4 CHAPTER SUMMARY

The aim of this chapter was to review economic research on consumer demand for the performing arts, with a particular focus on those studies that address – in one way or another – the idea of aesthetic taste. The following table summarizes the most important research conducted in regard to aesthetic taste measurement and its role in explaining consumer demand for artistic goods (Table 2). Four things become immediately apparent:

(1) there is not a lot of research focusing on aesthetic taste and its role in consumer demand for artistic goods;

(2) most of the research conducted does not incorporate a theory of aesthetic taste but stems from Bourdieu's concept of taste as social distinction, i.e. the sociological interpretation of taste, and not the original, aesthetic concept;

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(3) only one study measures the effect of aesthetic taste on the choice of goods within a product category (i.e. whether aesthetic taste refinement leads to different goods being demanded rather than simply more), and this study uses artificially constructed rather than real goods (Grisolía and Willis 2010); and

(4) none of the studies specifically sets out to measure aesthetic taste directly.

The research gaps identified above make it clear where the focus of this thesis lies:

- It will be the first research attempt at measuring aesthetic taste, in our case for theatre, as stemming from aesthetics, directly.

- It will be the first research attempt to measure the effect of aesthetic taste on consumer demand for theatre.

- In addition, it will be the first research attempt that looks at demand within a product category and tests whether aesthetic taste refinement leads to differences in tastes within a product category (theatre plays), distinct from education or past consumption.

authors	year	name used for what we call 'aesthetic taste'	what their measure of 'aesthetic taste' is assumed to be or consist of	empirical research		
				proxy measure used to measure 'aesthetic taste'	dependent variable	significance/ results
Stigler, Becker	1977	music human capital S_{mj}	function of past experiences and other human capital variables such as education	N/A	N/A	N/A
McCain	1979	sensitivity variable β_i	function of the consumer's experience with the goods	lagged one-year dependent variable	aggregate demand	significant
Levy-Garboua, Montmarquette	1995	subjective perceived quality-adjustment $s\ t$ of the good in question	influenced by intrinsic taste for theatre and level of familiarity with theatre	appreciation scores for writers, directors and actors, quality of the text; percentage of writers, actors and directors known	probability of attending a theatre play in the past 4 years	only one minor proxy significant
					frequency of theatre attendances in the past 4 years	some proxy measures significant
					attendance and frequency of theatre attendance in the past 12 months	several proxy measures significant
Ateca-Amestoy	2008	cultural capital	a personal resource accumulated by past consumption of cultural goods which makes individuals more productive in the fulfilment of their cultural needs	parents' formal education level, the respondent's formal education level, whether the respondent had taken theatre classes and whether the respondent is an actor	frequency of theatre attendance	inconclusive results
Grisolia & Willis	2010	cultural capital	decodification skills which comes from education and culture background	education, frequency of theatre visits, number of books read, frequency of cinema attendance	choice of artificial theatre play	highly significant effects of possessing cultural capital and having a preference for complex, more serious plays

Table 2: Research aiming to measure aesthetic taste and its effect on consumer demand for artistic goods

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4   A GENERAL MODEL OF AESTHETIC TASTE DEVELOPMENT AND CHOICE OF CULTURAL GOODS

Now that the notion of aesthetic taste has been defined (Chapter 2) and past economic research endeavours to account for the phenomenon of taste cultivation or refinement in demand for cultural goods have been reviewed (Chapter 3), we are ready to formalise a simple general model of aesthetic taste development and choice for cultural goods. We will subsequently develop hypotheses on how aesthetic taste affects consumer choice of cultural goods, which will be tested in later analyses.

Hutter and Shusterman (2006) point out that the divide between economic and aesthetic theory in the late 18th century became most apparent when economic theory started focusing on self-interested action, while aesthetic theory focused on disinterested contemplation. From then onwards the arts and artistic value have played an increasingly diminishing role in economic theory, being gradually replaced by the concept of utility and the need to satisfy one's desires with commodities purchased in the market. In the model and hypotheses to be developed in this chapter we attempt to reverse this divide somewhat, in that we aim to include aesthetic concepts into a utility-based framework.

Aesthetic taste development will be formalised in Section 4.1, while Section 4.2 gives a brief introduction to choice theory and discrete choice models. In Section 4.3 a random utility model of cultural goods choice is developed and hypotheses will be developed in relation to the first phenomenon commonly observed in cultural goods consumption; that taste for such goods is acquired. Section 4.4 states hypotheses in relation to preference heterogeneity in cultural goods consumption, initially (in 4.4.1) with respect to preference heterogeneity in general, and then (in 4.4.2) specifically with respect to consumption of aesthetic versus entertaining goods, the second phenomenon mentioned earlier.

4.1 DEVELOPMENT OF AESTHETIC TASTE

Stating a general indirect utility function, we assume

$$V_{ic}(s_{ic}, fam_{ic}, X_i, X_{Qc}, X_{Kc})$$

where V_{ic} is the utility of individual i for cultural good c, s_{ic} is the aesthetic taste individual *i* has developed for cultural good c, fam_{ic} denotes the familiarity of individual *i* with cultural good c, X_i are commonly used socio-demographic variables that are known to influence consumption of cultural good c such as age, gender, income and education, X_{Qc} are aesthetic qualities of cultural good c, and X_{Kc} are other, non-aesthetic attributes of cultural good c.

Following the extensive line of thought on taste in the philosophy of aesthetics and, in addition, drawing on research on perceptive expertise in psychology, we take as our starting point the concept of aesthetic taste as a perceptive skill. We formalize development of aesthetic taste in the following way:

$$s_{c_t} = s_{c_{t-1}} + rx_{c_{t-1}} \tag{1}$$

where s_{c_t} denotes aesthetic taste *s* for cultural good *c* at time t, s_{c_t} is the value of aesthetic taste at time $t-1$, and $x_{c_{t-1}}$ is the experience with cultural good *c* at time $t-1$; r is the weight given to this latest experience with cultural good *c* in $t-1$, where $rx_{c_{t-1}}$ represents the increment in aesthetic taste in time t. The cultural good *c* here refers to a specific category of cultural goods, such as theatre plays, operas or paintings. Equation (1) follows Levy-Garbuoa and Montmarquette's (1996) notation, so that differences and similarities between the models developed previously and the approach taken here become obvious.

As Levy-Garbuoa and Montmarquette (henceforth LGM) note, in the case of beneficial addiction (a case in which cultural goods are considered to belong) in the rational addiction model of Stigler/Becker (1977), $r > 0 \; \forall \; x$, meaning that every consumption experience leads to an increase in s_c and henceforth an increase in utility for the quality-

adjusted quantity X in their model. The relationship between consumption experiences and utility is thus strictly positive. In their own learning-by-consuming model (Levy-Garboua and Montmarquette 1996) r is assumed to be stochastic, reflecting positive or negative surprises when consuming cultural good c, which LGM interpret as "discovering one's taste".

In our case of development of aesthetic taste, r is always assumed to be positive as well (as in the rational addiction model), since we assume that every exposure to a cultural good, contemplation of a cultural good, or information obtained in relation to a cultural good, is increasing the level of aesthetic taste for the cultural good c. Everyday experience of learning a skill, whether it be bike riding, wine tasting, observing birds or playing chess, tells us that every moment one spends contemplating, practising, discussing or reading about the activity in question either increases the skill or – if the information read or experience gained was repetitive or brief – leaves the level of our skill unchanged. One could argue that there exist situations where a perceptive skill might be "unlearned" or where r could be negative, namely when information obtained is incorrect. Examples for such situations would be when an aesthetic term is used in a situation where the aesthetic quality the term refers to is not actually present, or when knowledge obtained about a cultural good is wrong. The image of a wanna-be-art-aficionado comes to mind, that is, someone who uses aesthetic terms in a more or less random fashion to project a certain image of himself. Within this thesis, we will not deal with the case of "misguided" aesthetic taste development but will remain with the assumption that all information obtained in the course of a consumption experience or learning experience with a cultural good is correct.

In their learning-by-consuming model, LGM interpret s_{c_t} in equation (1) as a subjective quality of the cultural good, and, in the case of theatre, assume it to be influenced by intrinsic taste for theatre on the one hand, and level of familiarity with theatre on the other. Having reviewed the literature on aesthetic taste development and cognitive expertise development, we define aesthetic taste s_{c_t} to be a function of two variables different from those in the LGM model: aesthetic language proficiency (aesthetic words learned) about or in

relation to cultural good c, denoted by L, and knowledge developed in relation to cultural good c, denoted by K. We can thus write:

$$s_c = g(L, K) \qquad\qquad (2)$$

In this thesis, for reasons of simplicity, we will assume g to be a linear additive function; however, given the literature, we can suspect that interaction effects between L and K could be significant or it could be the case that K influences L. The investigation of interactive effects between L and K will be left for future research. Note that, contrary to LGM, we do not include familiarity in our formalisation of aesthetic taste, but retain it as a separate variable, distinct from aesthetic taste.

4.2 A BRIEF INTRODUCTION TO DISCRETE CHOICE THEORY

Having formally defined aesthetic taste s_c, for cultural good c, we can now turn to the question of how aesthetic taste development is expected to affect consumption choices for cultural goods, and what role aesthetic qualities of cultural goods play.

In microeconomic consumer theory, the assumption is made that an individual consumer is choosing a bundle Q={$q_1,...q_L$} where $q_1,...q_L$ are the quantities of commodities or services l=1,2,...L and these quantities are assumed to be non-negative and continuous. The theory does not allow for commodities being broken further down into attributes, but instead consumers are assumed to have preferences over commodity bundles, for example if $Q_i \geq Q_j$ then we know that consumption bundle Q_i is at least as good as Q_j. It is further assumed that the consumer has a preference ordering over all existing consumption bundles. Under these assumptions there exists an ordinal utility function $U = U(q_1, ..., q_L)$ that expresses the consumer's preferences mathematically and is unique up to an order-preserving transformation. Thus $U(Q_i) \geq U(Q_j)$ is identical to $Q_i \geq Q_j$. The consumer is assumed to select the bundle of commodities and services that maximises his utility U with respect to the quantities $q_1, ..., q_L$, subject to the budget constraint. This view of demand is

most appropriate when consumers choose continuous variables, such as quantities of various homogeneous consumption bundles (Akiva and Lerman 1985). As noted earlier, most investigations on demand for cultural goods have looked at demand in terms of quantity and tested the conventional consumer demand model where demand is determined by price, substitute prices and income, or extended by various other quality variables or theatre characteristics[12]. Models developed to account for cultivation of taste have also used classical consumer theory as their framework (Stigler and Becker 1977; McCain 1979; Levy-Garboua and Montmarquette 1996).

Rather than focusing one's interest on the quantity of cultural goods demand, one can just as easily regard the process of consumer choice of a cultural good as being discrete: In a choice situation where a consumer chooses to attend a performance of theatre, dance, opera or music, she chooses one alternative out of a finite set of alternatives, since she can only attend one play or concert on one evening or see one exhibition in one afternoon. Treating the individual cultural goods on offer as alternatives, decision makers' choices among those alternatives can be described with discrete choice models (Train 2009). Even when it comes to cultural goods that are purchased for later consumption such as books, CDs or paintings, if one wants to understand choice within a product category rather than quantity of generic products (number of books, paintings, CDs) purchased, one has to turn to choice theory.

Originally Thurstone (1927) laid the foundations for discrete choice models in his "law of comparative judgment", which he developed to model choices of stimuli unrelated to utility. Marschak (1960) interpreted these stimuli as utility and provided a derivation from utility maximisation. In choice theory, we consider a universal set of alternatives C, and each decision maker n is faced with her individual choice set $C_n \subseteq C$. Choice theory also assumes consumers to be "rational" in that their preferences are consistent and transitive and the

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[12] See Chapter 3 of this thesis for an overview of the literature on economic models of demand for the performing arts.

consumer can uniquely rank alternatives according to her preferences. Alternative $i \in C_n$ is chosen if

$$U_{in} \geq U_{jn} \; \forall \, j \neq i, j \in C_n \tag{3}$$

Contrary to the assumptions of consistent and transitive preferences, observed choice behaviour often displays inconsistent and non-transitive preferences. To explain these behavioural inconsistencies, a probabilistic choice mechanism was introduced, and each different theory has a different explanation as to why this is so[13]. Random utility theory (RUT), being close to consumer theory and generally invoked in regard to choice models, assumes that people always select the alternative with the highest utility to them (i.e. they do in fact have consistent and transient preferences), but that variations in choice behaviour are due to the analyst not observing all the variables that influence behaviour. McFadden (1974) extended RUT to the multiple choice case, and RUT was formalised by Manski (1977). In a random utility model it is assumed that

$$P(i|C_n) = \Pr\left[U_{in} \geq U_{jn}, \forall j \in C_n\right] \tag{4}$$

is the choice probability of alternative i given the set of alternatives is equal to the probability that the utility of alternative i is greater than the utility of all other alternatives in the choice set of individual n. A joint probability distribution for the set of random utilities is assumed. Manski observed four different sources of randomness in observed choice behaviour: unobserved attributes; unobserved taste variations; measurement errors and imperfect information; and instrumental or proxy variables. Because the utilities are influenced by these sources of randomness and not known to the analyst, they are treated as random variables. Given these sources of randomness, the random utility for each alternative in the choice set is thus expressed as consisting of a systematic, deterministic component V_{in} that is observed by the researcher, and a random component ε_{in}, such that the utility for alternative i and individual *n* can be written as

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[13] See Akiva and Lerman (1985) for a good overview and history of choice models.

$$U_{in} = V_{in} + \varepsilon_{in} \tag{5}$$

and, rewriting the choice probability for alternative i,

$$P(i|C_n) = \Pr[V_{in} + \varepsilon_{in} \geq V_{jn} + \varepsilon_{jn}, \forall j \in C_n] \tag{6}$$

To fit within the discrete choice framework, the set of alternatives – the "choice set" a decision maker chooses from – has to exhibit three characteristics:

- firstly, the choice set must be exhaustive, that is, all possible alternatives must be included and the decision maker always chooses one of the alternatives;

- secondly, the number of alternatives in the choice set must be finite;

- thirdly, the alternatives must be mutually exclusive from the decision maker's perspective. In other words, choice theory assumes that only one alternative is chosen and choice for all other alternatives is zero, which implies that the data contains many zeros. This last characteristic of choice data leads to corner solutions and discontinuities. Hence, maximisation techniques of calculus cannot be applied to derive optimality conditions and demand functions. Instead, choice theory works directly with utility functions.

In choice theory, the alternatives can be described as bundles of attributes, following Lancaster (1966), such that $U_{in} = U(z_{in}, cov_n)$ where z_{in} is a vector of the attribute levels for alternative i as viewed by respondent *n* and where cov_n is a vector of socio-economic characteristics that explain differences in tastes.

From the researcher's perspective, V_{in} is deterministic. However, the researcher does not know $\varepsilon_{jn} \forall j$ and therefore treats these disturbances as random. The joint density of the random vector $\varepsilon'_{in} = \langle \varepsilon_{1n}, \dots, \varepsilon_{Jn} \rangle$ is denoted $f(\varepsilon_n)$. The probability that decision maker *n* chooses alternative i is

$$P_n(i|C_n) = \Pr[U_{in} \geq U_{jn}, \forall j \in C_n]$$

$$= \Pr[V_{in} + \varepsilon_{in} \geq V_{jn} + \varepsilon_{jn}, \forall j \in C_n] \tag{7}$$

$$= \Pr[\varepsilon_{jn} - \varepsilon_{in} < V_{in} - V_{jn}, \forall j \in C_n]$$

This last line, the probability that each random term $\varepsilon_{jn} - \varepsilon_{in}$ is below the observed quantity $V_{in} - V_{jn}$ is a cumulative distribution. Using the joint density $f(\varepsilon_n)$ this probability can be rewritten as a multidimensional integral over the unobserved portion of utility, $f(\varepsilon_n)$:

$$= \int_\varepsilon I\big(\varepsilon_{jn} - \varepsilon_{in} < V_{in} - V_{jn} \forall j \in C_n\big) f(\varepsilon_n) d\varepsilon_n \tag{8}$$

where I is the indicator function, equalling 1 if the expression is true, and 0 otherwise. One can interpret the distribution of disturbances in the following way (Train 2009): It is assumed that there exists a population of people who have the same observed utility $V_{in} \forall j$ as person n; however, these people differ in some unobserved factors and thus their choices differ. The density $f(\varepsilon_n)$ is the distribution of the unobserved utility amongst those people who have the same observed utility $V_{in} \forall j$. Then, P_{in} can be interpreted as the share of people who choose alternative i out of all people who have the same observed utility $V_{in} \forall j$ as person n.

To derive a specific random utility model, an assumption has to be made about this joint probability distribution of the disturbances ε_{in} (Train 2009). The most commonly used model is Logit. It assumes the distribution of the disturbances to be identically and independently distributed (iid) extreme value. Specifically, a Logit model assumes that the disturbances are uncorrelated between alternatives and have the same variance over all alternatives. Assuming that the disturbances ε_{jn} are iid extreme value and that the utility function is linear additive, implies that the density for the disturbance of alternative j is:

$$f(e_{jn}) = e^{-\varepsilon_{jn}} e^{-e^{-\varepsilon_{jn}}} \tag{9}$$

and the cumulative distribution is

$$F(e_{jn}) = e^{-e^{-\varepsilon_{jn}}} \tag{10}$$

The convenience with this assumption lies in the fact that the difference between the two disturbances $\varepsilon_{jin}^* = \varepsilon_{jn} - \varepsilon_{in}$, follows the logistic distribution:

$$F(\varepsilon_{jin}^*) = \frac{e^{\varepsilon_{jin}^*}}{1 + e^{\varepsilon_{jin}^*}} \tag{11}$$

which leads to the convenience of a closed form expression of the integral above and leads in turn to the multinomial logit model (MNL):

$$P_n(i) = \frac{e^{V_{in}}}{\sum_{j \in C_n} e^{V_{jn}}}$$
(12)

The systematic component of the utility function, V_{in}, is generally expressed as a linear additive function of its components:

$$V_{in} = \beta_0 + \beta_1 X_{11} + \beta_2 X_{12} + \cdots + \beta_K X_{1K}$$
(13)

In a MNL model, the β_K parameters are fixed; they do not differ between respondents and thus respondents are assumed to have identical utility functions. This is a specification of the model rather than an observation of reality.

Similar to a regression model, alternative-specific constants capture the average effect on utility of all factors not specifically included in the model from that alternative. In choice models only differences in utility between alternatives matter, since the absolute values of utility are arbitrary. The same is true for the alternative-specific constant, only differences between alternative-specific constants matter.

Choice models have been utilised in several areas of applied economics, for example, environmental economics (Boxall et al. 1996; Scarpa and Thiene 2005; Scarpa et al. 2007), transport (Swait and Ben-Akiva 1987), tourism (Louviere and Hensher 1983; Crouch and Louviere 2004), marketing (Kamakura and Russell 1989; Gilbride and Allenby 2004), and health (Ryan and Gerard 2003; Flynn et al. 2010).

In regard to cultural goods, Favaro and Frateschi (2007) estimated a choice model on music tastes to determine whether omnivores (who listen to all music) and univores (who listen only to popular OR classical music) exist in Italy, drawing on a national survey conducted by the Italian National Institute for Statistics in 2000. They adapt the LGM model to an unconditional choice model, assuming that consumers are unaware of their true tastes for different goods and that a consumption experience leads to an unexpected positive or negative change in taste for that good, where this increment is formulated as a stochastic variable with an expected value of zero in the model. They specify a multiple-choice setting

where consumers "choose" one of four alternatives: (a) respondent does not consume any music; (b) respondent consumes classical music; (c) respondent consumes popular music; (d) respondent consumes all musical genres. Then two multinomial logit models are estimated; one for listening behaviour and one for concert attendance. Since the data Favaro and Frateschi use are from a general survey, they only have one observation per person. Other examples of applications of discrete choice models in cultural economics are Morey and Rossmann (2003) who look at cultural heritage monuments, and Prieto-Rodgriguez (2000) who uses a bivariate probit model to model music consumption in Spain. Willis and Snowball (2009) estimate a mixed logit model to investigate the role of various attributes of live theatre performances at a South African National Arts festival, such as type of cast, reputation of the producer/director or ticket price on consumer preferences, and Grisolia and Willis (2010), looking at demand for theatre in England, compare results from a MNL to a mixed logit model. Research of particular interest to aesthetic taste and theatre demand has been reviewed in more detail in Chapter 3 above.

4.3 CAN AESTHETIC TASTE EXPLAIN THE TASTE ACQUISITION PHENOMENON?

Two commonly observed phenomena were mentioned in the introduction of this thesis. The first phenomenon relates to taste acquisition; the fact that cultural goods are an acquired taste. Some people are very passionate about the arts, and some just cannot figure out what the fuss is about, the former having gradually acquired a taste for the cultural goods. Until now this phenomenon of taste acquisition was captured in economic models by the use of proxies such as past arts attendance, education or social status. However, none of these proxy variables is particularly useful for policy makers or arts organisations.

One of the central aims of the thesis is to test whether the philosophical concept of aesthetic taste can capture this taste acquisition phenomenon better than other proxies have done. To that end, a general model of cultural good choice will now be formulated. Specific

hypotheses about relationships between aesthetic taste, familiarity and cultural good choice will be formulated in this section.

.A specific theory of choice needs to define four elements: the decision maker, the alternatives, the attributes of the alternatives and the decision rule. In the case of consumption of cultural goods, the decision maker is the individual consumer. A decision rule is the process by which the individual makes a choice between the alternatives in the choice set. In economics the decision rule generally assumed is utility maximisation, and within this thesis we will follow this convention. Note, however, that a particular choice theory is not restricted to utility maximisation but different decision rules such as lexicographic preferences or satisficing behaviour can be assumed. The alternatives are the individual cultural goods available for consumption in a cultural goods category in a particular choice situation. The attributes will be defined depending on the particular cultural good.

We start with a random utility model

$$U_c = V_c + \varepsilon_c \tag{14}$$

where U_c is the utility of cultural good c, V_c is the systematic component of the utility function and ε_c are disturbances that are not observed by the researcher.

If we define a choice set C_{bin} consisting of only two alternatives; either to purchase a cultural good c or not (e.g. attend or not attend a theatre play or arts exhibition)

$$C_{bin,c} = \{buy_{yes,c}, buy_{no,c}\}$$

we can write the choice probability to purchase cultural good c as

$$P_n(buy_{yes,c}|C_{bin,c}) = \Pr[V_{buy_{yes,c}n} + \varepsilon_{buy_{yes,c}} \geq V_{buy_{no,c}n} + \varepsilon_{buy_{no,c}n}] \tag{15}$$

Our first hypothesis will be formulated in regard to this average choice probability for cultural good c (for example, in the case of theatre plays this would be the average choice probability for all theatre plays, which is different from the choice probability for particular theatre plays). The literature in aesthetics is rarely concerned with preferences or choices and thus cannot be drawn upon to develop hypotheses about the relationship between aesthetic taste development and utility or choices. Prior economic research on the effect of

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cultivation of taste or taste refinement (concepts related to aesthetic taste development as reviewed in Chapter 3) showed that there is a positive relationship between those concepts and demand. We thus expect the same to be true in the case of aesthetic taste in our data, namely that on average respondents with higher levels of aesthetic taste are more likely to purchase a ticket to a theatre play than people with low levels of aesthetic taste. The most important research, on which we base our hypothesis in regard to the relationship between aesthetic taste development and the probability to choose cultural good c, comes from psychology. Here, as noted earlier, research has found that perceptive expertise in the form of greater category structure increases utility (Redden 2008; Smallman and Roese 2008; Eisenstein 2010, see chapter 2 for more details). Even though such research has focused on fields other than cultural goods, there is no reason to believe this link not to be true for cultural goods. We therefore formulate our first hypothesis:

H1: The average choice probability of purchasing a cultural good c,

$P(buy_{yes,c}|C_{bin,c})$ **increases with increasing aesthetic taste for that cultural good, s_c.**

Stating H1 in other words, we expect the utility of purchasing a cultural good c to increase as aesthetic taste increases respective to all other goods. Note that this hypothesis refers to the whole cultural good category (or to the average cultural good c) but does not make any statements about preferences within the cultural good category. In the particular case of theatre, we would thus expect to see the average choice probability for purchasing a theatre ticket to increase as aesthetic taste increases, disregarding any particular attributes a theatre play might or might not have.

As mentioned earlier, in their cultivation-of-taste model, LGM define familiarity with a cultural good as one of the two variables affecting cultivation of taste for theatre (the other being innate taste for theatre). In contrast, we have defined aesthetic taste to be a function of aesthetic language proficiency and knowledge of the product category. Nevertheless, we also assume that familiarity with theatre will play a significant role in explaining the probability of going to the theatre, distinct from the role aesthetic taste plays. We define familiarity with a

cultural good as a function of past experiences with cultural good c (number of theatre attendances in the past):

$$fam_c = h(att_{past}) \tag{16}$$

In a choice situation, where we define a binary choice set C_{bin} consisting of only two alternatives, either to purchase a cultural good c or not (e.g. attend or not attend a theatre play or arts exhibition)

$$C_{bin,c} = \{buy_{yes,c}, buy_{no,c}\}$$

and repeating equation (15):

$$P(buy_{yes,c}|C_{bin,c}) = \Pr[V_{buy_{yes,c}n} + \varepsilon_{buy_{yes,c}n} \geq V_{buy_{no,c}n} + \varepsilon_{buy_{no,c}n}] \tag{15}$$

we would therefore expect that:

H2: On average, familiarity with cultural good c increases the choice probability

$P(buy_{yes,c}|C_{bin,c})$ **of consuming a cultural good c, ceteris paribus.**

Note that we have defined H2 in identical terms to H1, the only difference being that H1 concerns aesthetic taste, whilst H2 concerns familiarity. In other words, we expect both aesthetic taste for a cultural good and familiarity with a cultural good to have a positive effect on utility and therefore on probability of choice for the average cultural good.

4.4 CAN AESTHETIC TASTE EXPLAIN PREFERENCE HETEROGENEITY WITHIN A CULTURAL GOOD CATEGORY?

We now turn to the second phenomena commonly observed among arts consumption – that some consumers look for an aesthetic experience and others for entertainment. In this section we will formulate hypotheses that will allow us to test whether aesthetic taste can contribute to explaining this heterogeneity in consumer preferences. First of all some hypotheses will be formulated that relate to the role of aesthetic taste in explaining preference heterogeneity within a cultural goods category in general. The later section will

then specifically develop hypotheses in relation to preference for aesthetic versus entertaining goods.

4.4.1 GENERAL PREFERENCE HETEROGENEITY WITHIN A CULTURAL GOODS CATEGORY

From the literature in aesthetics we do not have any preconceived notions about the kinds of cultural goods that are preferred by consumers who have developed aesthetic taste, other than that they have a preference for cultural goods with strong aesthetic character[14]. However, we do also expect aesthetic taste to have an influence on consumers' preferences for cultural goods in general. Without being more specific, we will firstly state a very general hypothesis, namely:

H3: Aesthetic taste significantly contributes to explaining taste heterogeneity for cultural goods.

In general, we expect people's tastes for cultural goods to be heterogeneous, and we expect aesthetic taste to explain some of the heterogeneity.

In addition, we expect familiarity with cultural goods to have an effect distinct from aesthetic taste and thus we formulate H4:

H4: Familiarity significantly contributes to explaining taste heterogeneity for cultural goods.

Another hypothesis can be formulated based on Loewenstein and Angner's (2003) reflections on taste refinement. They speculate that refinement not only involves an increased enjoyment of high-quality goods (using their terminology, or in our terminology, goods with a stronger aesthetic character), but also a decreased enjoyment of low-quality goods (cultural goods with a weaker aesthetic character), indicating that there is a certain standard that needs to be met by the cultural good in order to be enjoyed, and that this minimum standard shifts upwards as aesthetic taste develops (they talk about taste refinement). This seems to be more in line with the sociological notion of taste as a cultural

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[14] Hypotheses with respect to aesthetic qualities will be proposed later in this section.

code that is learned rather than the aesthetic notion of taste as it is understood here, but nevertheless a hypothesis can be formed and will be tested. If Loewenstein and Angner's reflections have merit, we expect to observe the following:

H5: There exists at least one cultural good, for which people who have developed aesthetic taste s_c have a lower utility than people with no or low aesthetic taste, ceteris paribus.

In other words, since aesthetic taste is supposed to be negatively discriminating towards some cultural goods in a particular cultural goods category (the ones that fall below the increased minimum standard), we expect to find at least one cultural good (alternative) that people with high levels of aesthetic taste have a lower level of utility for than do people with low levels of aesthetic taste.

One last hypothesis that can be formulated with respect to general preference heterogeneity within a cultural goods category concerns the role aesthetic taste plays in omnivorous versus univorous demand for cultural goods. The concepts of high/lowbrowness and omnivores/univores were originally defined for music consumption. Highbrowness in regard to music can be operationalized as "liking both classical music and opera and choosing one of these forms as best-liked from among all kinds of music" (Peterson and Kern 1996). Among highbrows, one can distinguish the snob who does not participate in any non-highbrow activity (Levine 1988) and the omnivore who is open to appreciate cultural activities of all kinds, operationalized by the number of middlebrow and low-brow activities people choose to pursue. Using data from comparable surveys conducted in 1982 and 1992 respectively, Peterson and Kern (1996) find evidence for their hypothesis that "highbrows" are more omnivorous than others and that they have become increasingly omnivorous over time.

Chan and Goldthorpe (2007) conduct a latent class analysis on a large data set containing information on music tastes from over 6,000 individuals in England. In this face-to-face survey respondents were asked whether they had attended four different kinds of

musical events in the past 12 months – that is, classical music, opera/operetta, jazz and pop/rock – or consumed the same four different music genres by way of radio, CD, TV or similar. They find in fact that univores mainly come from the lower social backgrounds, whereas they cannot find support for the existence of univore snob consumers. In addition, they cannot find evidence of class and status being linked to highbrow music consumption (as suggested by Bourdieu and Nice 1984), but instead conclude that omnivores tend to have higher status and higher education than univores.

Nationwide surveys in different countries have tested for the existence of omnivores in music consumption: Drawing on data from an Italian survey "Citizens and Leisure" conducted by the Italian National Institute for Statistics, Favaro and Frateschi (2007) test for the existence of omnivores in music listening and concert attendance by estimating two separate multinomial logit models. They find significant differences in listening habits and concert attendance. In particular, in terms of concert attendance, females tend to be more likely to attend only classical music concerts and be music omnivores, whilst men are more likely to attend only popular music concerts. As expected, the probability of attending classical music concerts or being a concert omnivore increases with age, whilst the probability of attending only popular music concerts decreases. Interestingly though, omnivorous listening behaviour is negatively influenced by age; in other words, young people tend to be the ones most likely to listen to all kinds of music, with the negative effect of age on omnivorousness increasing exponentially as age increases. Education increases music consumption over all alternatives, but is strongest for classical music univores, followed by omnivore consumption and lastly popular music omnivores. The analysis did not include an income variable, so it can be expected that the education variable confounds effects of income and education. In terms of occupational group they find positive effect on classical music and omnivore concert attendance for managers and teachers, whereas living outside the city centre increases one's probability to be a popular music concert univore.

Employing a static version of the LGM learning-by-consuming model, researchers in Spain estimated a bivariate probit model to analyse the relationship between popular and classical music consumers and quantify the influence of several socio-demographic variables on demand for classical and popular music respectively (Prieto-Rodríguez and Fernández-Blanco 2000). Whilst they do not directly test for the existence of omnivores, their research seems relevant in this omnivores/univores context since they analyse the two groups of music consumers for similarities and differences. In fact, the authors find evidence that popular music and classical music fans belong to the same group of people who have an innate taste for music in general. They find significant negative effects for increasing age on popular music consumption, and a positive effect of education on both types of music consumption. As the authors note, this version of the learning-by-consuming model does not include a measure of experience or taste. However, they do include a proxy for "cultural environment and background" by including the educational level of the respondent's parents in the analysis which turns out to be significantly positive for classical music consumption.

Cheng and Wen (2011) are among the only researchers to investigate omnivorous versus univorous consumption outside of music consumption. They look at performing arts consumption in Taiwan, in particular demand for contemporary drama, traditional theatre (mainly Peking and Taiwanese opera and hand puppet shows), dance and music. They estimate a multivariate probit model for each of the four performing arts genres to firstly understand the audience characteristics and secondly to understand relationships between the audiences of the different genres. They find that the audience for traditional theatre is quite different from the audience for the other three art forms, which is hardly surprising since the former is mostly performed in temples and is free, whereas the latter is performed in venues specifically dedicated to the performing arts and tickets have to be bought to attend a performance. Nevertheless, they find significant positive correlations between all four types of performances, indicated audience overlap between the four different performing arts

genres. They conclude that consumption of performing arts in Taiwan is at least partly omnivorous.

Omnivorousness and univorousness are labels for observed behavioural patterns. Highbrow music presumably is more complex than lowbrow or middlebrow music, which would indicate that aesthetic taste is needed to enjoy it. Since research hints towards highbrow-consumers being and becoming increasingly more omnivorous, a final hypothesis will thus be formulated and tested in terms of aesthetic taste and omnivorousness:

H6: People with higher levels of aesthetic taste are more omnivorous, meaning that they are open for a wider variety of cultural goods within one cultural goods category.

In terms of theatre, highbrowness could be defined as only being open to a narrow spectrum of theatre plays.

4.4.2 CHOICE OF AESTHETIC EXPERIENCE VERSUS ENTERTAINMENT

This section will develop hypotheses specifically in relation to the aesthetic character of cultural goods. Earlier we defined aesthetic taste as a perceptive skill that enables people to perceive aesthetic qualities in cultural goods. Now we need to go beyond the skill level. As economists looking at demand for cultural goods, we are interested in how aesthetic taste development influences this demand, and how aesthetic taste influences preferences for certain aesthetic qualities and thus for specific cultural goods within a cultural goods category. There is a dilemma here: as noted in earlier chapters, aestheticians writing about (aesthetic) taste made a great effort to point out that judgments of (aesthetic) taste are *not* judgments of liking, the formation of which aestheticians have not speculated about. Individual preferences expressed through consumption choices made, however, *are* judgments of liking. We thus have no prior notion of whether consumers of cultural goods who have developed aesthetic taste have a positive or negative preference for a particular cultural good possessing a particular aesthetic quality. The only inference that might be

drawn from philosophy as to individual preferences for aesthetic qualities is one that

addresses the aesthetic character of the cultural good as a whole, where "aesthetic

character" denotes all the aesthetic qualities a cultural good possesses taken together. In

Chapter 2 the following definition of aesthetic qualities was derived: Aesthetic qualities are

qualities in artworks, the perception of which requires taste. In contrast to non-aesthetic

qualities, aesthetic qualities cannot be directly observed with the normal senses. In a

simplified formalisation, we can define

$$X_{Q_c} = f(a_{1c}, a_{2c}, a_{3c}, \dots, a_{Pc}) \tag{17}$$

where X_{Q_c} denotes the strength of the aesthetic character of cultural good c, and $a_1, a_2, \dots, a_P$

denote individual aesthetic qualities of cultural good c. This simplification allows us to include

aesthetic qualities into the utility function as an aggregate rather than each individual

aesthetic quality separately.

The systematic component of the utility function for cultural good c, V_c can now be

further broken down into attributes of cultural goods, such that utility for cultural good c is

defined in terms of the attributes it possesses:

$$V_c = \beta_{0c} + \beta_{Kc} h(X_{Kc}) + y_{Qc} p(X_{Qc}) \tag{18}$$

where β_{0c} is the alternative-specific constant of cultural good c, not associated with any of

the observed attributes and capturing the average weight of unobserved sources of utility;

β_{Kc} is a vector of parameters associated with a vector of observable attributes X_K of cultural

good c. As we can see, there are K directly observable attributes entering the utility function

for cultural good c, where the specific attributes depend on the type of cultural good

investigated. Note that the functional form with which the attributes enter the utility function is

not set *a priori*. In addition we define X_{Qc} as the attribute of cultural good c that captures the

strength of the aesthetic character of cultural good c, and y_{Qc} as the parameter associated

with this attribute.

The difference from other models developed by McCain, Levy-Garbuoa and

Montmarquette or Stigler and Becker is that the elements in the utility function are the

attributes of the cultural goods rather than the number of (subjectively or objectively defined) goods consumed. The overall utility for a cultural good *i* for individual *n* depends on n's individual preferences for non-aesthetic characteristics *and* his preference for the presence of aesthetic qualities.

As mentioned before, whilst we are not in a position to hypothesize on individual preferences for particular aesthetic qualities of cultural goods, we can formulate a hypothesis in regard to the overall strength of aesthetic character of a cultural good c:

H7: There is a positive relationship between aesthetic taste s_c and the strength of the aesthetic character of a cultural good, X_{q_c}, such that, ceteris paribus, people who have developed aesthetic taste prefer cultural goods with a strong aesthetic character to cultural goods with only a weak aesthetic character or are indifferent between them.

In a choice model, we would thus expect a positive coefficient y_{Q_c} in the utility function for cultural good c for people with high aesthetic taste and a negative or insignificant coefficient for people with low levels of aesthetic taste. Note that the hypothesis does not relate to the choice probability of a particular cultural good c. Where this model differs from the rational addiction model is in the relationship between aesthetic taste and utility for a particular cultural good: an increasing level of aesthetic taste does not necessarily lead to an increase in utility for a *particular* cultural good c (note though that we assume an increase in utility *on average* for the cultural goods category, as stated in H1). As formulated in the utility function above, aesthetic taste is only assumed to affect one variable in the utility function positively, namely the aesthetic character of the cultural good. However, the overall utility depends on preferences for all attributes as well as on the preference for the aesthetic character and thus does not necessarily increase with increasing levels of aesthetic taste s_c.

We will now define H8 in terms of familiarity, parallel to H7. According to the literature on perceptive expertise, pure exposure is not enough to develop a more complex brain structure (and thus an improved level of perceptive expertise), a prerequisite for the ability to

recognize and appreciate aesthetic qualities. In contrast to H7 we therefore expect familiarity to have a much weaker effect on consumer choice to the one we expect from aesthetic taste:

H8: Familiarity with cultural good c has no or only a low significantly positive relationship with the strength of the aesthetic character of a cultural good, X_{Q_c}.

In a choice model, we would thus expect an insignificant or low positive coefficient X_{q_c} in the utility function for cultural good c for people who have high levels of familiarity, but low levels of aesthetic taste.

Summarizing, H1 and H2 make clear that we expect both aesthetic taste and familiarity to have a significantly positive effect on the choice probability of cultural good c. We also expect both aesthetic taste and familiarity to explain heterogeneity for cultural goods choice (H3 and H4). In contrast, we expect only aesthetic taste to be significantly positive with respect to the aesthetic character of cultural good c (H7), but not familiarity (H8).

We can define another, more specific, hypothesis in relation to aesthetic taste, familiarity and preference heterogeneity in cultural goods demand. As noted in Chapter 3, Latour and Latour (2010) in their research on wine drinking behaviour distinguished two groups of wine consumers: one group with high levels of past exposure but low levels of aesthetic taste, whom they name "aficionado consumers", and another group who has high levels of past exposure *and* has developed aesthetic taste ("expert consumers"). There is no reason why we should not assume similar groups to exist for cultural consumption. We can thus formulate the hypothesis in relation to cultural good consumption:

H9: Amongst others, we can distinguish two groups of consumers who differ in their preferences for cultural goods: consumers who have a high level of past exposure (familiarity) but low aesthetic taste (aficionado consumers), and consumers who have high levels of past exposure and high levels of aesthetic taste (expert consumers).

4.5 CHAPTER SUMMARY

In this chapter a general model of aesthetic taste development and cultural good choice was proposed, and hypotheses that relate aesthetic taste and familiarity to choice of cultural goods were developed. Unlike earlier models developed (Levy-Garboua and Montmarquette 1996), aesthetic taste is defined as distinct from familiarity with a cultural goods category. Both concepts, aesthetic taste and familiarity, are expected to have distinct positive significant effects on the average choice probability of a cultural good (H1, H2), and on explaining overall preference heterogeneity within a cultural goods category (H3, H4).

We develop two more hypotheses in regard to the effect of aesthetic taste development and preference heterogeneity. One is based on Lowenstein and Angner's reflections, where they claim the difference between aesthetic taste development and habit is that in the case of aesthetic taste development, one's preferences become more discriminating; in other words, some goods will be liked more as aesthetic taste is developed, but others less (H5). H6 states that aesthetic taste has a positive effect on omnivorous consumption behaviour, in that people who have developed aesthetic taste are more open to a wider variety of cultural goods within a cultural goods category.

The last three hypotheses are formulated to address the commonly observed phenomenon that some arts consumers are looking for cultural goods that are aesthetically rewarding whilst others prefer entertaining goods. Aesthetic taste development is expected to positively influence the choice of aesthetically rewarding cultural goods (H7), whilst familiarity is expected to have no or only low significant influence (H8). H9 tests for the existence of two distinct classes of consumers, such as those previously found in studies on wine consumers, namely aficionado consumers (high past exposure, low aesthetic taste), and expert consumers (high past exposure, high aesthetic taste).

Next Chapter 5 will describe how the data to test the hypotheses were collected, the research methodology employed and how the constructs of aesthetic taste (a characteristic of individuals) and aesthetic qualities (a characteristic of cultural goods) were measured.

5 DESCRIPTION OF THE RESEARCH METHODOLOGY, THE SURVEY INSTRUMENT AND CONSTRUCTION OF VARIABLES MEASURING AESTHETIC TASTE AND AESTHETIC QUALITIES

The hypotheses developed in the past chapter apply to all cultural goods. Within this thesis, theatre plays have been chosen as the cultural goods category in which to test the hypotheses. Theatre plays form a category of cultural goods that has been well researched by other cultural economists, allowing for comparison of results. Our intention here is to generate results that are of interest to the research community, and to stimulate further research on the inclusion of aesthetic taste in economic research on demand for cultural goods.

This chapter states the reasons for having chosen a discrete choice experiment as the research methodology to test the hypotheses (5.1). It will also explain how aesthetic taste was measured in two different ways (5.2), and what other information about respondents was captured (5.3). Section 5.4 will then provide details on the online choice experiment conducted, the theatre plays used and the experimental design employed. Section 5.5 describes how aesthetic qualities of theatre plays were assessed.

5.1 DISCRETE CHOICE EXPERIMENT AS THE CHOSEN RESEARCH METHOD

Choice models can be applied to revealed preference data and stated preference data. Revealed preference data used in the analysis of performing arts demand usually comes in the form of aggregate attendance data per performance, production or theatre, without further information on the attendees' characteristics. Economists, including those working on cultural phenomena, mainly use revealed preference data in the form of sales or attendance data, aggregated over several individuals, events or venues, to test their models and hypotheses. Revealed preference data is supposed to be unbiased, and since the

analyst has probably not been involved in collecting it, there is no risk in her influencing the data, thus making the analysis reliable. Louviere, Hensher and Swait (2000) locate the historical basis for the economist's reliance on revealed preference data in a paper written by Samuelson who demonstrates that given certain properties, systems of demand equations consistent with market behaviour can be estimated from market observations. What economists often overlook, so Louviere et al. (2000) argue, is that neither Samuelson nor subsequent work in economics explicitly *exclude* data collected not by observation of market behaviour but by stated preference and choice surveys where "survey" can mean "any form of data collection involving the elicitation of preferences and/or choices from samples of respondents" (Louviere et al. 2000, p. 20). Since our aim is to investigate the role of aesthetic taste – an individual characteristic affecting demand for theatre – we need more detailed information about individuals than that available from revealed preference data as conventionally used in cultural economics. For these reasons, the decision to use stated preference data to test the hypotheses has been made.

Traditionally, conjoint analysis has been employed to measure and model consumer tradeoffs, preferences and choices; conjoint analysis being unrelated to any formal economic theory. In contrast, research into preference elicitation procedures consistent with random utility theory (RUT) has tried to make such conceptual and empirical links. In a series of papers, Louviere recast conjoint analysis in a more behavioural framework consistent with RUT and RUT-based choice models. For example, Louviere and Woodworth (1983) and Louviere and Hensher (1983) in marketing, and Hensher and Louviere (1983) in transport, pioneered a general approach to the design and analysis of discrete choice experiments based on McFadden's (1974) extension of RUT to the multiple choice case.

Carson and Louviere (2011) define a discrete choice experiment as "…a general preference elicitation approach that asks agents to make choice(s) between two or more discrete alternatives where at least one attribute of the alternative is systematically varied across respondents in such a way that information related to preference parameters of an

indirect utility function can be inferred." Discrete choice tasks allow the researcher to collect data that can be used to estimate models that will forecast choice probabilities rather than rankings or ratings. "Choice experiments consist of a sample of choice sets selected from the universal set of all possible choice sets that satisfy certain statistical properties. The key statistical properties relevant to the design of choice experiments are identification and precision, which must be considered together with non-statistical properties such as realism and complexity" (Louviere et al. 2000, p. 111). The general approach for designing discrete choice experiments is to define attributes that make up the alternatives, to generate multi-attribute choice alternatives, and to place these alternatives in choice sets. Respondents are then presented with a selection of choice sets and asked to choose between alternatives in every set. Experimental designs are used to combine attributes into alternatives and alternatives into choice sets, so that the choice observations that are made have certain desirable statistical properties such as orthogonality.

There are other advantages that support the use of a discrete choice experiment in our case: The focus of our research is to determine the role of aesthetic taste in demand for a cultural good (theatre). Thus, it is important for us to know that respondents were in fact aware of several theatre plays on offer as well as of their respective (aesthetic and other) attributes. A choice experiment controls for the information provided to the respondents, thus ensuring that all respondents have the same level of information available when making their decisions.

In addition, a discrete choice experiment provides a realistic decision-making context in our case. When choosing to attend a theatre play, the information available to respondents comes in the form of pamphlets distributed at theatres and selected other venues or, as is becoming increasingly important, from the theatre website. An online choice experiment allows us to present information about theatre plays in a very similar manner, thus ensuring a great degree of reality in the decision-making situation. Obviously, often decisions to attend or not to attend a performance are influenced by variables indicating high "quality" (see

Chapter 3 for a review of research on this aspect), such as good reviews in newspapers by critics or knowledge that a play is particularly popular. However, in this research we are mainly interested in the effect of the attributes of the play itself. The inclusion of variables indicating quality and its effects on consumers' choices surely is an interesting field to extend research on aesthetic taste (see for example research conducted by Throsby 1990; Grisolía and Willis 2010).

The decision was made to carry out the discrete choice experiment online, the main advantage, as compared to a face-to-face survey, being convenience and cost-efficiency since conducting a survey online saves the researcher the cost of printing, travel time and time spent on approaching potential respondents. Note, however, that the researcher programmed the survey herself so a significant amount of time was dedicated to ensuring that the survey would work error-free.

5.2 MEASURING AESTHETIC TASTE FOR THEATRE

As mentioned in Chapter 2, we define aesthetic taste as a form of perception; the perceptive faculty or faculties in humans that perceive(s) aesthetic qualities in cultural goods, similar to experts in other areas categorising objects of expertise at a more subordinate level. As derived in earlier chapters, we define aesthetic taste s_c for cultural good c as a function of two variables, proficiency of category-specific vocabulary (language) and general knowledge about the product category.

$$s_{c_t} = g(L, K)$$

In view of the importance of language in developing aesthetic taste, we thus assume that people with higher levels of aesthetic taste are able to use specific language to express their aesthetic perceptions in words and are, vice versa, also better able to understand such statements upon reading them. In addition to the choice experiment, respondents were asked to complete a survey component, where respondents' level of aesthetic vocabulary

was assessed in two ways: directly, by asking respondents to reveal whether the meaning of a set of statements that people who presumably have high levels of aesthetic taste for theatre have made, was clear to them; and indirectly, by asking respondents how likely it is that they would carry out activities that people who have developed aesthetic taste might do when attending a theatre play.

The level of an individual's theatre knowledge, the second component of aesthetic taste, was also assessed in two ways: directly, by asking respondents whether they knew or had had exposure to certain playwrights; and indirectly, by asking the respondents about how they themselves perceived their level of theatre knowledge.

Since both components of aesthetic taste, language and knowledge, were assessed directly and indirectly, we are able to construct two measures of aesthetic taste; one direct and one indirect.

For reasons explained further below, the total population for the study was restricted to Sydney residents aged 18 or older. In addition, to ensure a sufficiently high survey completion rate as well as a basic understanding of the theatre-going experience amongst survey respondents, we further restricted the population to people who had attended a theatre play in the past 12 months. The survey was carried out online and programmed using DISE (Schlereth and Skiera 2012). A major Australian panel provider was engaged to recruit participants for the survey who reside in Sydney and aged 18 or older. In addition, the sample was stratified by age according to the overall Sydney population aged 18 or older. Screener questions on the first screen of the survey ensured that respondents were in fact living in Sydney, aged 18 or older and had been to see a theatre play in the 12 months preceding the survey. Each respondent was rewarded with $3 for completing the survey. The survey was live from 15 August to 30 August 2012. In total, 479 respondents completed the main survey. Out of those, 73 respondents were deleted from the data, either because they had given random answers, several inconsistent answers or had answered the questionnaire too fast (under 7 minutes).

The following sections will explain the alternative variables constructed to measure aesthetic taste in detail.

5.2.1 DIRECT ASSESSMENT OF AESTHETIC TASTE

The two variables influencing aesthetic taste, aesthetic language proficiency and general knowledge of theatre, were assessed separately.

5.2.1.1 DIRECT ASSESSMENT OF AESTHETIC VOCABULARY

One potential way of measuring a person's aesthetic language proficiency directly would be to track which areas of people's brains show more activity when making consumption choices for cultural goods, or to test the vocabulary of theatre-goers when describing their individual theatre-going experience. A more convenient and financially less burdensome alternative is to assume that people with developed aesthetic taste who have developed a specific vocabulary on how to express their experiences, not only understand statements of a descriptive nature made about theatre plays in everyday language, but also comprehend statements that aim to capture the aesthetic nature of the plays, as commonly found in critics' reviews. It is thus assumed that people do not differ in how well they understand generic, descriptive statements made about plays but that they do differ in how well they understand aesthetic statements made about theatre plays. The more developed one's aesthetic taste for theatre is, the greater is the likelihood that one can comprehend aesthetic statements.

For the purpose of this thesis, seven descriptive statements were generated, referring to generic characteristics of a theatre experience. In addition, 12 aesthetic statements were generated. All survey respondents were shown all 19 statements and asked whether they understood the meaning of each of them. Figure 3 shows a screenshot of part of the question.

Figure 3: Screenshot of direct taste assessment question

The seven descriptive statements are statements whose validity can be easily observed by anyone, regardless of whether the person has had any exposure to or knowledge of theatre. Table 3 shows the seven descriptive statements used in the survey and for each descriptive statement the number of respondents who understood its meaning. On average, 89.4 percent of respondents understood the meaning of a descriptive statement.

Descriptive statements	Number of respondents who understood meaning of the statement *(in percent, n=406 respondents)*
The main actor's clothes were bright red.	84.0
The play was set in summer time, 1950s Ireland.	87.9
The actors all wore pink wigs.	83.0
The set changed quite often.	93.4
In total, at least 30 actors were in the play.	91.9
They play went for nearly two hours.	93.6
The stage was brightly lit all the time.	92.1

Table 3: Percent of respondents who understood the meaning of each descriptive statement

Overall, the large majority of respondents, 74.9 percent, understood all or nearly all descriptive statements (see Table 4). On average, respondents understood 6.3 descriptive statements (median=7 statements).

Number of descriptive statements	Number of respondents who understood certain number of descriptive statements *(in percent, n=406 respondents)*
0	1.5
1	1.5
2	2.2
3	3.5
4	4.2
5	5.2
6	7.1
7	74.9
Total	100.0

Table 4: Percent of respondents who understood a certain number of descriptive statements

The other 12 statements were aesthetic in their nature and used to assess aesthetic taste directly. They are shortened and slightly adapted versions of sentences from actual theatre reviews taken from widely available newspapers in Australia, the UK and the US. Table 5 shows that the number of people who understood each aesthetic statement varies. On average, 74.9 percent of respondents understood the meaning of an aesthetic statement, a surprisingly large number.

Aesthetic statements	Number of respondents who understood meaning of the statement *(in percent, n=406 respondents)*
The high levels of angst drain the play of crucial energy.	60.1
The play was atmospherically staged.	77.3
The play was clunking with inconsistent characterization and force-fed symbolism.	53.0
The acting was consistently honest.	85.7
The playwright's dialogue was rich, poetic, young, personal.	88.9
The play manages to be remarkably credible and rich in its portrait of the characters.	88.4
The play was preachy and slow.	81.8
There was robustness, even viciousness, to the way the play was written.	72.2
The storytelling was remarkably disciplined.	83.0
Toward the end, the energy started to sag and easier choices emerged.	64.5
There was a real fearlessness to the acting and writing.	81.3
In some moments the play feels like an illusion conjured from smoke and sadness.	63.1

Table 5: Percent of respondents who understood the meaning of each aesthetic statement

In contrast to the descriptive statements, respondents understood the meaning of fewer of the aesthetic statements (Table 6). On average respondents understood 8.99 statements (equivalent to 5.3 descriptive statements), with a median of 10 statements (equivalent to 5.8 descriptive statements).

Number of aesthetic statements	Number of respondents who understood a certain number of aesthetic statements (in percent, n=406 respondents)
0	1.5
1	1.2
2	1.5
3	1.7
4	4.2
5	4.7
6	4.9
7	7.4
8	9.1
9	10.6
10	11.6
11	15.0
12	26.6
Total	100.0

Table 6: Percent of respondents who understood a certain number of aesthetic statements

In the survey the statements were not marked as either descriptive or aesthetic, but presented in random order as "sentences a friend might tell you about different theatre plays he or she has seen in the past". For 24.9 percent of respondents all descriptive and aesthetic statements were clear. This quite large group of "yea-sayers" will have to be accounted for in the subsequent analysis.

Whilst only about a quarter of respondents understood all aesthetic statements, compared with three-quarters of respondents who understood all descriptive statements, the high number of respondents who understood all aesthetic statements is still surprising and could be due to several reasons: (a) online surveys are susceptible to people simply clicking "yes" without having read the statements properly, particularly if there is a lot of text to read as was the case with the 19 statements that were presented on two pages; (b) people know

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that the statements are "theatre-speak" and like to think they do understand them when in fact they do not.

Nevertheless, we use the proportion of aesthetic statements that is clear to a respondent as a direct measure of aesthetic language proficiency: one of the two components influencing aesthetic taste:

$$taste_{dir_1} = \frac{m_n}{12}$$

where *m* is the number of aesthetic statements that were clear to respondent *n* and 12 was the number of aesthetic statements presented to respondents. Table 7 and Figure 4 show the descriptive statistics and frequency distribution for m[15].

	Min	Max	Mean	Median	Std. Dev.
m	0	12	9.0	10	3.0

Table 7: Descriptive statistics of the direct aesthetic taste component $taste_{dir_1}$ measuring aesthetic language proficiency

Figure 4: Frequency distribution of the direct aesthetic taste component $taste_{dir_1}$ measuring aesthetic language proficiency

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[15] The decision was made to present the descriptive statistics and frequency distribution for m rather than for $taste_{dir_1}$ since it is intuitively easier to understand and the two variables are 100 percent correlated.

Checking for yea-sayers

In order to check for yea-sayers, in addition to the 19 statements above approximately half of the respondents also saw two nonsense statements (Table 8) that were phrased in a similar way to aesthetic statements but contained words that are generally not used in a theatre context.

Nonsense statements	Number of respondents who understood meaning of the statement *(in percent, n=208 respondents)*
There was profound milkiness to the performance.	34.6
The playwright's dialogue was sky-coloured and wavy.	27.9

Table 8: Nonsense statements

Out of the 208 respondents who were shown the nonsense statements, 24.0 percent understood at least one of the nonsense statements and 19.2 percent understood both nonsense statements, which shows that in fact there were many yea-sayers answering this part of the survey. In fact, out of the 55 respondents who indicated that they understood all 12 aesthetic statements and had seen the nonsense statements, 43 percent also indicated that they understood both nonsense statements. Since these nonsense statements were only shown to half of the respondents, regrettably we cannot use this question to exclude yea-sayers from the survey and can only use the information for interpreting the results. It can be noted, however, that upon repeating such an assessment of aesthetic taste, it is advisable to include such nonsense statements to test for yea-sayers for all respondents.

5.2.1.2 DIRECT ASSESSMENT OF THEATRE KNOWLEDGE

In the survey, respondents were also shown a list of playwrights and asked whether they knew some of the playwrights' work, whether they had heard the playwrights' name before or whether the playwrights were totally unknown to them. The list contained seven renowned playwrights, the 16 playwrights who had written the plays used in the survey, and one fake playwright to check for yea-sayers. Table 9 shows for every famous playwright the proportion of respondents who indicated that they know some of the playwright's work, that

they have at least heard the playwright's name before, or the name is totally unknown to them. Table 10 contains the 16 playwrights of the plays used in the survey and their respective popularity amongst respondents.

(in percent, n=406 respondents)	I know some of the playwright's work	I have heard the playwright's name before	Totally unknown to me	Total
Tennessee Williams	50.7	33.0	16.3	100.0
David Williamson	39.0	24.9	36.0	100.0
William Shakespeare	85.2	9.1	5.7	100.0
Bertholt Brecht	20.9	18.5	60.6	100.0
Henrik Ibsen	26.4	16.5	57.1	100.0
Arthur Miller	47.3	24.1	28.6	100.0
Andrew Upton	26.6	37.2	36.2	100.0
Mean	**42.3**	**23.3**	**34.3**	100.0

Table 9: Percent of respondents who are familiar with selected renowned playwrights

(in percent, n=406 respondents)	I know some of the playwright's work	I have heard the playwright's name before	Totally unknown to me	Total
Jonathan Biggins	10.0	31.8	58.4	100.0
Ian Meadows	3.9	20.0	76.1	100.0
Elise Hearst	5.0	17.5	77.6	100.0
DBC Pierre	5.9	17.7	76.4	100.0
Dan Giovannoni	12.1	25.4	62.6	100.0
Jeffrey Hatcher	9.1	28.6	62.3	100.0
Mirra Todd	3.2	17.0	79.8	100.0
Hilary Bell	9.0	25.9	65.5	100.0
Laura Eason	5.0	15.8	78.8	100.0
Tim Winton	34.2	28.3	37.4	100.0
David Farr	4.9	25.4	69.7	100.0
Jackie Smith	4.7	15.8	79.6	100.0
Noël Coward	43.4	21.7	35.0	100.0
Toby Schmitz	6.2	16.0	77.8	100.0
Chris Aronsten	2.7	16.5	80.8	100.0
John Logan	4.9	16.0	79.1	100.0

Table 10: Percent of respondents who are familiar with the playwrights who had written the plays used in the survey

We can use the number of playwrights known to a particular respondent as a direct measure of respondents' theatre knowledge. Since knowledge of a playwright was assessed on a 3-point scale (familiar with the playwright's work; heard of the name of the playwright before; totally unfamiliar), two potential direct measures of theatre knowledge can be constructed: (a) the number of playwrights whose work a respondent knows; and (b) the number of playwrights whose name a respondent is *either* familiar with *or* whose work he or she knows. A decision was made for option (b)[16]. We use the proportion of playwrights a respondent claims to have heard of or knows the work of as a direct measure of general theatre knowledge, the second component influencing aesthetic taste:

$$taste_{dir_2} = \frac{pw_{heard_n}}{23}$$

where pw_{heard_n} is the number of playwrights that respondent *n* claims to have heard of or knows the work of, and 23 is the number of playwrights presented to respondents.

Table 11 shows the descriptive statistics of pw_{heard} and Figure 5 shows the frequency distribution[17].

	Min	Max	Mean	Median	Std. Dev.
pw_{heard}	0	23	9.6	9	5.9

Table 11: Descriptive statistics of the direct aesthetic taste component $taste_{dir_2}$, measuring general theatre knowledge

[16] Note that we also pursued option (a) and constructed a variable $taste_{dir_{2*}}$ that equalled the proportion of playwrights whose work a respondent knows as an alternative measure of the knowledge component of aesthetic taste. $taste_{dir_{2*}}$ has a mean of 4.60, a median of 4 and a standard deviation of 3.68. Early analysis revealed that $taste_{dir_{2*}}$ performed poorly compared to $taste_{dir_2}$ presented here, and thus a decision was made in favour of $taste_{dir_2}$.

[17] The decision was made to present the descriptive statistics and frequency distribution for pw_{heard} rather than for $taste_{dir_2}$ since it is intuitively easier to understand and the two variables are 100 percent correlated.

Figure 5: Frequency distribution of $taste_{dir_2}$, the knowledge component of the direct measure of aesthetic taste

The list of playwrights presented to respondents also contained one fake playwright (Table 12) to enable us to create a variable that identifies respondents who are untruthful about their theatre knowledge or click the same answer every time ($know_{fake}$). Luckily, unlike with the nonsense statements, the fake playwright was included in the survey for all respondents and can thus be used as a variable in further analyses. The spike at the end of the frequency distribution of $taste_{dir_2}$ (Figure 5) is well explained by this variable: Out of the 20 respondents who ticked that they know or at least have heard of all 23 playwrights, 19 have also heard of the fake playwright.

(in percent, n=406 respondents)	I know some of the playwright's work	I have heard the playwright's name before	Totally unknown to me	Total
Brooke Hackett	3.0	18.7	78.1	100.0

Table 12: Percent of respondents who are familiar with the fake playwright

5.2.2 INDIRECT ASSESSMENT OF AESTHETIC TASTE

The survey also asked respondents to assess their own level of aesthetic vocabulary proficiency (see Table 13) and their own level of general theatre knowledge (Table 14) as they perceive it on a 5-point Likert scale by agreeing or disagreeing with a set of statements.

One of the seven statements capturing aesthetic language proficiency, the one labelled *aest1*, is the most general, since it only says that "there is more to the experience of

attending a theatre play than what you can see or hear" but it doesn't actually say what this "more" is. Over 87 percent of respondents agree with this statement. The statements *aest2 – aest5* capture more specifically the aesthetic aspect of theatre attendance and whilst the number of respondents disagreeing with these statements is still very low, the number of respondents who are uncertain (and ticked "neither") increases considerably. *aest6* and *aest7* specifically target the language aspect of aesthetic taste, namely that people who have developed aesthetic taste can express their aesthetic experience in words. As can be seen from Table 13, the number of respondents who are uncertain or who disagree increases even further. Nevertheless, around half of respondents still agree or strongly agree with *aest6* and *aest7*; an extraordinarily high number.

Name	Statement	Strongly agree	Agree	Neither	Disagree	Strongly disagree	Total
aest1	There is more to the experience of attending a theatre play than what you can see and hear.	29.6	57.4	10.3	2.7	0.0	100.0
aest2	When attending a play I pick up subtle details that are not directly observable.	8.9	56.4	30.3	4.2	0.3	100.0
aest3	I am capable of perceiving aesthetic qualities of theatre plays.	12.3	56.4	28.6	2.5	0.3	100.0
aest4	When attending a play I actively interpret and analyse the impressions I get.	15.8	53.9	23.4	6.7	0.3	100.0
aest5	I can easily recall theatre plays I have attended in terms of how I experienced them.	16.0	58.4	20.0	5.4	0.3	100.0
aest6	I am good at describing with words the aesthetic experience I have when attending a play.	8.6	39.7	37.2	14.3	0.3	100.0
aest7	I would use terms such as graceful, dynamic or awe-inspiring in describing a theatre play to a friend.	10.3	41.6	27.3	19.0	1.7	100.0

Table 13: Frequency distribution of the seve statements respondents answered to self-assess their aesthetic language proficiency (in percent, n=406 respondents)

In contrast, in regard to their personal general knowledge about theatre, respondents are much less confident. Only 30 percent of respondents agree that they "know a lot of theatre plays", and only 20 percent agree that they "know a lot of history of theatre".

Name	Statement	Strongly agree	Agree	Neither	Disagree	Strongly disagree	Total
know1	I know a lot of theatre plays.	3.9	25.9	43.4	25.1	1.7	100.0
know2	I know a lot about the history of theatre.	3.2	16.5	38.7	34.7	6.9	100.0

Table 14: Frequency distribution of the two statements respondents answered to self-assess their level of general theatre knowledge

Table 15 displays pairwise correlation coefficients between the aesthetic language proficiency and general theatre knowledge statements. All significant correlation coefficients (.01 level) are starred.

	aest1	aest2	aest3	aest4	aest5	aest6	aest7	know1	know2
aest1	1								
aest2	0.3789*	1							
aest3	0.3417*	0.4919*	1						
aest4	0.3816*	0.4172*	0.5654*	1					
aest5	0.3520*	0.3292*	0.4318*	0.4304*	1				
aest6	0.2682*	0.4341*	0.4800*	0.4611*	0.4281*	1			
aest7	0.2437*	0.3967*	0.4032*	0.3729*	0.3207*	0.5063*	1		
know1	0.0951	0.3475*	0.4044*	0.3815*	0.3272*	0.5066*	0.3776*	1	
know2	0.1198	0.3258*	0.4010*	0.3440*	0.3237*	0.4852*	0.3698*	0.7058*	1

Table 15: Correlation coefficients between statements assessing aesthetic language proficiency and general theatre knowledge, significant correlations (.01 level) are starred

The intention is to use the responses to the aesthetic language proficiency and general theatre knowledge statements in further analysis to explain respondents' choices of theatre tickets. For that reason we aim to summarize and reduce the information contained in the nine variables to fewer variables that are uncorrelated.

The method of principal component analysis (PCA) is the most appropriate technique to use for our purposes. Principal component analysis takes the total variance of all variables entering the analysis and partitions it by first finding the (unique) linear combination of the variables called component that accounts for the maximum amount of total variance:

$$y_1 = a_{11}x_1 + a_{12}x_2 + \cdots + a_{1p}x_p$$

where x are the variables entering the analysis, y_1 is the first principal component, and a_{1i} are the coefficients of the first principal component. The procedure then finds a second linear combination, uncorrelated with the first component, that accounts for the second-largest

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amount of variance left, and proceeds in the same manner to determine as many components as there are variables in the analysis (in our case 9) where all components are orthogonal to each other.

Some might question why we decided to use PCA rather than factor analysis, another common technique for data reduction. Unlike PCA, factor analysis is an estimation method (it has no unique solution) and it requires some level of knowledge on how many factors are to be extracted. It is generally used to detect underlying structure (latent constructs), whereas PCA is the preferred method for data reduction (Mazzocchi 2008, p. 230). In our case, we do not have any preconceived notion about different latent constructs of aesthetic taste and are more interested in reducing the number of variables.

The statements are measured on the same Likert scale. We thus base the PCA on the covariance matrix rather than the correlation matrix (Mazzocchi 2008, p. 233), in which case greater differences in the usage of the scale are weighted higher than smaller differences. Table 16 shows the eigenvalues and amount of variance explained by each of the components.

	Eigenvalue	Variance explained	
		Proportion	Cumulative
Comp1	2.79	0.47	0.47
Comp2	0.78	0.13	0.60
Comp3	0.58	0.10	0.70
Comp4	0.37	0.06	0.76
Comp5	0.34	0.06	0.82
Comp6	0.33	0.06	0.88
Comp7	0.28	0.05	0.93
Comp8	0.23	0.04	0.97
Comp9	0.21	0.03	1.00

Table 16: Eigenvalues and amount of variance explained by each of the components obtained from PCA.

As expected, the first component explains the greatest amount of variance (47 percent), followed by the second component (13 percent) and so on. Since our aim is to summarize the information contained in the nine variables in fewer components, we need to decide on how many components to retain for further analysis. Kaiser's rule (Kaiser 1960) on

eigenvalues suggests to retain only those components whose eigenvalues are greater than the average eigenvalue. In our case the average eigenvalue is 0.66 which would lead us to retain only two components. Note, however, that the third component with an eigenvalue of 0.58 is quite close to this threshold. A second way to determine the number of components is to examine the scree plot of eigenvalues (Figure 6). In this case, the number of components retained is determined by the point in the plot where the steep descent levels off (Cattell 1966), which can be found at three components. Alternatively, one could interpret the scree plot as only indicating one important eigenvalue. A third method to determine the number of components to retain for further analysis is to decide on the amount of total variance that the researcher wants to have explained by the retained components. A level of 70 percent of variance seems to be a common minimum threshold (Stevens 2002, p.390; Mazzocchi 2008, p.234), which would lead us to retain three components.

Figure 6: Scree plot of eigenvalues of all components of the PCA

Retaining only two components, as the Kaiser's rule would suggest, would leave us with only 60 percent of the total variance explained which is quite low. We thus decide to retain three components. Literature suggests the minimum threshold of 70 percent of variance should be explained by the retained components. In addition, the eigenvalue of the third component (0.58) is very close to the threshold suggested by Kaiser (0.66).

The components can be interpreted using the component-variable correlations, also referred to as component loadings (Table 17). Interpreting the three components, it seems that component 1 captures aesthetic taste in general, since all variables included in the PCA load positively and in roughly equal amounts on this component. In contrast, component 2 is characterized by the positive values of *aest1-5* and by the negative values of know1 and know2, leading us to think of this component as a "sensual experience" component where knowledge and adequate vocabulary do not play any or even a negative role, but variables capturing the experiential aspect of theatre-going are positive. The third component is dominated by a negative load of *aest7*, the statement that gives examples of the usage of aesthetic language.

	Comp1	Comp2	Comp3	Unexplained variance
aest1	0.17	0.44	0.23	0.22
aest2	0.26	0.20	0.06	0.26
aest3	0.29	0.17	0.18	0.20
aest4	0.33	0.28	0.30	0.22
aest5	0.28	0.22	0.28	0.28
aest6	0.40	0.02	-0.08	0.28
aest7	0.41	0.19	-0.84	0.03
know1	0.38	-0.49	0.11	0.14
know2	0.41	-0.57	0.13	0.12

Table 17: Component loadings and unexplained variance

We then compute the component scores for each respondent and each of the three components to use in subsequent analysis. We divide each of the three components by its respective maximum value, so as to restrict the variables' values to between 0 and 1 to facilitate interpretation in subsequent analysis, and name the three resulting variables $taste_{ind_1}$, $taste_{ind_2}$ and $taste_{ind_3}$. The sub-fix "ind" refers to the indirect (self) way of aesthetic taste assessment.

5.2.3 CORRELATIONS BETWEEN DIRECT AND INDIRECT MEASURES OF AESTHETIC TASTE AND THEATRE KNOWLEDGE

As explained above, $taste_{ind_1}$ is the first component derived from the PCA of indirect measures of aesthetic taste. It measures a general positive level of aesthetic taste (language proficiency and knowledge). This is also reflected in the correlation table below (Table 18), where $taste_{ind_1}$ is significantly positively correlated with $taste_{dir_1}$, the direct measure of aesthetic language proficiency, and $taste_{dir_2}$, the direct measure of general theatre knowledge. Interestingly, though, $taste_{ind_2}$ and $taste_{ind_3}$ only show very low correlations with the two direct measures of aesthetic taste, which might indicate that they pick up some aspects that have not been captured in the direct assessment. We also note that $taste_{dir_1}$ is significantly but not strongly correlated with $taste_{dir_2}$.

	$taste_{dir_1}$	$taste_{dir_2}$	$taste_{ind_1}$	$taste_{ind_2}$	$taste_{ind_3}$
$taste_{dir_1}$	1.00				
$taste_{dir_2}$	0.33	1.00			
$taste_{ind_1}$	0.44	0.32	1.00		
$taste_{ind_2}$	0.13	-0.14	0.00	1.00	
$taste_{ind_3}$	0.05	0.01	0.00	0.00	1.00

Table 18: Correlation between direct and indirect measures of aesthetic taste

5.3 OTHER INFORMATION CAPTURED ABOUT RESPONDENTS

In addition to measuring aesthetic taste in two ways, other socio-demographic information was captured about the respondents. The following pages present a description and the frequency distributions for those variables. These socio-demographic variables are often used in analysis of demand for performing arts and will thus be included as control variables in the models that will be estimated.

5.3.1 CHILDHOOD EXPOSURE AND PAST CONSUMPTION OF THEATRE

The frequency with which a person has consumed a cultural good in the past has been often used to explain current demand, serving as proxy for familiarity with the cultural

good or habitual consumption behaviour. Two questions aimed to capture respondents'

childhood exposure and past consumption of theatre plays respectively. Childhood exposure

was captured by asking respondents for the number of times they had attended the theatre

before they turned 18. Past consumption was captured by asking respondents how many

times they had attended the theatre in the past 12 months. Table 19 shows the descriptive

statistics. One respondent's answer to *attpre18* was obviously wrong (1,234) and thus

replaced with the mean of the *attpre18*.

Name	Question	Min	Max	Mean	Median	SD
attpre18	In total, can you guess how many times approximately you have been to the theatre to see a play BEFORE you turned 18?	0	100	6.58	3.00	11.80
att12mths	In total, how many times in the last 12 months have you roughly attended a theatre play?	0	25	2.57	2.00	2.64

Table 19: Respondents' past theatre consumption

We would like to include responses of *attpre18* and *att12mths* as measures of

childhood exposure and past consumption in subsequent analysis. However, we assume that

respondents do not exactly remember the number of times they have attended a theatre play

before they turned 18 years of age, or even within the last 12 months. For that reason we

proceed with caution and refrain from using the variables as continuous, but instead

generate four dummy variables to be used in subsequent analysis:

Variable name	Description	Proportion of respondents = 0	Proportion of respondents = 1
attpre18_1	=1 if respondent has attended 2-6 theatre plays < 18 years of age	33.8	66.3
attpre18_2	=1 if respondent has attended 7 or more theatre plays < 18 years of age	72.9	27.1
att12mths_1	=1 if respondent has attended 2-4 theatre plays in the past 12 months	53.9	46.1
att12mths_2	=1 if respondent has attended 5 or more theatre plays in the past 12 months	87.0	13.1

Table 20: Dummy variables created for childhood exposure and past consumption

Note that the author also checked correlations between the continuous versions of

attpre18 and *att12mths* as well as correlations between the two variables and the different

measures of aesthetic taste. As Table 21 shows, most correlations are significant but none are high.

	att12mths	attpre18
att12mths		
attpre18	0.31	
taste_ind1	0.26	0.17
taste_ind2	-0.18	-0.12
taste_ind3	0.10	0.00
taste_dir1	0.16	0.16
taste_dir2	0.26	0.15

Table 21: Correlation coefficients between attpre18, att12mths and different measures of aesthetic taste

5.3.2 Socio-demographic variables

The survey also asked respondents about their gender, age, highest education completed, and level of income. Table 22 shows the details.

Gender (in percent, n=406 respondents)	
Female	59.6
Male	40.4
Total	100.00

Age (in years)	
Mean	44.5
Median	44
Min	18
Max	82

Highest education completed (in percent, n=406)	
Junior secondary school	3.9
Senior secondary or equivalent	17.2
Post-secondary diploma, certificate	26.1
Bachelor's degree	32.8
Postgraduate degree	20.0
Total	100.0

Gross personal income (in percent, n=406 respondents)	
Less than $1,000 per week (less than $52,000 per year)	38.4
$1,000 - $1,599 per week ($52,000 - $83,199 per year)	23.4
$1,600 or more per week ($83,200 or more per year)	18.7
Prefer not to say	19.5
Total	100.0

Table 22: Socio-demographic information about the survey respondents

We create the following socio-demographic variables for subsequent analyses:

- $female$ = 1 if gender = female, 0 otherwise
- age_1 = age / 100
- $educ_1$ = 1 if highest completed education = Bachelor's degree, 0 otherwise
- $educ_2$ = 1 if highest completed education = Postgraduate degree, 0 otherwise
- inc_1 = 1 if annual gross income => \$52,000 & < \$83,200, 0 otherwise
- inc_2 = 1 if annual gross income => \$83,200, 0 otherwise

5.4 DESCRIPTION OF THE CHOICE TASK OF THEATRE PLAYS

As already mentioned, to understand the effects of aesthetic taste on consumer choice behaviour for theatre ticket purchases, and more specifically to test the hypotheses stated earlier, an online discrete choice experiment (DCE) was conducted in the same survey that assessed respondents' aesthetic taste and general level of theatre knowledge.

5.4.1 THE 16 PLAYS USED IN THE DCE AND THE DESIGN USED

In the online choice experiment respondents were asked to choose between real theatre plays that were being staged in Sydney during a four-week window in September/ October 2012. The decision was made in favour of using real theatre plays and respective information about them.

The conventional way of setting up choice experiments is to break down the goods or services that are subject to the analysis into attributes and attribute levels *prior* to conducting the choice experiments, then to create "profiles" (that is, specific attribute combinations) by combining different attribute levels and then using a suitable experimental design to combine these profiles into choice sets such that effects of the attributes can be estimated. For example, if one would want to conduct a DCE on orange juice, one could possibly break it into the following attributes and levels: sweetness (no added sugar, sweet, very sweet), pulp (no pulp, with pulp), price (\$1.50, \$2.00, \$2.50), organic (yes, no). A typical choice set would then ask respondents to choose between two attribute combinations or "none" (see Figure 17 for an example choice set).

	Orange juice 1	Orange juice 2	
sweetness	no added sugar	sweetened	would not buy
pulp	no	yes	either of the two
price	$2.00	$2.50	
organic	yes	yes	
Which orange juice would you buy?	O	O	O

Figure 7: An example choice set

The major purpose of breaking goods into attributes and combining them into profiles and choice sets is to be able to measure independently the effect of every attribute and every attribute level change on consumer choice. In the case of the theatre plays used in this research, however, the situation is different for two reasons. Firstly, in the choice experiment conducted we used the complete set of goods available in the market at a certain point in time rather than a subsample. Secondly, we deliberately did not follow the usual way of breaking down the plays into more generic attributes and developing attribute combinations to use in the experiment since in the case of theatre this would make the representation of the plays in the choice set very artificial in comparison with real-world behaviour. Whilst ordinary consumer goods such as washing machines, juice or cars can be broken down in attributes like brand, technical specifications, colour, price, etc. and can be sufficiently described by those attributes, it is far more difficult to break down a theatre play into attributes that would allow the reader to have sufficient understanding of the play. Past research conducted (Throsby 1990; Grisolía and Willis 2010; Grisolía et al. 2010) has in fact broken down theatre plays into attributes and only attribute information (e.g. "well-known playwright: yes/no") was shown to survey respondents. The approach taken here follows a different path and aims to preserve the true character of each theatre play that is uniquely captured in the information contained in the title, the playwright, the price, the play description and the plot. The reason for doing so was to avoid the theatre plays being only described in terms of generic attributes to the survey respondents, as has been common in economic investigations of theatre play choice so far. Describing theatre plays by generic attributes creates a far more abstract choice situation and thus the reliability of results

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suffers. From an experimental design perspective, we set up the experiment as an unlabelled discrete choice experiment with only one attribute and 16 levels (the 16 plays).

During the four-week window the complete choice set of theatre plays on offer in Sydney was 16. Plays that were focused on children as well as dance performances, operas, comedy shows and musicals were excluded, since this study focused on theatre plays and these performances mentioned here belong to categories of goods that are different to theatre plays.

Since the theatre plays were on offer in Sydney, the total population for the study was restricted to Sydney residents aged 18 or older. In addition, to ensure a sufficiently high survey completion rate as well as a basic understanding of the theatre going experience amongst survey respondents, we further restricted the population to people who had attended a theatre play in the past 12 months.

Respondents were able to fill out only part of the survey and return to complete the survey at a later point in time. For that reason it is difficult to assess the actual time it took respondents to complete the survey. The fastest respondent only took 7.15 minutes, the slowest respondent took 147.5 minutes to complete the survey. Disregarding any breaks respondents might have taken whilst taking part in the survey, respondents took an average of 26.81 minutes to complete the main survey (median=22.5 minutes). Note that this time is the time it took to complete the discrete choice experiment as well as the other parts of the survey.

For each of the 16 plays the following information was gathered from the theatres' websites: title of the play, playwright, venue, aesthetic description of the play, plot, and price (see Figure 7, Figure 8, Figure 9 and Figure 10 for details of the plays). All information was used in its original wording. The plays were numbered from 1 to 16 for ease of identification but without any particular order.

	Play 1	Play 2	Play 3	Play 4
Title of the play	The Splinter	Vernon God Little	I want to sleep with Tom Stoppard	Signs of Life
Playwright	Hilary Bell	DBC Pierre	Toby Schmitz	Tim Winton
Location	The Wharf Theatre	New Theatre	Bondi Pavillion	Sydney Opera House
Description	Inspired by the Henry James novel The Turn of the Screw and real life stories of abducted children, this work is an emotional thriller about all consuming obsession, grief, childhood and identity, a visually rich, image-based production.	Dark, riotously funny, razor-sharp and packing a punch, Vernon God Little is a startling satire on youthful isolation and the commercialisation of horror. This potent, disturbing yet ultimately uplifting story lays bare the dysfunctional mess that underpins modern America.	One of the key themes in the play questions the role that theatre plays in today's society. It is also about giving up on dreams. The potential of an actress playing an actress allows for surprising and thrilling reveals. Especially of her flaws. She unravels before us.	Signs of Life is a work of magical realism where the dead speak with and watch over the living. Gently paced and deeply searching, this delicate new work for the stage is evocatively atmospheric.
Start of the plot	A mother and father celebrate: Eliza has returned. …	Vernon's best friend Jesus has just massacred his high school class…	Luke is going out with Sarah, a brilliant actress who's a bit…	On a farm that has been parched by a drought of apocalyptic….
More plot	…Abducted from her bed as they slept, Eliza has been missing for nine long months. Neither parent cares that the little girl's return is as mysterious as her disappearance. That is until they begin to notice that she has changed. Unable to sleep at night, the man sits up watching his daughter. As he gazes down on her peaceful body, a splinter of doubt lodges in his mind. Is the girl lying in the bed really Eliza?	… before lunch then shot himself. Not quite your typical day in Texas, now everyone's looking for someone to blame – and hapless Vernon is in their sights. With the searing cynicism of youth but an unfortunate ability to attract bad luck, Vernon makes a mad dash south to the Mexican border, pursued by the absurdities of life that just won't leave him alone.	…older than him. And a lot more dangerous. Sarah crashes a dinner at his parents' house. Tom and Jackie's opinions immediately unleash the lunatic in Sarah. Or perhaps she's set off by Tom's worrying views about the death of theatre and the powerlessness of artists, or maybe it's his hand under the table. She decides to show them all just how much power a good actress has in her arsenal.	…severity, Georgie, a white woman in her fifties, lives alone quietly contemplating her solitude. One evening, an Aboriginal man and woman come to the door for help and reluctantly Georgie allows them into her house. Recently widowed, Georgie is not looking for company. She wants to be alone but her mysterious guests, Mona and Bender, demonstrate an inexplicable reluctance to oblige her.
Price adult/ student/ pensioner/ under 30	$75/ $60/ $60/ $40	$30/ $17/ $25/ $30	$33 /$25/ $25/ $33	$85/ $70/ $70/ $45

Figure 8: Theatre plays 1 to 4 used in the survey

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	Play 5	Play 6	Play 7	Play 8
Title of the play	The Sea Project	Australia Day	Water	A Picasso
Playwright	Elise Hearst	Jonathan Biggins	Filter and David Farr	Jeffrey Hatcher
Location	Griffin Theatre	Sydney Opera House	Sydney Theatre	Ensemble
Description	The Sea Project is an evocative, unique story of migration, memory and desire. It's a joyous, poignant, and incredibly funny ride.	In a period when political correctness has overwhelmed us, the playwright's fearlessness is refreshing, but even when he is pointing out our ugliest features he does so with affection and quint-essentially Aussie good humour. A wickedly funny play.	Water explores man's desire to push himself to the limits in an increasingly unstable world and asks whether people's inability to connect on a personal level could have potentially catastrophic repercussions on a global scale.	A Picasso is part history lesson, part intriguing debate about art, politics, sexuality and love. It's sexy and funny, it has tangible humanity, but ultimately it's about the dynamic relationship between these two wonderful fiery characters.
Start of the plot	Things are washing up on the shore: suitcases, spectacles, hair …	The small country town of Coriole. Does a sausage sizzle code as …	Spanning 26 years, two generations and two continents, …	Paris, 1941. The underground bunker, where …
More plot	… – and then Eva. She has lost all but the memory of her name and how she takes her tea. And she's missing a finger. When Bob finds Eva on the beach it's not long before he's falling in love. But Eva is haunted by a past she can't remember. Who is she and why does she scream in the night? When the mysterious rogue Maciek appears, Bob is terrified he'll steal Eva away. Eva is terrified of what he may reveal.	… monocultural? Should the special needs kids be forced to perform their dance routine? With the Australia Day committee comprising of an ambitious Liberal Mayor, a Greens Councillor, a bigoted builder, an Australian-born Vietnamese school teacher and a member of the CWA, rolling out the Australia Day celebrations will be as complex and controversial as carbon pricing.	…Water weaves parallel personal narratives into one dreamlike whole. A British government negotiator battles to unite a G8 summit on a carbon emissions deal while her neglected boyfriend turns his attention to beating the world record for cave diving. Two estranged half-brothers reunite to commemorate their dead father but quickly become embroiled in a bitter tug-of-war.	…the celebrated painter, Pablo Picasso has been detained. Picasso is visited by Ms Fischer, an attractive officer from the German cultural ministry, and is faced with an impossible decision: in exchange for his life he must surrender one of his beloved works of art to the regime. A perilous game of cat and mouse ensues as Picasso attempts to outwit his dangerously beautiful opponent and save his masterpiece.
Price adult/ student/ pensioner/ under 30	$30/ $23/ $26/ $26	$85/ $70/ $70/ $45	$75/ $60/ $60/ $40	$54/ $29/ $49/ $54

Figure 9: Theatre plays 5 to 8 used in the survey

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	Play 9	Play 10	Play 11	Play 12
Title of the play	Between two Waves	Wrecking	Fearless	Sex with Strangers
Playwright	Ian Meadows	Dan Giovannoni	Mira Todd	Laura Eason
Location	Griffin Theatre	Old Fitzroy	Carriageworks	The Wharf Theatre
Description	An urgent and searching play about the most pressing issue of our times, Between Two Waves asks an anxious, warming world: how do we find happiness in the face of an uncertain future? A politically charged relationship drama set against a climate change backdrop.	The play looks at the issue of homelessness and the division of wealth in Woolloomoolloo and explores the magical corners of the city where the two aspects of the human condition that do not discriminate – desire and disappointment – intersect.	Fearless investigates the many portals of loneliness. It is full of honesty and heart that draws you in to every character's story. As each character suddenly gets through of their normal path of life they grasp redemption and recovery.	Sex With Strangers is an extremely tender intergenerational love story. The playwright pits books against blogs to ask who we are in the digital age, how much we should share online and if our addiction to technology is turning us into twits.
Start of the plot	Having lost a lifetime of research in the worst floods …	Alana's planning a party, Miles is moving to the jungle, …	Eleven characters inhabit the world of Fearless. Each character …	Olivia, bookish, private and deeply disinterested in technology, …
More plot	… Sydney has witnessed, Daniel – a climatologist and advisor to the government – isn't in the mood for appreciating the irony of what he should have predicted. Daniel takes little joy in planning for his future – somewhat of a problem for his spirited other half, Fiona. When Fiona tells Daniel they're about to start a family, Daniel must choose between what he knows and what he loves.	… Lexie's fat-arse pregnant, and Ned reckons he's a mermaid. It's the haves versus have-nots, and they all play dirty. Wrecking is a chilling story based on true events.	… flinches at a point in their lives. In that moment, each life is unexpectedly hurled off its normal path into an emotional abyss. Fearless begins at this juncture where redemption, recovery, release or relapse is but an inch from each person's grasp.	… is having a crisis of confidence. Ethan Strange is a Gen Y blogger who has topped the New York Times Best Seller list with his book, a conquest by conquest chronicle of his year on the singles scene. When Ethan and Olivia meet they instantly click. But it's not long before their online life threatens to destroy their real-life connection.
Price adult/ student/ pensioner/ under 30	$49/ $36/ $36/ $30	$33 /$25 /$25 /$33	$35/ $25/ $25/ $35	$75/ $60/ $60/ $40

Figure 10: Theatre plays 9 to 12 used in the survey

	Play 13	Play 14	Play 15	Play 16
Title of the play	The Lunch Hour	Red	Private Lives	The Flood
Playwright	Chris Aronsten	John Logan	Noel Coward	Jackie Smith
Location	Darlinghurst Theatre	Ensemble	Upstairs Belovir	Glen Street Theatre
Description	The Lunch Hour is a dark contemporary comedy about what we all do to get through the day – the distractions we create and the games that we play. The Lunch Hour is ambitious, dark and hilarious.	Red is a very muscular, very dynamic play, that deals intelligently with the trials of creativity. A convincing portrait of the artist as a working visionary. It is a perceptive piece, finely tuned.	The censors did their best to ban the play when it was written and it has been refusing to behave ever since. Its wit is definitive, its plotting almost perfect, and its critique of modernity dazzling.	This arresting production expertly plunges into a world of dark humour, suspense and intrigue as a web of family history unravels in the haunting Australian outback. Evocative, claustro-phobic, and despite the dark themes often funny.
Start of the plot	Six struggling artists. One call centre. A bunch of co-workers are…	Mark Rothko, a brilliant artist. Ken, his new assistant. …	Amanda has just married Victor and gone on her honeymoon. …	The farm house sits dark by the river, sheltering a mad old lady …
More plot	… secretly writing a play about Martin, their boss - and nemesis - in the hope of winning a playwriting competition. But Martin has penned his own play about his dysfunctional staff and their thwarted lives, which he leaves on their desks as a parting gift and wake up call.	… A New York studio like the depths of a cell. The smell of paint. A canvas waiting for a splash of red. Rothko bullies, snaps, abuses, teaches. Ken listens, casually observes, causes arguments. Together they make and mix paint. Together they create art. Art for the new Four Seasons Restaurant. Is Rothko selling out? Or simply baring his soul?	… Elyot has just married Sybil and gone on his honeymoon. To the same hotel. Elyot and Amanda are about to find out all over again why they got divorced in the first place.	… and her daughter. As the sun sets, the flood waters rise. In the wind and rain, Catherine returns home from London. A mother is now trapped in the house with her two estranged daughters; one who takes care of her, one who has been away for twenty years. The friction between the sisters explodes during a sleepless and alcohol-fuelled night as memories of their dead father surface.
Price adult/ student/ pensioner/ under 30	$38/ $33/ $33/ $30	$54/ $29/ $49/ $54	$62/ $42/ $42/ $62	$58/ $52/ $52/ $30

Figure 11: Theatre plays 13 to 16 used in the survey

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5.4.2 EXPERIMENTAL DESIGN AND VERSIONS USED

To ensure that each play was presented to respondents equally often and with each other play equally often, a Balanced Incomplete Block Design (BIBD) was used to combine the 16 plays into 20 choice sets, each containing four plays (Table 23).

Set	Options in each set			
16 20 5 4 1 BIBD			
1	2	5	8	14
2	1	5	6	7
3	5	9	12	16
4	4	5	11	15
5	3	5	10	13
6	1	2	3	4
7	2	6	9	11
8	2	7	13	16
9	2	10	12	15
10	1	8	9	10
11	6	8	13	15
12	4	7	8	12
13	3	8	11	16
14	1	14	15	16
15	3	6	12	14
16	7	10	11	14
17	4	9	13	14
18	1	11	12	13
19	4	6	10	16
20	3	7	9	15

Table 23: Balanced Incomplete Block Design used in the survey

The number of the BIBD (16 20 5 4 1) provides the information that 16 alternatives are combined into 20 choice sets, where each alternative is presented exactly 5 times, each choice set contains 4 alternatives and each play is in the same choice set with every other play exactly once.

In the discrete choice task respondents were shown 20 screens, each containing a choice set with information on four different plays. Every respondent was asked to answer all 20 choice sets. In each choice set respondents were asked to tick which one of the plays

they preferred most, and which one they preferred least[18]. Below the choice set was another question that asked respondents whether they would buy a ticket to the play they ticked as most preferred above. Adding this option works similar to including a "none" alternative in a discrete choice experiment, in that we assume that "none" was chosen if the respondent ticked that he would not buy a ticket to the play he preferred most in that choice set. Since each choice set is understood to be an independent choice situation with only the four plays on offer (rather than all 16 plays), it is necessary to asked this question in every choice set. Figure 11 shows a screenshot of one of the 20 choice sets used in the survey.

Every respondent completed all twenty choice sets. However, the way respondents were shown the choice sets varied:

- To avoid order effects to some extent, the order of the 20 choice sets was reversed for roughly every second respondent.

- To avoid within-set order effects of the alternatives to some extent, the order of the alternatives presented in the choice sets was also reversed for roughly every second respondent.

- In addition to reversing the order of the choice sets and alternatives within a choice set, half of the respondents were presented with all information as shown in Figure 7, Figure 8, Figure 9 and Figure 10, whereas the other half of the respondents were shown all information apart from the description of the play. Figure 11 shows a screenshot of a choice set that contains the description of the play, Figure 12 shows a screenshot of a version that does not contain the description of the play.

Table 24 shows the total number of respondents for each version of the survey. The numbers in the cells are not exactly equal because respondents were randomly assigned to one version of the questionnaire and because invalid surveys (respondents randomly clicking

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[18] Note that within this thesis we only use information on the most preferred play.

through the questionnaire or completing the survey in less than 7 minutes) were deleted from the data set after data collection.

Shown description of the play	Order of choice sets	Order of alternatives	Number of respondents (in percent, n=406 respondents)
yes	1 - 20	1 – 4	12.1
yes	1 - 20	4 – 1	13.8
yes	20 - 1	1 – 4	11.6
yes	20 - 1	4 – 1	14.5
no	1 - 20	1 – 4	12.1
no	1 - 20	4 – 1	12.1
no	20 - 1	1 – 4	12.1
no	20 - 1	4 – 1	11.8
Total			100.0

Table 24: Number of respondents in each survey version

Figure 12: Screenshot of a choice set that does contain the description of the play

Figure 13: Screenshot of a choice set that does not contain the description of the play

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So to avoid showing too much text on each page and thus potentially tiring respondents, the field "more plot" was hidden behind a grey bar. In order to see it, respondents had to click on the grey bar. Clicking on the grey bar for any one play opened the "more plot" for all four plays in the choice set.

5.5 MEASUREMENT OF AESTHETIC QUALITIES IN THEATRE PLAYS

Measurement of aesthetic qualities in theatre plays is not a straightforward task. As we have seen in Chapter 2, one could argue that theatre critics' reviews are the best estimator of aesthetic qualities. However, often reviews are not available for all plays or not at the time when one intends to book tickets to a play. Thus it is of interest whether there is a way to determine the aesthetic nature of a play prior to it being reviewed by critics. Below we describe two ways of measuring aesthetic qualities in theatre plays directly. These measures will be used in later analyses, alongside measures of aesthetic qualities as assessed by experts.

5.5.1 MEASURING AESTHETIC QUALITIES BY COUNTING AESTHETIC TERMS IN THE PLAY DESCRIPTION

As already mentioned, aesthetic qualities cannot be directly observed and in the case of cultural goods, where every good is unique, there is uncertainty as to what aesthetic qualities a cultural good contains prior to its consumption. We further assume that in a particular choice situation people with developed aesthetic taste use variables that are observable in the choice situation to infer the aesthetic character of cultural goods.

The information that is always available at the time of decision-making (about whether or not to purchase a theatre ticket) is a written text about the play provided by the theatre company in the form of a pamphlet or available on the theatre's website. There seem to be two separate pieces of information provided by the theatre company about any particular play: a short text about the plot of the play and a description that characterizes the

aesthetic nature of the play. This latter description can be used to derive a rough estimate of aesthetic qualities since, unlike the plot, the play description contains aesthetic terms and thus requires aesthetic taste in order to be understood. Therefore, the play description can be coded based on the number of aesthetic terms or expressions used. This can be regarded as a proxy for the aesthetic character of the play. The assumption is that the more aesthetically rewarding plays will be described using a greater number of aesthetic terms, whereas less aesthetically rewarding plays will be described by fewer aesthetic terms. In regard to the question about what defines an aesthetic versus a non-aesthetic term, we draw on the literature discussed in Chapter 2.

There are several drawbacks in regard to this measure of aesthetic qualities in theatre plays. Firstly, the number of aesthetic terms used in the play description depends totally on the individual writing it. Some of the authors of play descriptions might have more developed aesthetic taste than others, or some might have spent more time than others on writing the description. Thus differences in play descriptions could arise despite there being no differences in the aesthetic character of the plays. Secondly, who determines really what an aesthetic term is? Is "funny" an aesthetic term, or what about "witty" or "sexy"? Surely there is room for debate. To overcome at least the second drawback, the number of aesthetic terms were categorised into "many", "some" and "few" so that adding or deleting one or two aesthetic terms from a play might not lead to very different consequences in the variable used in the analysis. The table below shows which aesthetic terms were counted as such in each individual play. We use the number of aesthetic terms to code two dummy variables: *aestattr1*, capturing those plays that have a low number of aesthetic terms, and *aestattr2,* indicating those plays with a high number of aesthetic terms in the play description.

Play	Aesthetic terms used in the play descriptions	Number of aesthetic terms	Variables coded	
			aestattr1	aestattr2
1	emotional thriller / visually rich	2	1	0
2	dark / riotously funny / razor-sharp / packing a punch / startling / satire / potent / disturbing / uplifting	9	0	1
3	surprising / thrilling	2	1	0
4	magical / gently paced / deeply searching / delicate / evocatively / atmospheric	6	0	1
5	evocative / joyous / poignant / incredibly funny	4	0	0
6	refreshing / with affection / quint-essentially Aussie good humour / wickedly / funny	5	0	0
7		0	1	0
8	intriguing / sexy / funny / tangible humanity	4	0	0
9	urgent / searching / charged / drama	4	0	0
10		0	1	0
11	honesty / heart / draws you in	3	1	0
12	tender / love story / pits	3	1	0
13	dark / comedy / ambitious / hilarious	4	0	0
14	muscular / dynamic / deals intelligently / convincing / perceptive piece / finely tuned	6	0	1
15	it has been refusing to behave ever since / wit / definitive / plotting / almost perfect / dazzling	6	0	1
16	arresting / plunge / dark humour / suspense / haunting / evocative / claustrophobic / funny	8	0	1

Table 25: Coding of variables *aestattr1* and *aestattr2*

5.5.2 MEASURING AESTHETIC QUALITIES BY THE PLAY'S STRENGTH OF AESTHETIC CHARACTER PROMISED IN THE PLAY DESCRIPTION

For this second way of measuring aesthetic qualities in the 16 theatre plays used in the survey, we draw on the core essence of aesthetic qualities, namely that they make a theatre play more complex, multifaceted, and deeper in meaning. In Table 26 we can see which play descriptions signal a certain intensity of aesthetic character and which terms – we argue – are used specifically to do so. We create a binary variable *aestqual* to use in subsequent analysis that equals 1 for the six plays listed in Table 26 and 0 otherwise.

Play	Terms indicating aesthetic intensity in the play descriptions
1	emotional thriller / visually rich
4	magical / deeply searching / delicate / evocatively / atmospheric
9	urgent / searching
14	muscular / dynamic / perceptive piece / finely tuned
15	wit / definitive / plotting / almost perfect / dazzling
16	arresting / plunge / suspense / haunting / evocative / claustrophobic

Table 26: Coding of variable *aestqual*

One could argue that the direct measures of aesthetic qualities developed above, *aestattr1*, *aestattr2* and *aestqual,* are highly subjective since the author of this thesis determined what an "aesthetic term" is and what terms signal strength of aesthetic character. The author is fully aware of these limitations and for further research undertaken on aesthetic qualities, it would be interesting to select a random sample of "aesthetic qualities judges" from the general population who are presented with a brief instruction on what defines aesthetic qualities or strength of aesthetic character and are then asked to select the appropriate terms from play descriptions that fit, in their view. Comparing the different judges' selections of aesthetic terms would show whether the measures are in fact objective. For this thesis, however, we will proceed with the two measures *aestattr1, aestattr2* and *aestqual* as presented above.

An alternative way to measure aesthetic qualities of theatre plays without having seen the play would involve critics. One could argue that theatre critics who are familiar with most playwrights and venues might be able to give a rough forecast as to whether a play will have several aesthetic qualities, some aesthetic qualities or most likely none. Such a prediction could be obtained by showing the information used in the survey about the plays to several theatre critics, with instructions as to what we mean by aesthetic qualities. If several critics are asked for their judgement, one could then either take the average judgment as an estimate of aesthetic qualities, or every critic's judgment separately. Either way, both measures would lead to an externally derived measure of the aesthetic character of plays.

Whilst this certainly would be a worthwhile pursuit for further research on these data, within the limits of this thesis we need to make do without those assessments.

5.5.3 POST-ASSESSMENT OF AESTHETIC QUALITIES OF THEATRE PLAYS THROUGH NEWSPAPER REVIEWS

Another way of assessing the aesthetic character of a play is to look at expert reviews. The discrete choice experiment was conducted *before* any of the plays were performed, and *before* any play review was published. This timing of events was deliberate so to be able to assess demand for the individual plays without the influence of reviews. This independence from expert reviews also implies that we can now use theatre critics' reviews published in newspapers as an impartial external source to determine the aesthetic character of the plays.

The *Sydney Morning Herald*, a daily newspaper in Sydney publishes reviews of most theatre plays performed in Sydney, as well as giving a star rating (out of 5 stars) for each reviewed play. The reviews are written by one person, Jason Blake. Out of the 16 plays used in the study, 15 plays were reviewed by Jason Blake. Table 27 shows how many stars Jason attributed to each play. Play 16 was the play he did not review. The average star rating of these 15 plays is 3.03, so we mean-replace the missing value for Play 16 with a star-rating of 3. The number of stars can be used to generate two dummy variables: *smh_stars1*, flagging the plays that have a below-average star rating, and *smh_stars2*, capturing plays that received a higher than average star-rating.

Timeout magazine was chosen as a second source for assessing aesthetic qualities on the basis of critics' reviews. *Timeout* is a magazine and online website specialising in reviews of different kinds of services (cafes, restaurants, movies, theatre plays). It attracts a much younger, trendier readership and it can be assumed that the journalists reviewing the theatre plays also belong to this demographic. The magazine only reviewed nine out of the 16 plays. Unlike the *Sydney Morning Herald*, the theatre reviews and star ratings for *Timeout*

magazine are written by various people, so differences in tastes between the reviewers could affect the reliability of the variables. Nevertheless, we assume that the *Timeout* theatre reviewers' tastes are similar in broad terms. We can generate two variables to use in subsequent analyses: *to_stars1*, capturing plays whose rating was below average (the average star rating being 3.4), and *to_stars2* for plays with an above average star-rating. Note that the plays that were not reviewed by *Timeout* magazine are assumed to have an average star-rating.

	Sydney Morning Herald			timeout magazine		
	stars attributed	variables coded		stars attributed	variables coded	
		smh_stars1	smh_stars2		to_stars1	to_stars2
Play 1	3	0	0	4	0	1
Play 2	2	1	0	3	1	0
Play 3	3.5	0	1	-	0	0
Play 4	3	0	0	2	1	0
Play 5	3	0	0	-	0	0
Play 6	3	0	0	4	0	1
Play 7	3.5	0	1	-	0	0
Play 8	2.5	1	0	-	0	0
Play 9	3.5	0	1	5	0	1
Play 10	3	0	0	-	0	0
Play 11	3	0	0	-	0	0
Play 12	3	0	0	2	1	0
Play 13	3	0	0	3	1	0
Play 14	3.5	0	1	4	0	1
Play 15	3	0	0	4	0	1
Play 16	-	0	0	-	0	0

Table 27: Variables capturing the aesthetic character of the theatre plays as per theatre critics' reviews

5.5.4 CORRELATION BETWEEN THE DIFFERENT MEASURES OF AESTHETIC QUALITIES

Now we are interested in how strongly the different measures of aesthetic qualities in theatre plays are correlated. Three variables we coded capture low aesthetic qualities (*aestattr1*, *smh_stars1* and *to_stars1*), whilst four variables (*aestattr2*, *aestqual*, *smh_stars2* and *to_stars2*) aim to capture high aesthetic qualities (or strong aesthetic character). Table 28 lists the four alternative measures of *high* aesthetic qualities and shows below the

pairwise correlation coefficients. We observe that some are quite highly related, whilst others have little in common.

	aestattr2	aestqual	smh_stars2	to_stars2
Play 1	0	1	0	1
Play 2	1	0	0	0
Play 3	0	0	1	0
Play 4	1	1	0	0
Play 5	0	0	0	0
Play 6	0	0	0	1
Play 7	0	0	1	0
Play 8	0	0	0	0
Play 9	0	1	1	1
Play 10	0	0	0	0
Play 11	0	0	0	0
Play 12	0	0	0	0
Play 13	0	0	0	0
Play 14	1	1	1	1
Play 15	1	1	0	1
Play 16	1	1	0	0

	aestattr2	aestqual	smh_stars2	to_stars2
aestattr2	1.00	0.59	-0.08	0.13
aestqual		1.00	0.15	0.59
smh_stars2			1.00	0.23
to_stars2				1.00

Table 28: The four alterative measures of strong aesthetic character and correlations amongst them

5.6 CHAPTER SUMMARY

This chapter served several purposes: firstly, discrete choice experiments were introduced as the chosen methodology and reasons were given for making this choice.

Secondly, the chapter documented two different ways that respondents' level of aesthetic taste was assessed:

Directly	taste_dir1	Proportion of how many of the 12 aesthetic statements presented respondents understood
	taste_dir2	Proportion of how many of the 23 playwrights are known at least by name
Indirectly	taste_ind1, taste_ind2, taste_ind3	Principal component analysis of 7 statements describing aesthetic activities of people with high aesthetic taste and 2 self-assessment statements about respondents' level of theatre knowledge

Table 29: Overview of how respondents' level of aesthetic taste was assessed directly and indirectly

Thirdly, it described other information obtained from respondents in the survey that will be used in analyses, namely: childhood exposure to theatre, theatre attendance in the past 12 months, age, gender, level of education, and income.

Fourthly, the chapter described the 16 theatre plays used in the survey, as well as the discrete choice experiment conducted in detail.

Lastly, it outlined three different ways in which aesthetic qualities in theatre plays were captured: (1) by counting the number of aesthetic attributes in the play description; (2) by way of words used in the play description that signalled a certain strength of aesthetic character; and (3) through star ratings by theatre experts reviewing the plays in the *Sydney Morning Herald* and *Timeout* magazine.

The next chapter will document and describe the models that were estimated in order to test the hypotheses developed in Chapter 4, and will discuss the results obtained.

6 RESULTS: TESTING THE HYPOTHESES

Chapter 6 will follow the same structure as Sections 4.3 and 4.4, where the hypotheses to be tested were developed. Section 6.1 describes and discusses model results for testing H1 and H2. These two hypotheses relate to the phenomenon of taste acquisition – the fact that some people are enthusiastic consumers of cultural goods whereas others are not interested in them. They state that aesthetic taste (H1) and familiarity (H2) have distinct positive effects on the average choice probability of a particular cultural good. Binary choice models and tobit regression models are estimated to test the two hypotheses.

The last seven hypotheses relate to taste heterogeneity amongst cultural goods consumers. H3-H6 are hypotheses that describe the relationship between aesthetic taste development and familiarity to general taste heterogeneity amongst cultural goods consumers (Section 6.2). A series of MNL models with only alternative-specific constants and covariates included will allow us to test H3-H6.

H7-H9 specifically address the aesthetic character of cultural goods and its relationship to aesthetic taste as a source of taste heterogeneity (Section 6.3). H7 and H8 will be tested by estimating MNL models that describe the plays by their attributes. A latent class model is estimated to test H9.

6.1 AESTHETIC TASTE AND THE "TASTE ACQUISITION" PHENOMENON: MODEL RESULTS

It is well known from past research and anecdotal evidence that with increasing knowledge of theatre, frequent past attendance, and "cultural capital" development (as in having arts education, being from a higher social class, living in an urban area), the frequency of theatre visits and thus the overall likelihood of going to the theatre also increases. We would also expect to find the same to be true for our stated preference data on theatre play choice, namely that people who have higher levels of aesthetic taste and

higher levels of familiarity with theatre are more likely to choose to go to the theatre rather than not, compared to people with lower levels. We expect this to be true disregarding any particular attributes the plays might or might not possess.

Below again are the two hypotheses that were developed in 4.3:

H1: The average choice probability of purchasing a cultural good c, $P(buy_{yes,c}|C_{bin,c})$ increases with increasing aesthetic taste for that cultural good, s_c.

H2: On average, familiarity with cultural good c increases the choice probability $P(buy_{yes,c}|C_{bin,c})$ of consuming a cultural good c, ceteris paribus.

To test these hypotheses we can suppose that respondents were presented with only two choices in the choice sets: whether to purchase a ticket to a theatre play, or not. We make use of the fact that for each of the 20 choice sets respondents saw, they made two decisions – which of the four theatre plays given in the choice set they preferred most and whether they would *actually* buy a ticket to the play they ticked as most preferred. The latter decision only is of interest at the moment. We treat each of the choice sets respondents saw as independent choice decisions, which gives us 8120 observations (406 respondents * 20 choice sets).

Since we only have two choice outcomes in each choice set – whether a ticket to a theatre play would actually be purchased or not – we will estimate a binary conditional logit model. Economic analyses of theatre attendance often include socio-demographic variables other than aesthetic taste in demand models to explain heterogeneity of tastes, namely theatre attendance in the previous 12 months, theatre attendance as a child, gender, age, education and income. For that reason the same variables will also be included here. We formulate the following utility difference function between the two alternatives (whether to purchase a theatre ticket or not):

$$\Delta U = k_0 + k_1 aestaste + k_2 attpre18 + k_3 att12mths + k_4 female + k_5 age + k_6 educ + k_7 inc$$

where k_0 is the alternative-specific constant (essentially the mean utility) for the alternative to go to the theatre (decide to purchase one of the theatre tickets on offer in the choice set).

Our interest at this stage is exclusively on the *average* probability of choosing or not choosing to go to see a theatre play, and we thus completely disregard any attributes of theatre plays. Since only differences in utility matter, it is common in choice models to define one alternative as the base alternative and set the coefficient of its utility function to zero, so that the coefficients of the utility functions of the other alternatives can be easily compared to the base. We will define the "not purchase ticket" alternative as the base alternative in all four models. The coefficients of the model thus have to be interpreted in terms of differences to this base alternative.

As mentioned in chapter 5, we developed two different measures of aesthetic taste, a direct one and an indirect one. Two models will be estimated using the different measures of taste (Model 1 and Model 2). In addition, since the direct and indirect measures of taste are not highly correlated, we will estimate a third model that includes both direct and indirect measures of taste (Model 4). We will also estimate the model that only includes those socio-demographic variables conventionally used (Model 4):

$$\Delta U = k_0 + k_2 attpre18 + k_3 att12mths + k_4 female + k_5 age + k_6 educ + k_7 inc$$

so that model performance can be compared. We also included $know_{fake}$, our measure of "yea-sayers", in all the models to improve the quality of the utility coefficients. Table 30 shows the descriptive statistics for the independent variables used in the models:

variable name	variable type	min	max	mean	median	sd	proportion of respondents = 1
Direct measures of aesthetic taste							
taste_dir1	continuous	0.00	1.00	0.75	0.83	0.25	-
taste_dir2	continuous	0.00	1.00	0.42	0.39	0.26	-
Indirect measures of aesthetic taste							
taste_ind1	continuous	0.38	1.00	0.69	0.70	0.11	-
taste_ind2	continuous	0.01	1.00	0.51	0.50	0.16	-
taste_ind3	continuous	-0.22	1.00	0.41	0.38	0.20	-
Childhood exposure and past consumption							
attpre18_1	dummy	0	1	-	-	-	66.26
attpre18_2	dummy	0	1	-	-	-	27.09
att12mths_1	dummy	0	1	-	-	-	46.06
att12mths_2	dummy	0	1	-	-	-	13.05
Socio-demographic variables							
female	dummy	0	1	-	-	-	59.61
age_1	continuous	0.18	0.82	0.45	0.44	0.15	-
educ_1	dummy	0	1	-	-	-	32.76
educ_2	dummy	0	1	-	-	-	19.95
inc_1	dummy	0	1	-	-	-	23.4
inc_2	dummy	0	1	-	-	-	18.72
know_fake	dummy	0	1	-	-	-	21.92

Table 30: Descriptive statistics for the independent variables used in the models to test H1 and H2

Table 31 shows the results of the four different models estimated. All 406 respondents were included in the models, and the models all fit significantly better than a model without predictors (Prob>chi2 = 0). Coefficients significant at p>=0.1 are highlighted in bold[19]. Overall we can see that the model that does not include any measures of aesthetic taste has the worst fit (Model 4), whereas Model 3, which includes both direct and indirect measures of aesthetic taste has the highest LL.

In general, a higher log likelihood indicates a better model fit; however, we need a test of whether a particular model is fitting the data significantly better than another model. To test whether the models with the higher log likelihood are significantly better, we perform

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[19] Whilst it is common to exclude insignificant interactions from the analysis, we retained all variables in the models since every variable is at least significant in one of the models. This allows us to compare the overall model fit between the different models. Excluding one variable from a particular model would mean not being able to compare the model fit anymore, since models need to be nested in order to be able to compare them.

likelihood ratio (L-ratio) tests. If the L-ratio test turns out to be significant, we can assume that the model to be tested fits the data significantly better than the conventional model. The L-ratio test assumes that one model is nested in the other, in which case the distribution is approximated by the χ^2-distribution. We use the conventional Model 4 as the base model and perform the L-ratio test for each of the other three models. The L-ratio test reveals whether these additional variables added in a model significantly improve the model fit. We calculated first the L-ratio between Model 1 and Model 4:

$$L - ratio_{1,4} = -2\,(LL0 - LL1) = -2\left((-5306.61) - (-5082.02)\right) = 449.19$$

where $LL0$ is the LL of the base model (Model 4) and $LL1$ the log likelihood of the model to be tested (Model 1). The L-ratio for Model 2 is 331.97, and for Model 3 it is 624.35. The L-ratio is χ^2-distributed and we can thus conclude that all models including variables measuring aesthetic taste (whether directly, indirectly or both), perform significantly better than the model excluding them. We can also compare Model 1 (base) against Model 3 which gives us a L-ratio of 175.16, and Model 2 (base) against Model 3 (L-ratio: 292.38), indicating that Model 3 performs better than the two models only using either the direct or indirect measure of aesthetic taste.

	Model 1		Model 2		Model		Model 4	
	including **only direct measures** of aesthetic taste		including **only indirect measures** of aesthetic taste		including **direct and indirect measures** of aesthetic taste		**without direct and indirect measures** of aesthetic taste	
number of observations	8120		8120		8120		8120	
Wald chi2	799.96		710.24		918.22		451.08	
Prob>chi2	0		0		0		0	
Log likelihood	-5082.02		-5140.63		-4994.44		-5306.61	
alternative 1: purchase ticket	**Coefficient**	**z-statistic**	**Coefficient**	**z-statistic**	**Coefficient**	**z-statistic**	**Coefficient**	**z-statistic**
taste_dir1	**1.25**	12.11	-	-	**0.72**	6.37	-	-
taste_dir2	**1.75**	13.25	-	-	**1.82**	13.56	-	-
taste_ind1	-	-	**3.49**	14.87	**2.48**	9.83	-	-
taste_ind2	-	-	**1.31**	8.44	**1.33**	8.35	-	-
taste_ind3	-	-	**0.29**	2.37	0.16	1.32	-	-
know_fake	-0.11	-1.48	**0.42**	6.58	**-0.18**	-2.31	**0.50**	8.27
attpre18_1	-0.03	-0.51	0.06	1.08	-0.05	-0.90	**0.13**	2.40
attpre18_2	**-0.25**	-4.06	**-0.12**	-1.93	**-0.25**	-4.01	-0.06	-1.07
att12mths_1	**0.32**	5.98	**0.37**	6.85	**0.26**	4.75	**0.50**	9.76
att12mths_2	**0.55**	6.17	**0.69**	7.56	**0.50**	5.39	**0.90**	10.59
female	0.06	1.18	0.08	1.56	0.02	0.34	**0.15**	2.97
age_1	**0.65**	3.77	**1.00**	5.87	**0.60**	3.42	**1.08**	6.49
educ_1	**0.29**	5.06	**0.38**	6.83	**0.31**	5.34	**0.37**	6.67
educ_2	0.07	1.08	**0.18**	2.62	0.08	1.21	**0.18**	2.72
inc_1	**0.37**	5.95	**0.36**	5.84	**0.38**	6.13	**0.31**	5.27
inc_2	**0.28**	4.06	**0.26**	3.84	**0.24**	3.42	**0.31**	4.61
constant	**-2.05**	-16.16	**-4.04**	-19.68	**-4.02**	-19.24	**-1.09**	-10.27
alternative 2: no purchase	base alternative		base alternative		base alternative		base alternative	

Table 31: Results of the binary logit choice models testing H1 and H2

Age is significant in all models, and this is consistent with prior literature. Being female does not affect the probability to purchase a theatre ticket. We included two dummies for education (Bachelor's degree and Postgraduate degree; base: no university education) and two dummies for income (high income, very high income; base: low-medium income) in all four models. The results are surprisingly consistent across the four models: *educ_1* (Bachelor's degree) has a significant effect with a similar coefficient in all four models, whereas *educ_2* (Postgraduate degree) has a small positive significant coefficient in two models. Income shows a consistent effect in all four models, namely that medium income has a positive significant effect on the probability to purchase a theatre ticket. This positive effect decreases somewhat as income increases.

6.1.1 Results for H1 and H2

Looking across all four models, *taste_dir1* and *taste_dir2*, the direct measures of aesthetic taste, are both positive and significant in the two models where we included them (Model 1 and Model 3). The indirect measures of aesthetic taste, *taste_ind1*, *taste_ind2* and *taste_ind3* are all significant and positive in Model 2. In Model 3 two out of the three indirect measures of aesthetic taste are significant and positive. In regard to testing H1, we thus find evidence that having aesthetic taste positively affects the probability of wanting to purchase a theatre ticket, independent of whether aesthetic taste is measured directly or indirectly.

The two dummies measuring exposure to the theatre in the past 12 months (*att12mths_1* and *att12mths_2*) are both significant and positive in all four models, although markedly smaller in the models that also contain measures of aesthetic taste. This indicates that past exposure in conventional models picks up some of the aesthetic taste effect (as a proxy variable) but that past exposure also has an effect over and above aesthetic taste development – a habit effect possibly – and that including direct and indirect measures of aesthetic taste helps in distinguishing these two effects. A real surprise is that we could not find a positive significant effect of childhood exposure in any of the models that account for aesthetic taste, but in fact, strong exposure as a child seems to have a small but significant *negative* effect on the probability to purchase a theatre ticket as an adult.

6.1.2 An alternative test of H1 and H2

We can also conduct an alternative analysis to test H1 and H2, using a regression analysis. If we assume that every choice set a respondent was faced with represents an independent choice situation, we can define the following indicator variable for every choice set k individual n saw in the survey:

$$\mathrm{I_{k,n}} = 1 \; if \; respondent \; n \; made \; a \; positive \; purchase \; decision \; in \; choice \; set \; k$$

$$0 \; otherwise$$

We then calculate a variable

$$c_{purchase_n} = \frac{\sum_{k=1}^{20} I_{k,n}}{20}$$

where the upper expression sums over the choice sets in which individual n made a positive purchase decision, and 20 is the number of choice sets in which respondent i indicated that he would actually purchase a ticket to the play he most preferred. The variable $c_{purchase_n}$ is thus the proportion of choice sets in which individual n made a positive purchase decision. Figure 13 shows the frequency distribution of $c_{purchase}$ over all 406 respondents.

Figure 14: Frequency distribution of $c_{purchase}$, the proportion of choice sets in which positive purchase decisions were made

Since the dependent variable $c_{purchase}$ has its highest proportions in the extremes (0 and 1), we treat it as a two-limit truncated variable and estimate tobit regression models, using as explanatory variables our direct measures of aesthetic taste, the indirect measures of aesthetic taste, variables of childhood exposure and exposure to the theatre in the previous 12 months, as well as age, general education and income. Again we run four different models: Models 1 and 2, including only direct or indirect measures of aesthetic taste respectively; Model 3, including both direct and indirect measures of aesthetic taste; and Model 4, without any measures of aesthetic taste. Table 32 shows the results of the four tobit regression models. As before, all models fit significantly better than a model without predictors (Prob>χ^2 = 0). Coefficients significant at p>=0.1 are highlighted in bold. Overall we

can see that the model that does not include any measures of aesthetic taste and knowledge has the worst fit (Model 4), whereas Model 1, which includes both direct and indirect measures of aesthetic taste and knowledge, has the highest LL and pseudo-R2.

	Model 1 including **only direct measures** of aesthetic taste		Model 3 including **only indirect measures** of aesthetic taste		Model 1 including **direct and indirect measures** of aesthetic taste		Model 4 **without direct and indirect measures** of aesthetic taste	
number of observations	406		406		406		406	
LR chi2	106.02		92.43		127.61		53.08	
Prob>chi2	0		0		0		0	
Log likelihood	-231.46		-238.26		-220.67		-257.93	
McFadden's Pseudo R2	0.186		0.163		0.224		0.093	
	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
taste_dir1	**0.38**	*4.58*	-		**0.22**	*2.57*	-	
taste_dir2	**0.46**	*4.47*	-		**0.47**	*4.69*	-	
taste_ind1	-		**1.00**	*5.39*	**0.68**	*3.58*	-	
taste_ind2	-		**0.37**	*2.96*	**0.36**	*2.97*	-	
taste_ind3	-		0.05	*0.47*	0.02	*0.16*	-	
know_fake	-0.01	*-0.14*	**0.13**	*2.53*	-0.03	*-0.50*	**0.16**	*3.14*
attpre18_1	**0.01**	*0.16*	0.03	*0.60*	0.00	*0.01*	0.05	*1.06*
attpre18_2	**-0.07**	*-1.50*	-0.03	*-0.72*	-0.07	*-1.54*	-0.02	*-0.37*
att12mths_1	**0.09**	*2.20*	**0.11**	*2.57*	**0.08**	*1.86*	**0.15**	*3.36*
att12mths_2	**0.13**	*1.86*	**0.17**	*2.33*	0.11	*1.58*	**0.24**	*3.32*
female	0.02	*0.38*	0.02	*0.50*	0.00	*0.03*	0.05	*1.04*
age_1	**0.21**	*1.57*	**0.30**	*2.15*	0.19	*1.42*	**0.34**	*2.35*
educ_1	**0.08**	*1.77*	**0.11**	*2.38*	**0.08**	*1.90*	**0.11**	*2.20*
educ_2	**0.02**	*0.40*	0.05	*0.90*	0.02	*0.45*	0.05	*0.87*
inc_1	**0.08**	*1.75*	**0.08**	*1.69*	**0.08**	*1.76*	0.08	*1.51*
inc_2	**0.08**	*1.43*	0.08	*1.36*	0.07	*1.25*	0.09	*1.55*
_cons	**-0.11**	*-1.10*	**-0.65**	*-4.08*	**-0.61**	*-4.03*	**0.16**	*1.71*
/sigma	0.368		0.376		0.357		0.397	
Observation summary								
39 left-censored observations at purchase_p~p<=0								
308 uncensored observations								
59 left-censored observations at purchase_p~p>=1								

Table 32: Results of the tobit regression models testing H1 and H2

Comparing the results of the tobit regressions with the binary logit models, we can see that both analyses lead to similar results in terms of coefficients. One observation that can be made is that the model excluding any measures of aesthetic taste performs quite poorly, in comparative terms.

6.2 Aesthetic taste and general preference heterogeneity within a cultural goods category: Model results

Now we will start looking at the choice data as such rather than just at the binary decision of whether to purchase a ticket to a play (as in 6.1). For the analysis, we use the software program STATA and set up the data in the stacked format. Each respondent answered 20 choice sets, with each choice set consisting of 4 theatre plays where one had to be picked as most preferred, and the additional question "Would you actually buy the ticket you ticked as most preferred?" the answer to which we use as a fifth, the "none" alternative. If the respondent ticked "no" to the question, we assume that the respondent chose not to purchase any ticket in the choice set. If she ticked yes, we use the actual response given (whichever play she chose in that choice set). We duplicate each observation (n=406) 100 times (20 choicesets * 5 alternatives), so that each respondent now has 100 rows in the dataset and the total dataset has 40,600 rows, one row for each completed choice set.

The first model we estimate is a simple multinomial logit model where we treat the data as if there was only one attribute with 17 levels (the 16 plays + the "none" alternative) in the model to see whether the utilities for the different attribute levels do actually differ. As we can see from the results table (Table 33), all levels are significant, meaning that the different plays differ in their utility significantly. We used the "none" as base level, which means that all coefficients need to be interpreted in relation to the "none" alternative. All coefficients of the MNL model are negative, which implies that out of the 17 levels, the "none" alternative was chosen most often (which in fact happened in 43 percent of choice sets). This is not surprising since theatre plays are rather expensive goods that are not as frequently consumed as other goods (e.g. food, transport). In fact, this could be interpreted as a sign of quality of the data in that it reflects real choices. The closer a play coefficient is to 0, the more popular the play was amongst respondents; the further away the coefficient is from 0, the less popular.

play	Coef.	z
n (observations)	40600	
LR chi2 (16)	2976.48	
Prob > chi2	0	
Log likelihood	-11580.4	
play	Coef.	z
1	-1.43	-19.57
2	-1.29	-18.66
3	-1.21	-17.97
4	-0.92	-15.26
5	-0.89	-14.81
6	-0.77	-13.41
7	-1.52	-20.16
8	-0.57	-10.5
9	-1.84	-21.26
10	-1.43	-19.64
11	-1.39	-19.46
12	-1.07	-16.76
13	-0.73	-12.93
14	-1.95	-21.56
15	-0.40	-7.66
16	-1.51	-19.99
99	base	

Table 33: Results of the multinomial logit model with plays only

For our convenience we can plot the coefficients to get a visual impression of how popular each play was amongst respondents overall. We can see from Figure 14 that plays 15 and 8 are the plays most likely to be chosen by respondents (they are closest to 0). Play 15 was written by Noël Coward, the playwright with the greatest number of respondents who knew him of all playwrights participating in the experiment. Play 8 was titled 'A Picasso', a reference to the very well-known French artist. Other popular plays include play 4 (written by Tim Winton, a rather famous Australian author), and plays 5, 6, and 13 (all comedies). Plays 9 (a drama) and 14 (a play about an artist) were least popular amongst respondents (furthest away from 0).

Figure 15: Graphical representation of the coefficients of the MNL model including only alternative-specific constants

6.2.1 RESULTS FOR H3 AND H4

Whilst the results above are surely interesting, we want to test our hypotheses. So, initially we will test H3:

H3: Aesthetic taste significantly contributes to explaining taste heterogeneity for cultural goods.

The utility functions we estimate are identical in their independent variables to the binary logit model estimated earlier, the only difference being that now we estimate utility functions based on the difference between each of the 16 plays included in the discrete choice experiment, represented by their respective attribute level, and the "none" alternative:

$$U_w = k_{w0} + k_{w1}aestaste + k_{w2}attpre18 + k_{w3}att12mths + k_{w4}female + k_{w5}age + k_{w6}educ$$
$$+ k_{w7}inc$$

where w denotes the specific play or the "none" alternative. In discrete choice models, case-specific variables (that is, in our case, characteristics of the individuals such as gender, age, etc.) cannot be simply included as independent variables in the model. Instead, we can interact case-specific variables (covariates) with the alternative-specific constants in the MNL model (the plays).

As before, two models will be estimated using alternative measures of taste. In addition, we will estimate a third model that includes both direct and indirect measures of

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taste. We will also estimate the model that only includes those socio-demographic variables conventionally used:

$$U_v = k_{v0} + k_{v2}attpre18 + k_{v3}att12mths + k_{v4}female + k_{v5}age + k_{v6}educ + k_{v7}inc$$

so that model performance can be compared.

Model 4 is the conventional model generally used to estimate demand for cultural goods. Model 1 includes only our direct measures of aesthetic taste, and Model 2 includes only the indirect measures of aesthetic taste, obtained from the PCA earlier. Model 3 is the full model, with both direct and indirect measures of aesthetic taste as well as past attendance included. All models also include a variable capturing people who might have given incorrect answers in the survey (*know_fake*). Figure 15 shows the model fit statistics for each of the 4 models.

	Model 1	Model 2	Model	Model 4
	including **only direct measures** of aesthetic taste	including **only indirect measures** of aesthetic taste	including **direct and indirect measures** of aesthetic taste	**without direct and indirect measures** of aesthetic taste
number of observations	8120	8120	8120	8120
Wald chi2	1499.25	1440.6	1715.69	1095.38
Prob>chi2	0	0	0	0
Log likelihood	-10717.50	-10759.06	-10562.22	-10987.19

Figure 16: Results of the MNL models testing H3 and H4

The Wald test confirms that all models are better than a model that includes only the constants (the 16 plays plus the "none" alternative). We can further see that the log likelihood values at convergence for the models are quite different. To test whether the models with the higher log likelihood values are significantly better than the models with the lower log likelihood values, we perform likelihood ratio (L-ratio) tests. We use Model 4 as base model, and perform the L-ratio test for all other models to test whether the additional variables measuring aesthetic taste significantly improve the model fit. The L-ratio test statistics are (base Model 4): 539.39 (for Model 1); 456.27 (for Model 2); and 849.94 (for Model 3). All restrictions tests for these variables significantly reject the restrictions to zero. In other words, all models that include any measures of aesthetic taste perform better than the model without such measures. Next, we want to see whether the full model (including direct and indirect

measures of aesthetic taste) performs significantly better than models that include only one of the two measures. Two L-ratio tests reveal that Model 3 performs significantly better than Model 1 (310.54) and Model 2 (393.67). We can thus conclude that analysis of our data supports H6.

We now turn to test H4:

H4: Familiarity significantly contributes to explaining taste heterogeneity for cultural goods.

Models that exclude variables measuring familiarity (*att12mths*, *attpre18*) were estimated to see whether such exclusion significantly worsens model fit. Specifically, Models 5, 6 and 7 were specified with all independent variables identical to Models 1, 2 and 3 apart from those variables measuring familiarity (see Table 34 for an overview of all models estimated). All L-ratio tests comparing Models 5, 6 and 7 with Models 1, 2 and 3 respectively, show the familiarity variables to be statistically significant (see L-ratio tests 4, 5 and 6 in Table 34). What this clearly shows is a separate effect of aesthetic taste and past exposure (familiarity) on choice for cultural goods.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Covariates included in the model							
taste_dir1, taste_dir2	1	0	1	0	1	0	1
taste_ind1, taste_ind2, taste_ind3	0	1	1	0	0	1	1
attpre18_1, attpre18_2, att12mths_1, att12mths_2	1	1	1	1	0	0	0
Other covariates included in all the models	know_fake, female, age, education, income						
Model fit statistics							
number of cases	8120	8120	8120	8120	8120	8120	8120
Wald chi2	1499.25	1440.6	1715.69	1095.38	1283.92	1210.73	1517.94
Prob>chi2	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Log likelihood	-10717.50	-10759.06	-10562.22	-10987.19	-10842.88	-10894.94	-10683.19
Likelihood ratio tests							
L-ratio test 1	539.39	456.27	849.94	base			
Prob > chi2	0.000	0.000	0.000				
L-ratio test 2	base		310.54				
Prob > chi2	-		0.000				
L-ratio test 3		base	393.67				
Prob > chi2		-	0.000				
L-ratio test 4			241.93				base
Prob > chi2			0.000				-
L-ratio test 5	250.77				base		
Prob > chi2	0.000				-		
L-ratio test 6		271.76				base	
Prob > chi2		0.000				-	

Table 34: Overview of models estimated to test H3 and H4, model results and L-ratio tests

We now take a closer look at the specific model results. The coefficients and odds ratios for all seven models can be found in Appendix 1. The odds ratio tells us how much more likely a respondent is to pick a particular play if he has a certain characteristic.

The first model results we will discuss in detail are in regard to Model 4. This is the model that contains only those explanatory variables conventionally used in economic analysis of consumer demand for cultural goods and services (see Table 34 for the variables that are included in Model 4). Model 4 is the model with the lowest log likelihood (i.e. the worst fitting model) out of all seven models estimated. Below we show the odds ratio for Model 4 (Table 35) and those odds ratios that are significant at p<=.1 are displayed in bold. Generally, an odds ratio of 1 means that this particular characteristic of the respondent does not influence the choice of theatre tickets in any way. An odds ratio of below 1 means that

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respondents with that particular characteristic are less likely to choose that particular play, whereas an odds ratio of above 1 means that they are more likely to choose that play. For example, an odds ratio of 1.65 for female and play 1 means that female respondents are 1.65 times more likely to choose play 1 than are male respondents.

play	know_fake	attpre18_1	attpre18_2	att12mths_1	att12mths_2	female
1	**2.27**	1.31	0.80	**1.63**	**2.40**	**1.65**
2	1.02	1.06	1.00	**1.82**	**1.61**	1.00
3	**2.23**	0.98	0.99	**1.58**	**3.79**	0.99
4	**2.75**	**0.71**	**1.52**	**1.69**	**2.28**	**1.34**
5	**1.64**	**1.28**	**0.60**	**1.56**	**1.56**	**1.66**
6	**1.43**	**0.72**	1.10	**1.46**	**2.76**	**1.94**
7	**3.04**	0.81	0.81	**1.36**	**2.45**	1.01
8	**1.42**	0.97	**1.60**	1.13	**1.81**	1.14
9	**2.45**	1.10	**0.64**	**2.03**	**2.40**	0.93
10	**1.85**	**1.62**	**0.71**	1.11	**1.74**	1.02
11	**1.94**	1.01	1.03	**1.96**	**2.14**	0.87
12	**2.09**	**1.29**	**0.68**	**2.19**	**3.36**	0.88
13	1.10	**1.83**	**0.73**	**1.52**	**2.55**	1.20
14	**1.86**	1.02	1.01	**2.01**	**3.21**	0.84
15	0.84	**1.34**	1.23	**2.44**	**3.71**	1.17
16	1.34	**1.92**	**0.57**	**2.18**	**2.83**	0.84

play	age_1	educ_1	educ_2	inc_1	inc_2
1	**9.57**	1.00	0.87	1.19	**1.73**
2	**0.26**	**1.93**	**1.50**	**1.62**	**1.41**
3	0.54	1.43	**1.04**	1.18	1.19
4	**6.44**	**1.45**	**1.35**	**1.76**	**1.87**
5	**3.93**	**1.44**	1.29	1.08	0.95
6	**11.40**	**1.79**	0.88	**1.76**	**1.74**
7	**4.82**	**1.84**	**1.78**	**1.56**	1.30
8	**3.77**	**1.86**	**1.57**	**1.38**	1.18
9	1.64	**1.54**	1.45	**2.26**	**1.54**
10	**0.23**	0.85	1.02	**1.78**	**1.61**
11	0.62	**1.37**	1.25	1.33	**1.52**
12	**0.20**	**1.33**	0.87	1.01	**1.73**
13	1.57	1.21	1.02	0.93	1.28
14	**8.06**	**2.21**	1.37	1.35	0.99
15	**39.07**	**1.59**	**1.54**	**1.69**	**1.51**
16	**28.68**	0.88	0.80	1.15	0.95

Table 35: Odds ratios of Model 4, the MNL model with only conventional covariates included

The variable *know_fake*, indicating whether respondents said that they knew the fake playwright in an earlier question in the survey, is significantly positive for most of the plays.

This is not surprising and simply an indication that our intention of capturing "yea-sayers" works.

Turning to the next two covariates included in the model, *attpre18_1* and *attpre18_2*, the two variables capturing theatre attendance as a child, we see from Table 35 that the results are not very conclusive. Some plays seem to be chosen more often than others by people with childhood exposure, whereas other plays less often.

We can see that *att12mths_2* is greater than 1 and significant for all 16 plays, and *att12mths_1* for all but 2 plays. The way to interpret these results is that high past attendance in the last 12 months leads to a significantly higher likelihood of choosing all of the plays. For example, we can say that respondents who have been to the theatre 5 or more times in the past 12 months are 3.79 times more likely to choose play 3 than people who haven't been to the theatre that often in the past 12 months. Plays 3, 12, 14 and 15 are the plays with the highest odds ratios. The effect seems to be exponential in most cases, since the odds ratio for "a lot of exposure" (*att12mths_2*) is greater that the coefficient for "some exposure" in the past 12 months (*att12mths_1*).

Being female makes it somewhat more likely to choose plays 1, 4, 5 and 6 but is insignificant otherwise. Being older increases the odds of choosing plays 6, 1, and particularly 15 and 16 drastically. We restricted the age variable between 0 and 1 by dividing the actual age by 100, which explains the high odds ratios. What an odds ratio of 39.07 for play 15 means is that a very old person (100 years old) is 39.07 times more likely to choose play 15 than a very young person (e.g. 18 years of age).

We can also see from the odds ratios for education and income that higher education and income in general increases the odds of choosing a theatre play, although not for every play on offer. Note that the odds ratio for *educ_2* (Postgraduate degree) is generally a bit lower than the odds ratio for *educ_1*.

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Now we will look at the results for Model 3, the full model that includes direct and indirect measures of aesthetic taste. It will be interesting to compare the odds ratios between Model 4 and Model 3 for the covariates they share.

Note that Table 36 only displays the odds ratios for Model 3 for those variables that were also included in Model 4.

When we compare the odds ratios for Model 3 (Table 36) to the ones from Model 4 we can immediately see that the odds ratios are very similar for some variables (such as female, education and income), and relatively similar for childhood exposure, but quite different for others. Comparing the odds ratios for age, they are similar but generally smaller. There are three variables, the odds ratios of which are very different between Model 4 and Model 3: *att12mths_1*, and *att12mths_2* and *know_fake*. For the variables *att12mths_1* and *att12mths_2*, not only are there several odds ratios, now that we have included measures of aesthetic taste, smaller than in Model 4, but many of the odds ratios that were originally significant, are no longer so in this model.

The fact that the odds ratios for *know_fake* are less significant for several plays in Model 3 could be an indication that respondents who indicated that they knew the fake playwright also scored high on our measures of aesthetic taste, which affects the quality of the data somewhat.

Play	know_fake	attpre18_1	attpre18_2	att12mths_1	att12mths_2	female
1	0.79	1.06	**0.60**	1.19	1.35	**1.49**
2	**0.56**	0.89	0.83	**1.40**	1.04	0.89
3	1.07	0.83	0.82	1.25	**2.58**	0.87
4	0.82	**0.52**	1.11	1.23	1.12	1.17
5	1.05	1.11	**0.55**	**1.37**	1.29	**1.45**
6	**0.63**	**0.59**	0.91	1.19	**2.04**	**1.68**
7	1.35	**0.64**	**0.63**	1.04	1.34	0.90
8	**0.62**	**0.76**	**1.29**	**0.80**	1.04	0.97
9	1.17	0.91	**0.54**	**1.62**	1.60	0.83
10	0.98	1.34	**0.56**	0.83	1.05	0.89
11	1.13	0.84	0.85	**1.53**	1.37	**0.76**
12	1.28	1.11	**0.59**	**1.82**	**2.44**	**0.76**
13	**0.68**	**1.60**	0.66	**1.28**	**2.07**	1.05
14	0.93	0.83	0.80	**1.59**	**2.00**	**0.70**
15	**0.44**	1.11	1.01	**1.91**	**2.35**	1.06
16	0.84	**1.79**	**0.53**	**1.78**	**2.47**	**0.76**

Play	age_1	educ_1	educ_2	inc_1	inc_2	
1	**6.21**	0.88	0.74	1.29	**1.71**	
2	**0.17**	**1.82**	1.35	**1.75**	1.33	
3	**0.33**	**1.34**	0.94	1.30	1.13	
4	**4.06**	**1.31**	1.19	**1.92**	**1.77**	
5	**2.63**	**1.40**	1.23	1.13	0.88	
6	**6.52**	**1.66**	0.81	**1.89**	**1.59**	
7	**3.10**	**1.76**	**1.58**	**1.71**	1.26	
8	**2.15**	**1.73**	**1.41**	**1.53**	1.05	
9	0.95	**1.51**	1.30	**2.52**	**1.50**	
10	**0.14**	0.80	0.90	**1.97**	**1.56**	
11	**0.41**	**1.33**	1.16	**1.44**	**1.44**	
12	**0.13**	**1.35**	0.84	1.08	**1.64**	
13	1.01	1.15	0.95	0.98	1.16	
14	**5.05**	**2.12**	1.27	1.42	0.93	
15	**26.36**	**1.48**	**1.42**	**1.83**	**1.45**	
16	**21.00**	0.85	0.76	1.20	0.81	

Table 36: Selected odds ratios of Model 3, the "full" MNL model (results significant at p<= 0.1 in bold)

6.2.2 Results for H5

Table 37 shows the odds ratios for those covariates included in Model 7 that were not included in Model 4.

Play	taste_dir1	taste_dir2	taste_ind1	taste_ind2	taste_ind3
1	1.14	**21.58**	**25.33**	**3.04**	1.49
2	**3.78**	**4.53**	3.25	1.10	1.25
3	**2.93**	**7.25**	**3.74**	**2.75**	1.15
4	1.15	**31.59**	**121.27**	**5.59**	1.01
5	1.35	**3.01**	**11.95**	**6.40**	0.75
6	**1.95**	**10.06**	**6.38**	**6.23**	0.80
7	0.62	**8.80**	**282.94**	**3.99**	1.55
8	**3.08**	**9.89**	**23.09**	**7.52**	**2.46**
9	0.66	**8.26**	**74.75**	**9.72**	1.47
10	**3.97**	**5.05**	**9.69**	1.67	1.21
11	**2.88**	**3.76**	**15.82**	**2.36**	0.99
12	1.32	**2.93**	**46.11**	**6.17**	0.78
13	**2.89**	**4.15**	1.92	**5.20**	1.33
14	**4.22**	**4.66**	**18.01**	1.78	0.46
15	**3.10**	**5.28**	**6.59**	1.23	1.06
16	1.12	**4.85**	**5.57**	**17.18**	**3.32**

Table 37: Odds ratios of Model 3 for variables not included in Model 4 (results significant at p<= 0.1 in bold)

These odds ratios can be used to test Loewenstein and Angner's (2003) hypothesis (see Section 3.3.4), namely:

H5: There exists at least one alternative in the choice set, for which people who have developed aesthetic taste s_c have a lower utility than people with either no or low aesthetic taste, ceteris paribus.

We observe that all significant odds ratios for aesthetic taste variables are greater than 1. The only two odds ratios that are below 1 are both insignificant. Our results thus do not support the hypothesis that preferences become more discriminating when people acquire higher levels of aesthetic taste, at least not in the case of theatre plays. If that was true for this dataset, we would see some odds ratios that were significantly higher for some plays and some that were lower than 1 for other plays. In fact, *taste_dir2* increases the odds for all plays, and *taste_ind1*, the first principal component of the indirect measures is also positive and significant for all but two plays.

6.2.3 Results for H6

Defining the omnivore hypotheses in terms of the data used in this thesis, leads to the following hypothesis:

H6: People with higher levels of aesthetic taste are more omnivorous, meaning that they are open for a wider variety of cultural goods within one cultural goods category.

Since each of the 16 plays used in the choice experiment was presented 5 times, we can calculate each k play's choice probability for every respondent n. We then count the number of plays that have a choice probability greater than 0 by creating an indicator variable for every respondent n and play k:

$$I_{cp_{n,k}} = 1 \; if \; \frac{number\ of\ times\ play\ k\ was\ chosen_n}{5} > 0$$

$$= 0 \; otherwise$$

and then sum over all plays for respondent n:

$$sum_{pos_{cp_n}} = \sum_{k=1}^{16} Icp_{n,k}$$

The dependent variable in the analysis $sum_{pos_{cp_n}}$ is thus the number of plays that have a greater than 0 probability of the respondent choosing it (Figure 16 shows the frequency distribution of $sum_{pos_{cp_n}}$). We conduct ordinary least squares regression analysis to test H6. As before, we estimate four models, including/excluding our direct and indirect measures of aesthetic taste. Table 38 shows the results.

Figure 17: Frequency distribution of $sum_{pos_{cp_n}}$

	Model 1		Model 2		Model 3		Model 4	
	including **direct and indirect measures** of aesthetic taste and theatre knowledge		including **only indirect measures** of aesthetic taste and theatre knowledge		including **only direct measures** of aesthetic taste and theatre knowledge		**without direct and indirect measures** of aesthetic taste and theatre knowledge	
number of observations	406		406		406		406	
F	7.73		7.18		8.17		6.12	
Prob>F	0		0		0		0	
Adj. R2	0.21		0.18		0.19		0.12	
Root MSE	2.881		2.942		2.922		3.037	
	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic	Coefficient	t-statistic
taste_dir1	**1.45**	2.15	-		**2.43**	3.87	-	
taste_dir2	**2.43**	3.11	-		**2.44**	3.11	-	
taste_ind1	**4.95**	3.35	**6.83**	4.86	-		-	
taste_ind2	1.52	1.61	**1.65**	1.75	-		-	
taste_ind3	0.48	0.64	0.67	0.89	-		-	
know_fake	**0.80**	1.78	**1.61**	4.23	**0.90**	2.00	**1.82**	4.75
attpre18_1	-0.27	-0.79	-0.11	-0.33	-0.22	-0.65	0.04	0.11
attpre18_2	**-0.73**	-2.02	-0.55	-1.49	**-0.69**	-1.90	-0.40	-1.08
att12mths_1	**0.57**	1.71	**0.76**	2.24	**0.73**	2.19	**1.06**	3.14
att12mths_2	**0.93**	1.71	**1.25**	2.27	**1.20**	2.27	**1.84**	3.43
female	0.13	0.41	0.23	0.74	0.18	0.58	0.36	1.09
age_1	1.05	1.01	1.62	1.55	1.14	1.08	**1.84**	1.71
educ_1	0.22	0.64	0.36	1.03	0.19	0.56	0.34	0.95
educ_2	-0.38	-0.92	-0.24	-0.57	-0.37	-0.89	-0.21	-0.49
inc_1	**0.97**	2.64	**0.97**	2.57	**0.95**	2.55	**0.90**	2.34
inc_2	**0.93**	2.27	**0.98**	2.34	**0.98**	2.37	**1.06**	2.45
_cons	**-2.36**	-2.01	**-2.56**	-2.14	1.05	1.42	**2.70**	3.96

Table 38: Results of the OLS regressions testing H6

We can reject the null hypothesis, that aesthetic taste has no effect on the breadth of respondents' tastes. The direct measures of aesthetic taste as well as the indirect measures

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(apart from *taste_ind3*) are significant and positive. Interestingly, education is not significant, but income is always significant with a linear effect. Past attendance seems to have an independent effect on the breadth of tastes in all models, possibly indicating theatre-going as a habit.

6.3 Aesthetic Taste explaining choice of aesthetic versus entertaining goods: Model results

In this section the two hypotheses formulated in regard to aesthetic qualities in theatre plays will be tested, as well as the hypothesis that tests for the existence of two specific groups of consumers:

H7: There is a positive relation between aesthetic taste s_c and the strength of the aesthetic character of a cultural good, X_{q_c}, such that, ceteris paribus, people who have developed aesthetic taste prefer cultural goods with a strong aesthetic character to cultural goods with only a weak aesthetic character or are indifferent between them.

H8: Familiarity with cultural good c has no or only a low significantly positive relation with the strength of the aesthetic character of a cultural good, X_{Q_c}.

H9: Amongst others, we can distinguish two groups of consumers who differ in their preferences for cultural goods: consumers who have a high level of past exposure (familiarity) but low aesthetic taste (aficionado consumers), and consumers who have high levels of past exposure and high levels of aesthetic taste (expert consumers).

In Chapter 5 we developed different measures of aesthetic qualities than can be included in analysis. In addition however, to separate the effect of aesthetic qualities on choice behaviour from the effect of other characteristics of a theatre play, we also want to include attributes other than aesthetic qualities in our analysis.

As already mentioned earlier, this thesis did not create attribute-combinations as alternatives to be used in the choice experiment, but used the theatre plays as they were presented in the market.

In addition, a conscious decision was made to not include any explicit indicators of aesthetic qualities in the experiment, such as a "word of mouth" or "popularity" ratings, "experts' recommendations" or any other explicit aesthetic qualities indicator variable. This decision was made for two reasons: firstly, to add realism to the experiment, since often reviews or popular opinions about plays are not available for all plays or not at the time when one intends to book tickets to a play; and secondly, because the focus of this study is aesthetic taste as it relates to aesthetic qualities, rather than herding behaviour or social influence, and with variables such as "word of mouth" or "experts' recommendations" one would confound the effect of social influence with the aesthetic taste effect. It would definitely be very interesting to repeat this study and include popularity ratings and/or experts' recommendations, in order to compare the results with this study.

Despite the fact that theatre plays were not broken down into attributes prior to conducting the discrete choice experiment, we are interested in the effect of play attributes and attribute levels on respondents' choices. In particular of course, in the effect of aesthetic qualities. Thus, we proceed to break the plays down into attributes *after* the experiment took place, at the stage of analysis, where we can also use some of the responses given by respondents to generate the attributes to be used in the analysis. Doing so obviously leads to individual attributes being generated that are somewhat correlated. This is a drawback; however, it is a common evil in revealed preference studies.

6.3.1 ATTRIBUTES OF THE THEATRE PLAYS

For our choice analysis we code several attributes that describe the 16 theatre plays to use in subsequent analysis after conducting the choice experiment (Table 39).

Description of the attributes	Attribute name
=1 if a play alternative, 0 = none alternative	gotheatre
average familiarity with the playwright	playwright
average familiarity with the venue	thvenue
ticket price	tickprice
play intro text makes reference to a romantic or sexual relationship	romance
play intro text makes reference to some sort of catastrophic event	catastrophic
play intro text makes reference to an artist/an artistic profession	artistic
play description suggests a *critical reflection on issues in politics or society*	critical
play description suggests *comedic elements* in the play	comedic
play description suggests *tragic elements* in the play	tragic
play description suggests that the play deals with *introspection into the human psyche*	psychol
play description contains a medium number of aesthetic attributes	aestattr1
play description contains a high number of aesthetic attributes	aestattr2
play description promises strong aesthetic qualities	aestqual
star rating received by theatre reviewer from *Sydney Morning Herald*	smh_stars
star rating received by *Timeout* magazine	to_stars

Table 39: Attributes used in the discrete choice analysis to test H7, 8 and H9

The individual attributes used are described in detail below. The coding of the variables assessing aesthetic qualities in theatre plays, *aestqual*, *smh_stars1*, *smh_stars2*, *to_stars1* and *to_stars2* was described in Section 5.5.

6.3.1.1 ALTERNATIVE-SPECIFIC CONSTANT *GOTHEATRE*

It is common in choice experiments to include so-called alternative-specific constants (ASC) which in our case refer to the individual plays. In the case of post-coded attributes (that is, attributes that are coded *after* the DCE took place) however, it is not useful to include an ASC for every play in the analysis since the attributes we code below do not vary within an alternative (i.e. in estimating the model, all attributes would be dropped from the analysis because of being perfectly correlated with the ASCs). We thus include only one alternative specific constant in the analysis: *gotheatre* = 1 if a respondent chooses a play ad 0 if he chooses the "none" alternative in a particular choice set.

6.3.1.2 AVERAGE FAMILIARITY WITH THE PLAYWRIGHT (ATTRIBUTE *PLAYWRIGHT*)

In addition to the choice task the survey also asked respondents about their familiarity with the playwrights of the 16 plays used in the DCE. The responses given can be used to construct an attribute *playwright* to generate a general "familiarity with playwright" attribute that captures how much respondents are influenced by the *average* "fame" of a playwright where the average fame is taken from answers given by the respondents to the survey. To that end we look at the proportion of respondents who know some of the playwright's work or have hard the playwright's name before (Table 40): two of the 16 playwrights, Noël Coward and Tim Winton, were substantially more well-known than the others. Another four of the 16 playwrights were known at least by their name by roughly 40 percent of respondents. The remaining 12 playwrights were relatively unknown amongst the respondents. We thus code two dummy variables *playwright_1* (somewhat well known) and *playwright_2* (well known) as shown in Table 40.

Play	Playwright	I know some of the playwright's work	I have heard the playwright's name before	Totally unknown to me	Total	Variables coded	
						play-wright_1	play-wright_2
		(in percent, n=406 respondents)					
15	Noël Coward	43.4	21.7	35.0	100.0	0	1
4	Tim Winton	34.2	28.3	37.4	100.0	0	1
10	Dan Giovannoni	12.1	25.4	62.6	100.0	1	0
6	Jonathan Biggins	10.0	31.8	58.4	100.0	1	0
8	Jeffrey Hatcher	9.1	28.6	62.3	100.0	1	0
1	Hilary Bell	9.0	25.9	65.5	100.0	1	0
3	Toby Schmitz	6.2	16.0	77.8	100.0	0	0
2	DBC Pierre	5.9	17.7	76.4	100.0	0	0
5	Elise Hearst	5.0	17.5	77.6	100.0	0	0
12	Laura Eason	5.0	15.8	78.8	100.0	0	0
7	David Farr	4.9	25.4	69.7	100.0	0	0
14	John Logan	4.9	16.0	79.1	100.0	0	0
16	Jackie Smith	4.7	15.8	79.6	100.0	0	0
9	Ian Meadows	3.9	20.0	76.1	100.0	0	0
11	Mirra Todd	3.2	17.0	79.8	100.0	0	0
13	Chris Aronsten	2.7	16.5	80.8	100.0	0	0

Table 40: Coding of attribute *playwright*, the average familiarity with the playwrights of the 16 plays

6.3.1.3 AVERAGE FAMILIARITY WITH THE THEATRE VENUE (ATTRIBUTE *THVENUE*)

The same re-coding as above for playwrights can also be applied to the venues in which the 16 plays took place, since another question in the survey asked respondents about their familiarity with theatre venues in Sydney (see Table 41 for summary statistics of how well known venues are). As with the information captured on familiarity with playwrights, the responses given about familiarity with theatre venues can be used to construct a general "familiarity with venue" attribute that captures how much respondents are influenced by the *average* "fame" of a venue. Two of the venues were not included in the survey: the Sydney Opera House and the Bondi Pavilion, so they require some assumptions to be made as stated below. The Sydney Opera House is a major world-renowned landmark, so it can be assumed that respondents to the survey (who are residents of Sydney) are familiar with it. Another venue that is known to the vast majority of respondents is the Sydney Theatre. These two venues form a category of well-known venues (*thvenues_2*). Three of the plays'

venues are known by a substantial number of respondents and thus form a separate category of somewhat well-known venues. All other venues are less well-known (*thvenue_1*). For the venue Bondi Pavilion, which was also not included in the question on familiarity with theatre venues, it is assumed that it belongs to the category of less well-known theatre venues.

Play	Venue of the play	Have attended a play at this venue	Heard the venue's name	Totally unknown to me	Total	Variables coded	
						th-venue_1	th-venue_2
		(in percent, n=406 respondents)					
4, 6	Sydney Opera House	Was not included in the survey				0	1
7	Sydney Theatre	65.8	30.5	3.7	100.0	0	1
1, 12	The Wharf Theatre	41.6	37.2	21.2	100.0	1	0
15	Belvoir Street Theatre	40.4	31.0	28.6	100.0	1	0
8, 14	Ensemble	32.0	31.3	36.7	100.0	1	0
3	Bondi Pavilion	Was not included in the survey				0	0
16	Glen Street Theatre	23.4	30.8	45.8	100.0	0	0
13	Darlinghurst Theatre	22.4	45.6	32.0	100.0	0	0
11	Carriageworks	21.4	40.9	37.7	100.0	0	0
2	New Theatre	14.8	30.5	54.7	100.0	0	0
5, 9	SBW Stables Theatre/ Griffin Theatre	11.3	25.6	63.0	100.0	0	0
10	The Old Fitzroy Hotel	10.6	34.2	55.2	100.0	0	0

Table 41: Coding of attribute *thvenue*, the average familiarity with theatre venues in Sydney

6.3.1.4 ATTRIBUTE PRICE

For every play in the choice task, four ticket prices (adult, student, pensioner, under-30) were presented. For the purpose of analysis we code the variable *tickprice* for every individual respondent and every play, such that each respondent is assigned the best price according to whether he is aged under 30, a student or a pensioner (we assume all respondents aged 65 or older are pensioners). Table 42 shows three categories of ticket prices that can be formed based on these individual ticket prices to be used in analysis. *tickprice_1* indicating medium price level, and *tickprice_2* indicating high price level.

Individual ticket price	*tickprice_1*	tickprice_2
less than $40	0	0
$40 or more but less than $60	1	0
$60 or more	0	1

Table 42: Coding of attribute *tickprice*

6.3.1.5 ATTRIBUTES OF THE PLAY TITLE AND INTRO: ROMANCE, CATASTROPHIC EVENT AND ARTISTIC

In order to capture the effect of the title and the plot introduction of the play, we break them into attributes that are common to several plays. Three descriptive attributes were found to capture a sufficiently large number of plays to be used in further analysis:

- attribute *romance*: captures whether a play's title or introductory text makes reference to a romantic or sexual relationship such as going out with somebody, having sex or going on a honeymoon.

- attribute *catastrophic*: captures whether a play's title or introductory text makes reference to a catastrophic event such as a high school shooting, a flood, a drought, a shipwreck or a war.

- attribute *artistic*: captures whether the play's title or introductory text makes reference to an artist or an artistic profession.

Play	Information shown in the discrete choice task		Coding of the attributes to capture effects of play title and play intro		
	Play title	Play intro	attribute *romance*	attribute *catastrophic*	attribute *artistic*
1	The Splinter	A mother and father celebrate: Eliza has returned. …	0	0	0
2	Vernon God Little	Vernon's best friend Jesus has just massacred his high school class…	0	1	0
3	I Want to Sleep with Tom Stoppard	Luke is going out with Sarah, a brilliant actress who's a bit …	1	0	1
4	Signs of Life	On a farm that has been parched by a drought of apocalyptic …	0	1	0
5	The Sea Project	Things are washing up on the shore: suitcases, spectacles, hair …	0	1	0
6	Australia Day	The small country town of Coriole. Does a sausage sizzle code as …	0	0	0
7	Water	Spanning 26 years, two generations and two continents, …	0	0	0
8	A Picasso	Paris, 1941. The underground bunker, where …	0	1	1
9	Between Two Waves	Having lost a lifetime of research in the worst floods …	0	1	0
10	Wrecking	Alana's planning a party, Miles is moving to the jungle, …	0	0	0
11	Fearless	Eleven characters inhabit the world of Fearless. Each character …	0	0	0
12	Sex with Strangers	Olivia, bookish, private and deeply disinterested in technology, …	1	0	0
13	The Lunch Hour	Six struggling artists. One call centre. A bunch of co-workers are …	0	0	1
14	Red	Mark Rothko, a brilliant artist. Ken, his new assistant. …	0	0	1
15	Private Lives	Amanda has just married Victor and gone on her honeymoon. …	1	0	0
16	The Flood	The farm house sits dark by the river, sheltering a mad old lady …	0	1	0

Table 43: Coding of attributes *romance*, *catastrophic* and *artistic* of plays' titles and plot introductions

Note that the three attributes were coded by the author of this thesis. A better approach to be pursued in future research would be to have these attributes coded by independent judges.

6.3.1.6 Attributes of the play description: Critical, Comedic, Tragic and Psychol

Approximately half of the respondents also saw, in addition to the play's title and plot introduction, the description of the play. The description of the play can also be broken down into attributes that are common to several plays. In addition to the three attributes that were already identified, just using the play's title and introductory text, another four descriptive attributes can help capture the description of the plays:

- attribute *critical*: whether the play description suggests a critical reflection on issues in politics or society.

- attribute *comedic*: whether the play description suggests comedic elements in the play.

- attribute *tragic*: whether the play description suggests tragic elements in the play.

- attribute *psychol*: whether the play description suggests that the play deals with introspection into the human psyche.

Table 43 shows in which plays the five attributes are present. If an attribute is not present in a play, the cell denotes a 0. If an attribute is present in a play, the cell cites the text from the description that is the reason for the attribute being present.

Play	Excerpts of the play descriptions that justify coding of the play as…			
	…critical reflection on issues in politics or society	…comedic	…tragic	…introspection into human psyche
1	0	0	"real life stories of abducted children", "an emotional thriller about all consuming obsession, grief, childhood and identity"	0
2	"lays bare the dysfunctional mess that underpins modern America"	"riotously funny", "a startling satire"	"on youthful isolation and the commercialisation of horror", "disturbing"	0
3	"questions the role that theatre plays in today's society"	0	0	"it is also about giving up on dreams"
4	0	0	"the dead speak with and watch over the living", "deeply searching"	0
5	0	"a joyous, poignant, and incredibly funny ride"	0	"an evocative, unique story of migration, memory, desire"
6	"political correctness", "pointing out our ugliest features"	"quint-essentially Aussie good humour", "wickedly funny"	0	0
7	0	0	"in an increasingly unstable world", "people's inability to connect on a personal level could have potentially catastrophic repercussions"	"explores man's desire to push himself to the limits"
8	"part history lesson, part intriguing debate about art, politics, sexuality and love"	"funny"	0	0
9	"warming world", "politically charged", "climate change backdrop"	0	"urgent and searching", "relationship drama"	"how do we find happiness in the face of an uncertain future"
10	"homelessness", "division of wealth"	0	"two aspects of the human condition that do not discriminate - desire and disappointment - intersect"	
11	0	0	"loneliness", "redemption and recovery"	0
12	0	0	0	"who we are in the digital age", "if our addiction to technology is turning us into twits"
13	0	"comedy", "hilarious"	0	"what we all do to get through the day – the

				distractions we create and the games that we play"
14	0	0	0	"deals intelligently with the trials of creativity"
15	"censors did their best to ban the play"	"wit"	0	"critique of modernity"
16	0	"a world of dark humour", "often funny"	"suspense and intrigue", "dark themes"	0

Table 44: Coding of attributes *critical, comedic, tragic* and *psychol* of play descriptions

As before, a drawback here is that these attributes were coded by the author of this thesis rather than by independent judges.

As noted earlier, only half the respondents were shown the play description. The original idea for doing so was to be able to estimate the distinct effect the play description had as a whole on choice (distinct from the individual attributes represented in the play description). However, the relatively small number of respondents does not allow us to do so. For those who did not see the play description, the attributes of the play description were set to 0, as for them the attribute is absent.

6.3.1.7 THE "NONE" ALTERNATIVE

As noted before, the question included in each choice task "Would you buy a ticket to the play you ticked as most preferred above?" was used at the state of analysis to create a fifth "none" alternative for each choice set. The attribute levels of the alternative "none" are coded as 0, which in the case of *playwright*, th*venue* and *tickprice* would equate to an unknown playwright, an unknown venue or the lowest price level, and in the case of the attributes of the play title/introductory text and the play description (*romantic, catastrophic, artistic, critical, comedic, tragic, psychol*) to the attribute being absent.

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6.3.2 RESULTS FOR H7 AND H8

Below again we state the two hypotheses that will be tested now:

H7: There is a positive relation between aesthetic taste s_c and the strength of the aesthetic character of a cultural good, X_{q_c}, such that, ceteris paribus, people who have developed aesthetic taste prefer cultural goods with a strong aesthetic character to cultural goods with only a weak aesthetic character or are indifferent between them.

H8: Familiarity with cultural good c has no or only a low significantly positive relation with the strength of the aesthetic character of a cultural good, X_{Q_c}.

We estimate a series of MNL models to test H7 and H8. Initially, we run a model without any information on respondents, just including the attributes as explained above. Since we have three different measures of aesthetic qualities, we run three models. Then we run three models that include interactions of the aesthetic qualities variable with the aesthetic taste variables. Thus, in total, six models are estimated that differ in the way in which aesthetic qualities in theatre plays were assessed and whether measures of aesthetic taste and familiarity were included as interactions with variables measuring aesthetic qualities. Model 7 is the conventional model where no measures of aesthetic taste or aesthetic qualities are included. Table 45 gives an overview of the models estimated. Coefficients significant at p<=0.1 are highlighted in bold.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Measures of aesthetic quality, aesthetic taste and familiarity included in the model							
measure of aesthetic qualities included	aestattr1, aestattr2	aestqual	smh_stars1, smh_stars2, to_stars1, to_stars2	aestattr1, aestattr2	aestqual	smh_stars1, smh_stars2, to_stars1, to_stars2	none
measure of aesthetic taste included by way of interaction with respective variables measuring aesthetic qualities	none			taste_dir1, taste_dir2, taste_ind1, taste_ind2, taste_ind3			none
measure of familiarity included by way of interaction with respective variables measuring aesthetic qualities	none			att12mths_1, att12mths_2			none
Model fit statistics							
Number of observations	40600	40600	40600	40600	40600	40600	40600
LR chi2	2842.76	2856.74	2928.29	3916.29	3901.21	4008	2796.94
Prob > chi2	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Log likelihood	-11647.26	-11640.27	-11604.49	-11110.49	-11118.03	-11064.63	-11670.16
Likelihood ratio tests							
L-ratio test	45.81						base
Prob> chi2	0.000						-
L-ratio test	base			1073.53			
Prob> chi2	-			0.000			
L-ratio test		base			1044.47		
Prob> chi2		-			0.000		
L-ratio test			base			1079.71	
Prob> chi2			-			0.000	

Table 45: Overview of MNL models estimated to test H7 and H8

In addition to interacting the measure of aesthetic taste and familiarity with the three alternative measures of aesthetic qualities, Models 4, 5 and 6 also include interaction terms between the measures of aesthetic taste and familiarity with *gotheatre*, the binary variable that indicates whether an alternative is a play or a "none" alternative. The reason for doing so is that it has been shown in earlier analysis that aesthetic taste and familiarity both affect the overall choice probability for a play, which needs to be accounted for in the models. Note that we also estimated models without these *gotheatre*-interactions and compared them to the respective model including the *gotheatre*-interactions – all models that include *gotheatre*-interactions perform significantly better.

Table 45 also shows the model fit statistics for the seven models. As expected, Model 7 (the conventional model) has the lowest log likelihood and Models 1, 2 and 3 have lower LL than Models 4, 5 and 6. To test whether the improvements in model fit are significant, L- ratio tests are conducted again, the results of which are also presented in Table 45. All models that include some measures of aesthetic taste and familiarity perform significantly better than models not accounting for those respondent characteristics.

Table 46 only lists parameter estimates for non-aesthetic attributes for all the seven models estimated so to make comparison between the models easier. Looking at the coefficients briefly, we can see that the playwright being well-known positively and significantly affects choice of a particular play. The venue is insignificant in all but two models, only in Models 3 and 6 a somewhat well-known venue negatively affects choice (-0.18 in both models), whereas a very well-known venue positively affects choice of the theatre play (0.34 and 0.37 respectively). Ticket price is positive but only significant at the 0.1 level in Model 2, however in Models 3 and 5 *tickprice_2* is very close to being significant. A play being romantic, catastrophic, artistic, psychological or comedic generally increases its choice probability, whereas being critical or tragic tends to decrease the likelihood of it being chosen.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Coefficients (in bold significant at p<=0.1)							
gotheatre	-1.53	-1.55	-1.26	-5.25	-5.19	-4.98	-1.51
gotheatre1				0.52	0.63	0.60	
gotheatre2				1.75	1.67	1.60	
gotheatre3				2.18	2.17	2.19	
gotheatre4				1.80	1.55	1.75	
gotheatre5				-0.06	0.08	0.23	
gotheatre6				0.28	0.21	0.20	
gotheatre7				0.74	0.59	0.44	
playwright_1	0.34	0.45	-0.06	0.35	0.46	-0.05	0.45
playwright_2	0.75	0.82	0.30	0.75	0.82	0.30	0.59
thvenue_1	-0.06	-0.08	-0.18	-0.05	-0.07	-0.18	-0.10
thvenue_2	0.03	-0.08	0.34	0.06	-0.06	0.37	0.03
tickprice_1	-0.07	-0.01	0.01	-0.08	-0.01	0.01	-0.11
tickprice_2	0.04	0.13	0.13	0.00	0.10	0.09	0.05
romance	0.32	0.33	0.44	0.33	0.34	0.46	0.38
catastrophic	0.16	0.11	0.00	0.16	0.12	0.01	0.15
artistic	0.22	0.21	0.48	0.21	0.21	0.47	0.22
critical	-0.18	-0.19	0.00	-0.19	-0.20	0.00	-0.18
comedic	0.68	0.55	0.16	0.68	0.55	0.15	0.51
tragic	-0.22	-0.03	-0.15	-0.22	-0.03	-0.16	-0.24
psychol	-0.04	0.14	0.21	-0.04	0.15	0.22	0.04

Table 46: Coefficients of models estimated to test H7 and H8, table only containing non-aesthetic parameter estimates

We will now look in detail at the parameter estimates for the different models estimated, starting with Model 1 and Model 4 (where aesthetic qualities were measured via *aestattr1* and *aestattr2*), we then continue to look at Models 2 and 5 (where aesthetic qualities were measures via *aestqual*), and lastly we discuss Models 3 and 6 (aesthetic qualities being measured via *smh_stars1*, *smh_stars2*, *to_stars1* and *to_stars2*). Note that *aestattr1*, *smh_stars1* and *to_stars1* are binary variables indicating *below* average aesthetic qualities, whereas *aestattr2*, *aestqual*, *smh_stars2* and *to_stars2* indicate *above* average aesthetic qualities.

6.3.2.1 Results for H7 and H8 when aesthetic qualities are measured via

AESTATTR1 and *AESTATTR2*

Table 47 lists the parameter estimates for Models 1 and 4. Appendix 2 lists the odds ratio for all seven models.

	Model 1	Model 4
	Coefficients (in bold significant at p<=0.1)	
gotheatre	**-1.53**	**-5.25**
gotheatre * taste_dir1		**0.52**
gotheatre * taste_dir2		**1.75**
gotheatre * taste_ind1		**2.18**
gotheatre * taste_ind2		**1.80**
gotheatre * taste_ind3		-0.06
gotheatre * att12mths_1		**0.28**
gotheatre * att12mths_2		**0.74**
playwright_1	**0.34**	**0.35**
playwright_2	**0.75**	**0.75**
thvenue_1	-0.06	-0.05
thvenue_2	0.03	0.06
tickprice_1	-0.07	-0.08
tickprice_2	0.04	0.00
romance	**0.32**	**0.33**
catastrophic	**0.16**	**0.16**
artistic	**0.22**	**0.21**
critical	**-0.18**	**-0.19**
comedic	**0.68**	**0.68**
tragic	**-0.22**	**-0.22**
psychol	-0.04	-0.04
aestattr1	**0.22**	0.26
aestattr1 * taste_dir1		0.22
aestattr1 * taste_dir2		0.10
aestattr1 * taste_ind1		0.34
aestattr1 * taste_ind2		**-0.93**
aestattr1 * taste_ind3		**0.49**
aestattr1 * att12mths_1		**-0.25**
aestattr1 * att12mths_2		**-0.79**
aestattr2	**-0.30**	-0.48
aestattr2 * taste_dir1		**0.78**
aestattr2 * taste_dir2		-0.02
aestattr2 * taste_ind1		-0.42
aestattr2 * taste_ind2		**-1.17**
aestattr2 * taste_ind3		**0.92**
aestattr2 * att12mths_1		**0.23**
aestattr2 * att12mths_2		**-0.35**

Table 47: Coefficients of MNL Models 1 and 4 estimated to test H7 and H8

In Model 1, *aestattr1*, the variable measuring *below* average aesthetic qualities has a significantly positive coefficient (0.22, odds ratio of 1.25) and aestattr2, measuring *above* average aesthetic qualities, is negative (-0.30, odds ratio of .74). This indicates a significant negative effect of aesthetic qualities on consumer choice, if aesthetic taste and familiarity with the cultural good are not accounted for in the model.

Model 4 includes additional coefficients for interactions between measures of aesthetic taste and familiarity interacted with *aestattr1* and *aestattr2*. The parameter estimates for both *aestattr1* and *aestattr2* are now insignificant, which would indicate that apart from interactions with aesthetic taste and familiarity, aesthetic qualities do not have any influence on choice. Looking at the direct measures of aesthetic taste, the interaction between *taste_dir1* (the component measuring aesthetic language proficiency directly) and *aestattr2* is positive and significant, with an odds ratio of 2.18. No interactions between *taste_dir* and *aestattr1* are significant. The coefficients of the interactions between *taste_ind* and *aestattr* are inconclusive: the interaction coefficients between *taste_ind2* and *aestattr1*, and *taste_ind2* and *aestattr2* are both negative and significant; the interactions between *taste_ind3* and *aestattr1*, and *taste_ind3* and *aestattr2* are both positive and significant.

Taken together, we find mixed evidence with respect to H7. Just looking at the results for *taste_dir*, we would conclude in support of H7. However, taking into consideration the results for the interactions with *taste_ind* does not allow us to come to that conclusion.

In regard to H8, the results are also unclear. In terms of below average aesthetic qualities, both interaction coefficients (*att12mths_1* with *aestattr1*, and *att12mths_2* with *aestattr2*) are both negative and significant, but in regard to plays with a higher than average number of aesthetic qualities, the interaction terms have different signs; the interaction with *att12mths_1* is positive (odds ratio 1.26), and the interaction with *att12mths_2* is negative (odds ratio .70). H8 expected no significance or small significant parameter estimates for interaction terms between *aestattr2* and *att12mths_1* and *att12mths_2*. Since the odds ratios

are definitely smaller than the ones for aesthetic taste, we conclude to find weak evidence for H8.

Overall, we suspect that the reason for those weak results in regard to H7 and H8 is the quality of the two measures *aestattr1* and *aestattr2*. These two variables were designed to measure strength of aesthetic character by counting the number of aesthetic terms in the play description. Given the results, we assume the measures to be flawed in that they do not actually capture strength of aesthetic character. Comparing the results from Model 4 with those from Models 5 and 6 will show if this suspicion is true.

6.3.2.2 RESULTS FOR H7 AND H8 WHEN AESTHETIC QUALITIES ARE MEASURED VIA *AESTQUAL*

Table 48 lists the parameter estimates for Models 2 and 5. As mentioned before, Appendix 2 lists the odds ratio for all seven models.

	Model 2	Model 5
	Coefficients (in bold significant at p<=0.1)	
gotheatre	**-1.55**	**-5.19**
gotheatre * taste_dir1		**0.63**
gotheatre * taste_dir2		**1.67**
gotheatre * taste_ind1		**2.17**
gotheatre * taste_ind2		**1.55**
gotheatre * taste_ind3		0.08
gotheatre * att12mths_1		**0.21**
gotheatre * att12mths_2		**0.59**
playwright_1	**0.45**	**0.46**
playwright_2	**0.82**	**0.82**
thvenue_1	-0.08	-0.07
thvenue_2	-0.08	-0.06
tickprice_1	-0.01	-0.01
tickprice_2	**0.13**	0.10
romance	**0.33**	**0.34**
catastrophic	**0.11**	**0.12**
artistic	**0.21**	**0.21**
critical	**-0.19**	**-0.20**
comedic	**0.55**	**0.55**
tragic	-0.03	-0.03
psychol	**0.14**	**0.15**
aestqual	**-0.46**	**-1.07**
aestqual * taste_dir1		0.32
aestqual * taste_dir2		**0.37**
aestqual * taste_ind1		0.04
aestqual * taste_ind2		**-0.53**
aestqual * taste_ind3		**0.54**
aestqual * att12mths_1		**0.37**
aestqual * att12mths_2		-0.12

Table 48: Parameter estimates for Models 2 and 5 estimated to test H7 and H8

Only including *aestqual* in the model (Model 2) leads to a negative parameter coefficient (-0.46, odds ratio of 0.63). Model 5 includes interaction terms between *aestqual* and different measures of aesthetic taste and familiarity. In this mode, the coefficient for *aestqual* is still significantly negative (-1.07, odds ratio of 0.34), which could indicate a negative effect of strong aesthetic character apart from having accounted for aesthetic taste and familiarity.

Taste_ind2 is in fact strongly negatively correlated with statements that assessed respondents' knowledge levels, so a negative interaction coefficient between *taste_ind2* and

aestqual could also indicate a positive relation between general theatre knowledge and preference for plays with strong aesthetic character (as measured by *aestqual*). This result is also reflected by the coefficient *taste_dir2*aestqual*, the interaction coefficient with the direct measure knowledge component. The interaction between the third indirect measure of aesthetic taste *taste_ind3* and *aestqual* is positive and significant. We thus conclude that in the case of measuring the strength of aesthetic character via *aestqual*, aesthetic taste leads overall to those plays with stronger aesthetic character being preferred, supporting H7.

Looking at the two parameter estimates for the interactions between familiarity and *aestqual*, we find a positive and significant coefficient for *aestqual * att12mths_1* (0.37, odds ratio of 1.45) but no significant coefficient for *aestqual * att12mths_2*, which supports H8.

6.3.2.3 RESULTS FOR H7 AND H8 WHEN AESTHETIC QUALITIES ARE MEASURED VIA *SMH_STARS1, SMH_STARS2, TO_STARS1* AND *TO_STARS2*

Table 49 shows the coefficients for Models 3 and 6 that include measures of aesthetic qualities as assessed by expert reviewers in two print media who attributed a number of stars (out of five) to the theatre plays (Appendix 2 lists the odds ratio for the models).

	Model 3	Model 6
	Coefficients (in bold significant at p<=0.1)	
gotheatre	-1.26	-4.98
gotheatre * taste_dir1		0.60
gotheatre * taste_dir2		1.60
gotheatre * taste_ind1		2.19
gotheatre * taste_ind2		1.75
gotheatre * taste_ind3		0.23
gotheatre * att12mths_1		0.20
gotheatre * att12mths_2		0.44
playwright_1	-0.06	-0.05
playwright_2	0.30	0.30
thvenue_1	-0.18	-0.18
thvenue_2	0.34	0.37
tickprice_1	0.01	0.01
tickprice_2	0.13	0.09
romance	0.44	0.46
catastrophic	0.00	0.01
artistic	0.48	0.47
critical	0.00	0.00
comedic	0.16	0.15
tragic	-0.15	-0.16
psychol	0.21	0.22
smh_stars1	0.31	0.03
smh_stars1 * taste_dir1		0.62
smh_stars1 * taste_dir2		0.03
smh_stars1 * taste_ind1		-0.14
smh_stars1 * taste_ind2		-0.41
smh_stars1 * taste_ind3		0.58
smh_stars1 * att12mths_1		-0.26
smh_stars1 * att12mths_2		-0.23
smh_stars2	-0.90	-1.29
smh_stars2 * taste_dir1		-0.48
smh_stars2 * taste_dir2		0.65
smh_stars2 * taste_ind1		0.84
smh_stars2 * taste_ind2		-0.17
smh_stars2 * taste_ind3		-0.12
smh_stars2 * att12mths_1		-0.07
smh_stars2 * att12mths_2		0.10
to_stars1	-0.27	-0.22
to_stars1 * taste_dir1		-0.02
to_stars1 * taste_dir2		0.14
to_stars1 * taste_ind1		0.04
to_stars1 * taste_ind2		-0.19
to_stars1 * taste_ind3		-0.28
to_stars1 * att12mths_1		0.16
to_stars1 * att12mths_2		0.08
to_stars2	0.05	0.37
to_stars2 * taste_dir1		0.16
to_stars2 * taste_dir2		-0.09
to_stars2 * taste_ind1		-0.41
to_stars2 * taste_ind2		-0.42
to_stars2 * taste_ind3		-0.26
to_stars2 * att12mths_1		0.29
to_stars2 * att12mths_2		0.47

Table 49: Parameter estimates for Models 3 and 6 estimated to test H7 and H8

Model 3 is similar to Model 1 and Model 2 in that it indicates (at least in the case of the *Sydney Morning Herald* (SMH) reviews, *smh_stars1* and *smh_stars2*) a negative effect of aesthetic qualities on consumer choice, if aesthetic taste and familiarity are not accounted for. Note, however, that the parameter coefficients for *Timeout* magazine (*to_stars1* and *to_stars2*) are different, with *to_stars1* (below average aesthetic qualities as assessed by writers in *Timeout* magazine) having a negative coefficient and *to_stars2* (above average) being insignificant.

Model 6 includes all the interaction terms between *smh_stars*, *to_stars* and measures of aesthetic taste and familiarity. We can find positive significant interactions between *smh_stars1* (plays rated *below* average by SMH) and *taste_dir1* (0.62, odds ratio of 1.86) and *taste_ind3* (0.58, odds ratio of 1.79). *Taste_ind3* is actually dominated by a negative loading of a statement that measures aesthetic language proficiency, so the positive interaction coefficient between *taste_ind3* and *smh_stars1* could indicate a negative preference for below average plays for people with high aesthetic language proficiency. The significant interactions between *smh_stars2* (plays rated above average by SMH) and *taste_dir1* (-0.48, odds ratio of 0.62), *taste_dir2* (0.65, odds ratio of 1.91) and *taste_ind1* (0.84, odds ratio of 2.31), broadly support H7.

The only significant interaction between aesthetic taste variables and the star ratings given by *Timeout* magazine (*to_stars1* and *to_stars2*) is the one between *taste_ind2* and *to_stars2* (*taste_ind2* has an inverted relationship to theatre knowledge and focuses on the sensory experience), with a coefficient of -0.42 and an odds ratio of 0.65. What this means is that respondents' preferences seem to be more aligned with the star ratings given by the SMH, an arguably more "serious" publication than *Timeout* magazine, which targets a younger "in" crowd and presumably doesn't pay as much attention to aesthetic qualities than does Jason Blake, the expert reviewing theatre plays for the SMH. What needs to be remembered, however, is that a considerable number of plays had not been reviewed by

Timeout magazine and were assumed as being rated at an average level. This lack of data could have affected the parameter estimates found in Model 6.

Although it has to be noted that one direct taste component, *taste_dir1*, has the opposite effect to what we would expect, overall we would conclude in support of H7.

In regard to familiarity, we find no evidence between an above average SMH star rating (*smh_stars2*) and familiarity. On the other hand, we find positive parameter estimates for the interactions between *to_stars2* and the two variables measuring familiarity with theatre plays (coefficients of 0.29 and 0.47 respectively, and odds ratios of 1.33 and 1.60). This could at first sight be interpreted as contradictory evidence against H8 since the coefficients are larger than the ones for the interaction terms with aesthetic taste. If, however, we consider that *Timeout* magazine is a print medium aiming to target "pleasure seekers" (good food, good concerts, good cafes, good entertainment), we could suspect that their star rating in fact does not measure aesthetic character, but rather some sort of entertainment value. So, just looking at the SMH review, we conclude to find support for H8.

Which of the three measures of aesthetic qualities tested here is the correct one, or better, which one would be the most appropriate to use, we shall not debate here. What is obvious, though, is that for two out of the three measures we find positive significant evidence (apart from *Timeout* magazine's star rating) of increasing aesthetic taste positively affecting choice of theatre plays that display stronger aesthetic qualities, which leads us to not reject H7.

In regard to H8, the relationship between aesthetic qualities and familiarity with theatre plays, we also conclude in support of the hypothesis. In all cases (apart from *Timeout* magazine's star ratings) we find smaller parameter estimates than for the aesthetic taste interactions, insignificant or even negative parameters.

6.3.3 Results for H9

Lastly, we will now test H9:

H9: Amongst others, we can distinguish two groups of consumers who differ in their preferences for cultural goods: consumers who have a high level of past exposure (familiarity) but low aesthetic taste (aficionado consumers), and consumers who have high levels of past exposure and high levels of aesthetic taste (expert consumers).

	low aesthetic taste	high aesthetic taste
past exposure: high	Aficionado consumers	Expert consumers
past exposure: low	Novice consumers	?

Latour and Latour (2010) investigate how far aficionado consumers and expert consumers differ in their abilities to correctly describe and detect a specific wine (perceptive abilities). We can test whether these two groups of consumers exist in our case for theatre, and how they differ in their consumption choices.

6.3.3.1 Methodology explained: Latent class analysis

To test H9, latent class analysis was chosen as the methodology to be employed. A latent class or finite mixture structure captures and accounts for preference heterogeneity amongst people, since it allows for the existence of latent classes with homogeneous tastes (in the economic sense). Each class differs from the others with respect to the weights attributed to different variables in the utility function.

Latent GOLD Choice, the software used here to conduct the analysis, implements a nonparametric variant of the random-coefficient or mixed conditional logit model (Louviere et

al. 2000; McFadden and Train 2000). Respondents expressed their preferences in 20 choice sets, which introduces dependence between the observations. This dependence makes it possible to estimate class-specific regression parameters. In addition a latent class model also allows us to predict class membership for an individual on the basis of the individual's characteristics.

The probability that individual *n* is in a particular latent class x is in our case dependent on those covariates that have already been used above to explain choice of theatre play in other choice models. To model class membership, a multinomial logit is specified in which class membership is regressed on covariates specified (Vermunt and Magidson 2005):

$$P_n(x|cov_n) = \frac{e^{G_{x|cov_n}}}{\sum_{x'=1}^{K} e^{G_{x'|cov_n}}}$$

where G_x is the class membership function specified as a linear function of the following individual's covariates:

$$G_{x|cov_n} = \gamma_{0x} + \gamma_{1x} taste_{dir1} + \gamma_{2x} taste_{dir2} + \gamma_{3x} taste_{ind1} + \gamma_{4x} taste_{ind2} + \gamma_{5x} taste_{ind3}$$
$$+ \gamma_{6x} know_{fake} + \gamma_{7x} attpre18_1 + \gamma_{8x} attpre18_2 + \gamma_{9x} att12mths_1$$
$$+ \gamma_{10x} att12mths_2 + \gamma_{11x} female + \gamma_{12x} age_1 + \gamma_{13x} educ_1 + \gamma_{14x} educ_2$$
$$+ \gamma_{15x} inc_1 + \gamma_{16x} inc_2$$

For identification purposes one class is set to 0 and the parameter estimates γ_{Hx} need to be interpreted with respect to that class.

The choice probability of alternative i is now conditional on n's class membership:

$$P_n(i|x) = \frac{e^{V_{i|x}}}{\sum_{j \in C_n} e^{V_{j|x}}}$$

where we specify the utility function for each class to be dependent on the attributes of the theatre plays as described in this chapter as well as the measures of aesthetic qualities as discussed in Chapter 5:

$$V_{i|x} = \delta_{0|x} + \delta_{1|x} gotheatre + \delta_{2|x} playwright + \delta_{3|x} thvenue + \delta_{4|x} tickprice + \delta_{5|x} romance$$

$$+ \delta_{6|x} catastrophic + \delta_{7|x} artistic + \delta_{8|x} critical + \delta_{9|x} comedic + \delta_{10|x} tragic$$

$$+ \delta_{11|x} psychol + \delta_{12|x} aesthetic$$

where aesthetic is a variable representing all of the three measures of aesthetic qualities developed. The choice probability of alternative i by individual n is thus the probability that individual n is in a particular latent class x (conditional on n's covariates) multiplied by the conditional probability of choosing alternative i, given that individual n is in this class, summed over all latent classes, where t are the 20 choice sets:

$$P_n(i) = \sum_{x=1}^{K} P(x|cov_n) \prod_{t=1}^{20} P(y_{nt}|x)$$

As compared to mixed logit models, latent class models are easier to understand, have greater practicability for developing policies (since covariates that are used to predict the latent classes make it easier to target specific groups of people), and can perform better statistically than mixed logit models (Grisolía and Willis 2012).

6.3.3.2 RESULTS

Commonly used criteria for deciding on the right number of classes for a latent class model are the Bayesian Information Criterion (BIC) and the Akaike Information Criterion (AIC), where $BIC_{LL} = -2LL + \log(N)\, npar$ and $AIC_{LL} = -2LL + 2\, npar$. Effectively, the BIC penalises the number of parameters to be estimated more heavily than the AIC.

When estimating models with three and more classes, some model estimations using the expectation-maximisation algorithm in Latent Gold lead to non-convergence or reported different results, indicating several local maxima. As long as the BIC and AIC were lower for the k-class solution than the k-1-class solution, it did not matter whether the results were in fact a local or global maximum, since assuming it to be a local maximum, the global maximum would only lead to a lower BIC and AIC. For the 7-class solution, estimation of the model showed that the BIC was higher than for the 6-class solution, indicating the best fit for

the 6-class solution. To ensure a global maximum was reached, the 6- class model was estimated 100 times, each time using a random (i.e. different) seed for the starting values. The model with the lowest LL is assumed to have reached the global maximum on the LL function. The results reported in the following table are the results from the best model for each number of classes. The estimation results for all models can be found in Appendix 3.

# of classes	LL	BIC(LL)	AIC(LL)	AIC3(LL)	Npar	L²	df	p-value	Class.Err.	R²(0)	R²
1	-11588.7	23348.52	23215.48	23234.48	19	23177.4801	8101	7.5e-1428	0.00	0.10	0.02
2	-10928.2	22351.47	21966.35	22021.35	55	21856.3514	8065	6.0e-1252	0.11	0.29	0.22
3	-10640.3	22099.77	21462.58	21553.58	91	21280.5776	8029	2.9e-1181	0.09	0.29	0.22
4	-10344.1	21831.52	20942.25	21069.25	127	20688.2538	7993	3.0e-1109	0.03	0.23	0.15
5	-10094	21655.24	20513.9	20676.9	163	2.02E+04	7957	2.4e-1050	0.03	0.25	0.18
6	-9864.28	21519.98	20126.56	20325.56	199	19728.5608	7921	1.8e-997	0.03	0.27	0.20
7	-9754.89	21625.28	19979.79	20214.79	235	19509.7865	7885	3.3e-976	0.05	0.31	0.25

Table 50: Summary statistics for models with a different number of classes

As can be seen from Table 50, the AIC criterion is lower for the 7-class solution than for the 6-class solution, however, since it becomes increasingly more difficult to find global solutions as the number of latent classes increases and the results become increasingly difficult to interpret, a decision has been made to follow the BIC criterion – which is lowest for the 6-class solution – and take the results of the 6-class solution to be the best fitting model.

Initial models were estimated using *aestattr1* and *aestattr2* as measures of aesthetic qualities in theatre plays (that is, the number of aesthetic terms used in the play description). However, since the results were not insightful, a decision was made to use *aestqual* (a binary variable whether a play conveys a strong aesthetic character or not) and four dummy variables that indicate strength of aesthetic character as assessed by theatre reviewers (*smh_stars1*, *smh_stars2*, *to_stars1*, *to_stars2*) jointly in the latent class model (see Section 5.4. for details on the different measures of aesthetic qualities).

Table 51 shows the coefficients for the class membership function (insignificant coefficients in red) and Figure 18 displays significant coefficients of the membership likelihood function in a graph to facilitate interpretation.

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	Class(1)	Class(2)	Class(3)	Class(4)	Class(5)	Class(6)
constant	0.00	77.77	-22.64	-18.89	46.13	9.24
taste_dir1	0.00	-99.40	-27.51	140.96	-34.87	-68.56
taste_dir2	0.00	-96.75	-26.53	-77.53	-72.21	1.10
know_fake(1)	0.00	-40.32	-125.54	-14.50	-17.07	-21.94
taste_ind1	0.00	80.28	40.63	-167.54	-38.27	-45.95
taste_ind2	0.00	-81.77	-31.22	-39.52	-3.74	-21.72
taste_ind3	0.00	-64.95	-17.53	21.00	-34.94	79.59
attpre18_1(1)	0.00	-2.98	8.93	28.05	3.57	48.81
attpre18_2(1)	0.00	31.40	5.55	-18.07	-107.99	26.06
att12mths_1(1)	0.00	21.65	6.38	32.26	4.22	-53.05
att12mths_2(1)	0.00	-5.93	58.13	34.70	61.92	5.42
female(1)	0.00	-15.98	7.62	-0.03	6.96	2.61
age_1	0.00	71.22	115.05	34.18	129.51	34.63
educ_1(1)	0.00	23.88	22.82	39.71	12.88	-5.24
educ_2(1)	0.00	29.44	37.09	53.87	50.91	0.13
inc_1(1)	0.00	-84.58	1.21	-17.16	-17.59	16.76
inc_2(1)	0.00	0.11	-14.99	-34.05	-45.76	-21.53
size of class (proportion)	0.1593	0.1012	0.3186	0.1373	0.2057	0.0779

Table 51: Parameter estimates for the latent class membership function estimated to test H9

Figure 18: Visual representation of the parameter estimates for the latent class membership functions estimated to test H9

The coefficients for the membership likelihood function of Class1 are set to zero, and all other coefficients need to be interpreted with respect to Class 1. We can, however, look at

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the ranking of the classes with respect to the aesthetic taste and familiarity variables (Table 52).

	Class(1)	Class(2)	Class(3)	Class(4)	Class(5)	Class(6)
taste_dir1	high	low	medium	very high	medium	low
taste_dir2	high	low	high	medium	medium	n.s.
taste_ind1	medium	high	high	very low	medium	medium
taste_ind2	high	low	medium	medium	n.s.	medium
taste_ind3	medium	low	medium	medium	low	high
att12mths_1(1)	medium	high	medium	high	medium	low
att12mths_2(1)	low	n.s.	high	medium	high	low

Table 52: Simplified representation of the aesthetic taste and familiarity parameter estimates of the membership functions for the LC analysis conducted to test H9

Table 53 shows the coefficients for the utility function (again insignificant coefficients are displayed in red).

	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6
gotheatre(1)	0.28	-2.38	-0.45	-1.46	-1.46	-17.56
playwright_1(1)	0.24	-1.55	-0.11	-0.13	-0.25	-3.43
playwright_2(1)	0.29	-1.93	0.66	0.32	-0.21	-11.24
thvenue_1(1)	0.02	-1.54	-0.04	-1.05	0.06	8.76
thvenue_2(1)	0.54	-1.67	0.69	-1.56	0.77	2.71
tickprice_1(1)	0.11	0.55	0.33	-0.22	-0.75	0.17
tickprice_2(1)	0.11	2.19	0.05	0.63	-0.44	-1.13
romance(1)	0.50	-1.60	0.60	0.60	0.50	6.23
catastrophic(1)	0.23	-4.35	-0.10	-0.19	1.04	3.30
artistic(1)	0.34	-1.14	0.34	1.20	0.95	7.28
critical(1)	-0.02	0.63	-0.12	0.02	-0.66	4.78
comedic(1)	-0.24	1.01	0.52	-0.09	-0.79	7.92
tragic(1)	0.09	-0.88	-0.41	1.00	-1.44	16.11
psychol(1)	0.10	2.11	-0.12	1.55	-0.40	5.40
smh_stars1(1)	0.01	2.52	0.32	1.41	-0.54	-12.08
smh_stars2(1)	-0.33	-3.28	-0.77	-2.08	-1.40	-8.15
to_stars1(1)	-0.09	-0.75	-0.18	-0.65	-0.68	-3.29
to_stars2(1)	-0.24	-0.81	0.22	0.39	0.73	5.05
aestqual(1)	-0.18	2.70	-0.26	-0.31	-0.95	-10.63
size	0.16	0.10	0.32	0.14	0.21	0.08
choose 'none'	0.12	0.90	0.22	0.44	0.65	0.73

Table 53: Parameter estimates for the utility functions for the six classes estimated to test H9

Let us remember that on average respondents chose the "none" alternative in 43 percent of choice sets. Class 1 on average chose the "none" alternative only in 12 percent of

choice sets. Of all classes respondents in this class are the youngest, have the lowest education and the highest income (note the oddity). In addition, 87 percent of respondents in this class claim to know the fake playwright. These results alone make the answers given by respondents in this class highly questionable and we thus term them "random clickers" since we suspect that they either did not genuinely answer the questions asked or randomly clicked through the survey. This suspicion is further confirmed by the fact that in their utility function, few parameter estimates are significant, as compared to the other classes.

Class 2 is quite a small class (ten percent of respondents), and has the highest proportion who chose the "none" alternative (90 percent of times). These respondents are essentially not interested in theatre plays. The fact that most of their choices were "none" makes it difficult to produce reliable parameter estimates for their utility function, since effectively, on average we only have two choice sets per person where the "none" alternative was not chosen, i.e. where the attributes of the theatre plays were not zero. The results for levels of aesthetic taste of respondents in this class are contradictory. They have the lowest level of aesthetic taste according to the direct measures of aesthetic taste, but the highest level according to *taste_ind1*, which makes us suspect that the quality of responses delivered by those respondents is also poor, possibly because theatre plays are simply "not their thing".

Class 3 is the largest class with 32 percent of all respondents belonging to this class. Respondents belonging to this class are older, have a medium probability of having a Bachelor or Postgraduate degree, but quite a high probability to have a high income (assuming that Class 1 is an invalid class, Class 3 would be the most affluent). They have a high probability of having attended theatre plays frequently in the past 12 months, and have high levels in all measures of aesthetic taste. Since they have both exposure and aesthetic taste, they would classify as "expert consumers" in the terminology of Latour and Latour (2010). In terms of their choices, this class is quite likely to go to the theatre (only in 22 percent of choice sets the "none" alternative was selected), they have a positive preference

for well-known playwrights and venues, medium-priced theatre tickets and plays that are comedic.

It is quite surprising that Class 3, supposedly the "expert consumers" class, is also the largest class found. The author suspects that in fact this class contains two groups of respondents: on the one hand the *true* expert consumers, and on the other hand more mainstream consumers, which also explains why the coefficients for aesthetic qualities are quite weak. Given that 3 classes found in this analysis are either non-goers or have provided unreliable data (Class 1, Class 2, and Class 6), it is not surprising that Latent Gold has not separated out these two groups of consumers.

Class 4 prefers plays that are staged in small, rather unknown venues, and have a preference for plays that are introspective into the human psyche, are tragic or somehow relate to an artistic topic. In terms of aesthetic qualities, some of the parameters are either not significant (*aestqual*, *to_stars2*), and others (*smh_stars1* and *smh_stars2*) are inverted, which could be interpreted as respondents in this class being anti-establishment. People in this class are quite young, well-educated but on the lower side of the income distribution. They have the highest level of *taste_dir1* indicating that they are confident with aesthetic statements made in "theatre speak". On the other hand, they have by far the lowest value of *taste_ind1*. In terms of past attendance, they have attended theatre plays in the previous 12 months at least occasionally. A possible interpretation could be the following: this group of people is in fact involved in the arts and has high levels of aesthetic taste, but are interested in quite a niche offering of plays – the ones that are not regarded as aesthetically rewarding by "the establishment" (that is, the likes of the SMH) – but offer experiential rewards, such as being tragic, psychologically introspective and experimental (staged in a smaller venue). The author suspects that the very low levels of *taste_ind1* is due to the fact that these respondents – who are presumably more experiential and "artsy" – were somewhat offended by the questions that aimed to measure the usage of aesthetic terms by asking them to respond to statements like "I am capable of perceiving aesthetic qualities of theatre plays" or

"I am good at describing with words the aesthetic experience I have when attending a play". Taking this interpretation further, one could speculate that to people in this class, going to the theatre is to a great degree a mysterious, sacred experience that should not be analysed or measured.

Members of Class 5, the oldest class, are highly educated but have low income. They have the highest familiarity with theatre plays (in terms of past attendance in the previous 12 months) and have medium levels of aesthetic taste. In regard to their preferences for theatre plays, they are selective about which plays to attend, choosing the "none" alternative 65 percent of times. This is the only class with a negative coefficient for price. Their choice probability increases if the play is set in a well-known venue such as the Sydney Theatre Company or the Sydney Opera House and if it makes reference to a romance, a catastrophic event or has an artistic element in its story line, but decreases if a play has tragic, comedic or critical elements.

In regard to aesthetic qualities, Class 5 follows *Timeout* magazine's reviewers' star ratings, but has negative coefficients for *aestqual* and *smh_stars1* and *smh_star2*, which would indicate a taste for entertaining plays (if our suspicion is correct that *Timeout* magazine review reflect entertainment value). This class could potentially be interpreted as Latour and Latour's aficionado consumers.

With only 8 percent of respondents, Class 6 is the smallest class. Respondents in this class have a higher than average proportion of not attending a theatre play (73 percent of choice sets). Being a small group (eight percent of respondents) and having a large proportion of choice sets where "none" was chosen, leads to the data having only little variance (similar to Class 2) and the coefficients of the utility function unreliable. Respondents in this class are quite young and most of them have had at least some exposure to theatre plays before they turned 18, but they are not likely to have attended theatre plays in the previous 12 months. The coefficients for their utility function are considerably more extreme than for all other classes. This is possibly due to the fact that

some alternatives in a choice set were never chosen by respondents in this group. One of the outputs Latent Gold provides is a calculation of the choice probabilities for each class and each alternative in every choice set. As can be seen from Appendix 3, Class 6 is the only class that contains choice probabilities for alternatives that are 0. Therefore we do not pay too much attention to the coefficients of the utility function.

We can summarize the six classes found in Table 54:

	Class name	percent of respondents
Class 1	random clickers	16
Class 2	not interested in theatre plays	10
Class 3	mainstream consumers + expert consumers	32
Class 4	artsy, experimental consumers	14
Class 5	aficionado consumers	21
Class 6	rare attenders	8

Table 54: The six classes found in the latent class analysis of theatre play choice

In regard to H9, our data gives some evidence for the existence of expert consumers who have developed aesthetic taste *and* have high levels of familiarity (Class 3), and aficionado consumers who have low levels of aesthetic taste but also high levels of familiarity (Class 5).

It is common in Latent Class Models to calculate the willingness-to-pay for each class and each attribute by calculating the ratio between the coefficient of an attribute and the price coefficient (Scarpa and Thiene 2005; Choi 2009; Grisolía and Willis 2012). But we do not have a continuous price variable in our model. However, we are interested in the ratio between the attribute *thvenue_2* (for which the coefficients are similar between Class 3 and Class5) and the different attribute indicating an aesthetically rewarding play (*smh_stars2, to_stars2, aestqual*). We would expect those classes with high levels of aesthetic taste (Class3) to have higher ratios than those with low levels of aesthetic taste (Class5).

	Class 3	Class 5
coefficients		
thvenue_2(1)	0.69	0.77
smh_stars2(1)	-0.77	-1.40
to_stars2(1)	0.22	0.73
aestqual(1)	-0.26	-0.95
ratios		
smh_stars2/thvenue_2	-1.12	-1.81
to_stars2/thvenue_2	0.32	0.95
aestqual/thvenue_2	-0.38	-1.23

Calculating the ratio between smh_stars2 and thvenue_2 (well-known theatre venue), we can observe that Class 3 (the class that is assumed to contain expert consumers) has a higher ratio of -1.12 than Class 5 (-1.81). The same is true for the ratio of aestqual and thvenue_2 (-0.38 for Class 3 and -1.23 for Class 5). The results thus indicate that Class 3 are more inclined than Class 5 to prefer plays with high aesthetic qualities. For the ratio to_stars2 to thvenue_2, Class 5 has the higher ratio with 0.95 as compared to the one for Class 3 (0.32). As mentioned earlier, we assume that the SMH is the more reliable source for aesthetic qualities that the *Timeout* magazine.

Although these results are broadly in support of H9, we would have expected to see a more specific difference between Class 3 and Class 5. The number of expert consumers is rather small in the general population and also amongst theatre patrons. Our sample has been drawn from the general population, so the number of expert consumers in the sample of 406 respondents is most likely very small. This could be one explanation for why our model can only faintly distinguish this group of consumers in our data. It can be expected that when repeating this DCE with a sample of theatre-goers (e.g. by distributing links to the survey amongst patrons at one or more theatre venues), expert consumers will be much more easily distinguishable from aficionado consumers.

6.4 CHAPTER SUMMARY

Chapter 6 describes the models estimated to test the hypotheses, and discusses the results of each estimation.

H1 and H2 were tested by using the binary choice – whether or not to go to a play – as dependent variable, and estimating four binary choice models. The four models all included right-hand side variables conventionally used in economic analysis of theatre demand, but differed as to which measures of aesthetic taste were included (no measure; only indirect measure; only direct measure; both indirect and direct measure). We find significant evidence of the positive effect of aesthetic taste on the average choice probability, in support of H1. Familiarity, as measured by the number of past theatre exposures, also has a significant positive effect on the average choice probability, distinct from and in addition to aesthetic taste. These results are in support of H2.

An alternative test of H1 and H2 by estimating tobit models leads to results that are very similar to the ones found in the binary choice models.

A set of MNL models were estimated (including/excluding measures of aesthetic taste and familiarity) to test H3 and H4, finding support for both.

The same MNL model estimations that were used to test H3 and H4 were used to test H5, the hypothesis in regard to aesthetic taste being discriminatory against some alternatives in the choice set. The model results reject this hypothesis.

Using as dependent variable the number of plays that have an above-zero probability of being chosen, an ordinary least squares regression was estimated to test H6, whether aesthetic taste has a positive effect on omnivorous consumption. The model results are supportive of the hypothesis.

The last three hypotheses specifically concern the individual attributes theatre plays can have, in particular a strong aesthetic character. Since three measures of aesthetic character were developed in Chapter 5, Section 6.3.2 presents three different results sections – one for each measure of aesthetic qualities. To test H7 and H8, MNL models were again estimated, this time describing the plays according to their attributes. With two out of the three measures of aesthetic qualities we find support for the two hypotheses: H7 (aesthetic taste positively influencing the choice of cultural goods with strong aesthetic

character) and H8 (familiarity not or only weakly influencing the choice of cultural goods with strong aesthetic character).

In order to test for the existence of two distinct groups of consumers, one with high levels of familiarity but low levels of aesthetic taste, the other with high levels of familiarity and high levels of aesthetic taste (H9), we conduct a latent class analysis. The results are less clear than for the other hypotheses tested, but in general we find support for H9.

7 CONCLUSION AND FURTHER RESEARCH

This thesis started out with a discussion of two commonly observed yet so far insufficiently explained phenomena: firstly, that somehow taste for cultural goods is acquired or learned, thus explaining the existence of art lovers and loathers. "Taste acquisition" or "taste cultivation" are terms that have been used to describe this phenomenon. In empirical analysis, the standard way to account for it has been via proxy variables such as: past exposure to the cultural good in question or cultural goods in general; education; social status; or other socio-demographic variables. Use of such proxy variables has failed to provide advice to policy makers or managers of arts organisations whose aim is to promote cultural goods.

The second phenomenon occurring often is that cultural goods that are considered to have the strongest aesthetic character are generally not the ones most in demand in a particular cultural goods category; rather demand favours those that are considered entertaining. Whilst some might say that preferences should be taken as given and for what they are, others have argued that true preferences are not always equal to revealed preferences, particularly where skills are required to fully understand or enjoy the goods in question.

This thesis set out to test whether inclusion of the philosophical concept of taste (coined "aesthetic taste" to distinguish it from the sociological and economic use of the notion) contributes to an explanation of these two phenomena mentioned above. To give it empirical substance, "aesthetic taste" was defined as a form of perceptive expertise, a concept from cognitive psychology, and was formulated as a function of general knowledge of the cultural goods category and aesthetic language proficiency. Empirically, aesthetic taste was measured in two ways, directly (test of knowledge and comprehension of statements) and indirectly (via self-assessment), to allow the construction and inclusion of alternative measures of aesthetic taste in subsequent analyses. Theatre plays were chosen as the

cultural goods category to conduct the empirical project in, since the performing arts are a well-researched area in cultural economics.

The results obtained in this thesis with respect to the two phenomena are briefly summarized in Section 7.1, and conclusions that can be drawn are given. Section 7.2 discusses the implications of the results for policy makers and arts organisations. Section 7.3 explores potential extensions for future research.

7.1 SUMMARY OF PRINCIPAL RESULTS

7.1.1 AESTHETIC TASTE AND THE "TASTE ACQUISITION" PHENOMENON

One aim of this thesis was defined as testing whether the philosophical concept of aesthetic taste can capture the "taste acquisition" phenomenon sufficiently and as a concept distinct from past exposure, and therefore provide more specific information to policy makers and arts organisations as to how to engage people in cultural goods consumption.

Two hypotheses were formulated specifically in regard to the taste acquisition phenomenon, H1 and H2. The two hypotheses state that aesthetic taste for a cultural good (H1) and familiarity with a cultural good (H2) increase the choice probability for that cultural good. In other words, it was hypothesized that both aesthetic taste and familiarity independently increase the likelihood of people choosing to go to the theatre rather than not.

To test the hypotheses, a discrete choice experiment of theatre plays was conducted online and answers from a sample of 406 respondents were obtained. Binary conditional logit models were conducted to test H1 and H2: Model 1 including only direct measures of aesthetic taste; Model 2 including only indirect measures of aesthetic taste; Model 3 including direct and indirect measures of aesthetic taste; and Model 4 not including any measures of aesthetic taste (Model 4 being the conventional model of demand for cultural goods). Apart from the different aesthetic taste variables, socio-demographic variables commonly used in empirical studies of demand for cultural goods were included in all four models: childhood attendance; attendance in the past 12 months; age; gender; level of

education; and level of income. The results showed that those models where aesthetic taste was explicitly included (Models 1-3) perform significantly better than the model that does not include any measure of aesthetic taste (Model 4), in support of H1. In regard to H2, we found that in all four models familiarity has significant and positive coefficients. We can thus conclude that aesthetic taste and familiarity have distinct positive effects on the probability to consume a cultural good. Interestingly though, the coefficients for past exposure are much smaller in those models where measures of aesthetic taste were included, as compared to in the model where they were not included. This implies that only including past exposure in a model for consumer demand for cultural goods captures some of the taste acquisition phenomenon, but by no means captures all of it. An alternative test of H1 and H2 via tobit analysis led to results very similar to those discussed above.

With respect to the taste acquisition phenomenon, we can thus conclude the following: measuring aesthetic taste as a function of general knowledge of the cultural goods category and of an individual's comprehension of aesthetic language allows for the capturing of the effect of taste acquisition. This effect of taste acquisition is distinct from any effect familiarity with the cultural good (i.e. past exposure) might have, such as cultural goods consumption as a habit or an activity signaling social prestige.

For economic analysis of demand for cultural goods our results imply that including only proxies such as past exposure; education; or social status does not sufficiently capture the taste acquisition phenomenon.

Economic studies of arts demand often are performed on secondary data that have not been collected specifically for the purpose of the analysis, but rather by an arts organisation over the years, or by a public entity (e.g. Census). Variables that could potentially represent aesthetic taste are generally not captured in such data sets and, as a consequence, aesthetic taste cannot be adequately integrated into the economic model under consideration. Such general studies of arts demand definitely have their use; however, the results presented here have shown that aesthetic taste is different from those variables

commonly found in secondary data sets, and plays an essential role in explaining demand for cultural goods. We therefore suggest that, where possible, those general demand analyses should be supplemented with analyses on primary data, collected from a small sample that also includes measures of aesthetic taste.

7.1.2 AESTHETIC TASTE AND GENERAL PREFERENCE HETEROGENEITY WITHIN A CULTURAL GOODS CATEGORY

The second phenomenon mentioned in the introduction of this thesis referred to demand patterns within a cultural goods category. It can generally be observed that goods with strong aesthetic character are not the ones most frequently demanded, but rather that demand tends to follow those goods that are considered most entertaining. This thesis also aimed to test whether the concept of aesthetic taste can contribute to an explanation of this phenomenon.

Several hypotheses were formulated: Essentially, the act of consuming aesthetic versus other (e.g. entertaining) cultural goods is a question of taste heterogeneity, so initially a set of hypotheses was formulated with regard to taste heterogeneity within a cultural goods category in general, without looking at any specific attributes a cultural good (theatre play) might or might not have. Very broadly, H3 and H4 proposed that aesthetic taste (H3) and familiarity with a cultural goods category (H4) contribute to explaining taste heterogeneity for cultural goods within a cultural goods category; in other words, making choices less random. Now the dependent variable was choice of one of the cultural goods (theatre plays) or the "none" alternative, whereas earlier (to test H1 and H2) the dependent variable was binary (attend/not attend). We estimated seven multinomial logit (MNL) models to test H3 and H4, each model differing in regard to which measures of aesthetic taste were included (direct; indirect; direct and indirect; none) and whether measures of familiarity (exposure in the previous 12 months; childhood exposure) were included or not. The model that did not include any measures of aesthetic taste but only measures of familiarity (the conventional

model) performed worst, whereas the model that included direct and indirect measures of aesthetic taste as well as measures of familiarity performed best. All models that included some measure of aesthetic taste performed better than those without measures of aesthetic taste, thus supporting H3. The same results were found in regard to familiarity: all models that included measures of familiarity performed significantly better than those that did not include such measures (even if measures of aesthetic taste were included), and so is in support of H4. The analyses thus showed that both aesthetic taste and familiarity have distinct and significant positive effects in explaining taste heterogeneity within a cultural goods category.

Two more hypotheses were formulated with respect to general taste heterogeneity within a cultural goods category. Whilst not directly related to the phenomenon of consuming or not consuming aesthetic goods, these two hypotheses are based on existing research on cultural goods consumption and might help in gaining a better understanding of the effect of aesthetic taste on preference heterogeneity. H5 was formulated based directly on thoughts expressed by Loewenstein and Angner (2003), who wrote an interesting chapter on changing preferences. According to them, the difference between taste refinement and habit is that taste refinement is discriminating, in that some goods are less demanded after taste refinement than before, whereas in the case of habit, all goods within a category are more demanded as the habit is established. If that was true for aesthetic taste for cultural goods, we would expect that at least one theatre play would have a lower probability of being chosen by people with high aesthetic taste than by those with low levels of aesthetic taste (H5). The same MNL analysis conducted to test H3 and H4 was also used to test H5. We could not find any evidence that respondents with higher levels of aesthetic taste prefer any play less than do those with low levels of aesthetic taste, which leads us to reject H5.

H6, the last hypothesis in relation to general taste heterogeneity within a cultural goods category, states that aesthetic taste positively influences omnivorous consumption behaviour within a cultural goods category. We estimated simple ordinary least squares

regressions to test this hypothesis, using the number of plays in the survey that have a greater than zero probability of being chosen by a particular respondent as the dependent variable. We found strong support for H6, with coefficients for aesthetic taste in all models (only including direct measures of aesthetic taste; only including indirect measures of aesthetic taste; including both measures) being significant, large (as compared to the other coefficients in the model), and positive.

Consequently, a preliminary conclusion that can be drawn is that aesthetic taste plays an important role in explaining taste heterogeneity within a cultural goods category, making consumer choices less random (or put differently, more predictable). In other words, developing aesthetic taste and, separately, consuming a cultural good, both influence a person's preferences for the cultural good. This is true for the whole cultural goods category (in the sense of "more" demand) as well as within the cultural goods category. The assumption of stable preferences which underlies many demand studies in economics is therefore very unrealistic in the case of cultural goods.

7.1.3 AESTHETIC TASTE AND CHOICE OF AESTHETIC VERSUS ENTERTAINING CULTURAL GOODS

The last three hypotheses were formulated with respect to the consumption of cultural goods that have specific attributes (for example goods with strong aesthetic character or goods that are entertaining) and thus directly relate to the second phenomenon of aesthetically rewarding cultural goods not being the most popular. In particular, H7 states that aesthetic taste leads to people having a positive preference for cultural goods that possess a strong aesthetic character. In contrast, H8 claims that familiarity only has a weakly significant or even no significant relationship to the aesthetic character of a cultural good. Note that in regard to average choice probability (H1 and H2) and general taste heterogeneity (H3 and H4), we have expected aesthetic taste *and* familiarity to have an effect in the same direction (positive in all cases), whereas with respect to the aesthetic

nature of cultural goods, we expect only aesthetic taste to be significantly positive. H9 tests for the existence of two particular types of consumers of cultural goods, namely those that have a high level of past exposure but have not developed aesthetic taste (presumably because their experiences with the cultural good lacked the reflection and discussion necessary for aesthetic taste to develop), i.e. the so-called "aficionado consumers", and a second group of consumers who also have a high level of past exposure and, in addition, have developed aesthetic taste, "expert consumers".

As mentioned earlier, the DCE was conducted by providing respondents with information about *real* theatre plays, where each theatre play formed one alternative. The consequence of doing so was that we did not have any pre-defined attributes and therefore the alternatives were not "attribute-combinations" as they commonly are in DCE. To test H7 and H8, however, measures of "strength of aesthetic character" were needed. For that reason the decision was made to "post-define" attributes, by coding each of the theatre plays on a set of attributes. With respect to "strength of aesthetic character", we drew on the literature in aesthetics and developed three alternative measures; two based on either the amount or the intensity of the aesthetic language used in the description of the plays, and the last one based on critics' reviews.

We then conducted seven MNL models to test H7 and H8, each model varying the measure of aesthetic qualities in theatre plays, and whether or not interactions between the measure of aesthetic qualities in theatre plays with measures of aesthetic taste were included:

(1) The first measure of "strength of aesthetic character" counts the number of aesthetic words mentioned in the description of the play as indication of aesthetic strength (*aestattr1* and *aestattr2*). The MNL models conducted with this measure of aesthetic strength to test H7 and H8 found mixed evidence in regard to H7 that does not allow us to conclude in favour of H7. In regard to familiarity we found weak evidence in support of H8. Comparing these results with results from those

models that use one of the two other measures of "strength of aesthetic character" leads us to conclude that creating a measure of "strength of aesthetic character" by counting the number of aesthetic terms in the play description is flawed.

(2) Next we estimated the same MNL models but with different measures of aesthetic qualities in theatre plays, this time just measured by a binary variable indicating a weak or strong aesthetic character of a theatre play. This time the results are supportive of both H7 and H8. We found two positive and one negative interaction coefficient between measures of aesthetic taste and the measure of aesthetic qualities. This could potentially indicate that not all but only some aspects of aesthetic taste relate to aesthetic qualities positively. Upon closer inspection, *taste_ind2*, the variable with the negative interaction coefficient, was in fact itself negatively related to knowledge in the cultural goods category, which could also indicate a positive relationship between knowledge in the cultural goods category and preference for theatre plays with a strong aesthetic character. With respect to H8, we find support for this hypotheses in the models estimated using the second measure of "strength of aesthetic character", *aestqual,* since one interaction coefficient is weakly positively significant and one insignificant.

(3) The last set of MNL models used critics' reviews as measures of aesthetic qualities in theatre plays. In regard to cultural goods with above average aesthetic qualities as measured by the theatre reviews in the *Sydney Morning Herald* (SMH), we found mixed results. Two coefficients measuring the effect of aesthetic taste on preference for aesthetically strong goods were positive, and one was negative. Given that 2 out of the 3 significant coefficients for interactions between above average SMH reviewer ratings and measures of aesthetic taste were positive, we conclude that our hypothesis (H7) is weakly supported.

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Interactions between measures of familiarity and aesthetic qualities were not significant when aesthetic qualities were assessed via SMH reviews. Interestingly though, the opposite was true for interactions with theatre reviews published in *Timeout* magazine. No interactions between measures of aesthetic taste and *Timeout* magazine reviews were significant, but we found significant coefficients for above average *Timeout* magazine reviews and measures of familiarity. After further reflection, we do not use these results as indicating rejection of H7 and H8 (as could be done), but acknowledge the fact that *Timeout* magazine attracts a different audience from that of the SMH theatre review section, presumably one that is younger, trendier and wanting to be entertained (*Timeout* magazine specialises in reviews for bars, restaurants, cafes and all kinds of cultural shows), indicating preference for entertainment rather than aesthetic experience.

Concluding the test of H7 and H8, we note that the question of how to measure aesthetic qualities or the "strength of aesthetic character" is not easy to answer, but that attempting to do so reveals very insightful results. It can be expected that all of the measures introduced in this thesis are distorted in one way or another, and more research is needed if more specific measures of aesthetic qualities are to be developed. Although quite noisy, we find some support for H7 and H8 overall. Aesthetic taste can thus be assumed to play a role in explaining the phenomenon that goods considered aesthetically rewarding are not highly demanded.

To test H9 we conducted a latent class analysis and a 6-class solution is found to be the best fitting model, using the BIC criterion. Three of the classes found were only of minor interest: Class 1 (random clickers), Class 2 (respondents in this class are not interested in theatre plays), and Class 6 (smallest class with low average choice probability – most likely respondents in this class choose to attend only one or two of the plays on offer). Class 3 was the largest class, and we suspect that this class contained in fact two groups of consumers: the "expert consumers" we were looking for (who have a high level of past attendance and

high levels of aesthetic taste), as well as more mainstream consumers. Class 4 contained "artsy" respondents, who prefer experimental, serious plays and presumably are offended by the attempt to measure aesthetic taste. Class 5 can be interpreted as "aficionado consumers", since respondents in this class have high levels of past exposure but only medium levels of aesthetic taste. We thus conclude that there is some evidence, albeit weak, in support of H9. In terms of the preferences of the two groups, we find that the expert consumers (Class 3) preferred plays with above average star rating by the *Sydney Morning Herald* and above average aesthetic qualities (*aestqual*), whereas preferences of "aficionado consumers" (Class 5) were more in line with the star rating of *Timeout* magazine. These results also support H9, since it was the "expert consumers" who preferred those plays that have a stronger aesthetic character, whereas "aficionado consumers" (who also have high levels of past exposure) preferred plays with a weaker aesthetic character.

These results once again show that developing aesthetic taste is indeed distinct from pure exposure (familiarity) and that preferences change in favour of plays with a stronger aesthetic character, as aesthetic taste is developed. With respect to the second phenomenon, that the goods highest in demand within a cultural goods category are generally not those that are most entertaining rather than those that promise the best aesthetic experience, we conclude that aesthetic taste does indeed explain this phenomenon broadly, since testing the hypotheses has shown that developing aesthetic taste has:

- an effect on general preference heterogeneity (distinct from familiarity); and,
- leads to greater preference for plays with a stronger aesthetic character.

To conclude this overview the question posed in the introductory section is repeated here: Why should economists be interested in whether people demand entertaining or aesthetically rewarding goods? The answer essentially is that economists are concerned with true preferences, and if one lacks a skill to understand (and therefore enjoy) aesthetic goods, a person's revealed preferences do not reflect their true preferences. We were able to show in this thesis that aesthetic taste does affect preferences for aesthetic qualities positively,

more so than does past exposure. The results are in line with the results obtained from testing the omnivore hypotheses. The more one develops aesthetic taste, the more open one is to a greater variety of plays, which also includes aesthetically rewarding plays. Whilst some consumers of cultural goods might always look only for distraction and entertainment in their consumption activity, others might simply not be aware of aesthetic qualities, and would in fact be open to developing aesthetic taste; not accounting for aesthetic taste fails to distinguish between these consumers.

7.2 IMPLICATIONS FOR ARTS POLICY AND ARTS ORGANISATIONS

The construct of aesthetic taste introduced in this thesis is based on theories in philosophy and psychology rather than simple observation. It therefore has the advantage of being causal rather than correlational, so that promoting the development of aesthetic taste has definite effects on demand and consumer choice patterns. Obviously, since this is the first research that has been done in cultural economics on the effect of aesthetic taste on consumer demand for cultural goods, more empirical research is needed to confirm the results found, and to "fine-tune" the measurement of aesthetic taste and aesthetic qualities used. Nevertheless, we can see the following implications, of how the results in this thesis might be useful in real life:

7.2.1 FOSTERING AESTHETIC TASTE DEVELOPMENT INCREASES DEMAND FOR CULTURAL GOODS

In this thesis we have established that, whilst exposure certainly is a necessary condition for developing aesthetic taste (how could one possibly understand theatre plays without attending them?), it is not sufficient to create longer-lasting future demand. Arts organisations such as theatre companies wishing to expand demand for their product should therefore focus their promotional efforts not only on attracting people to come and see plays, as they currently do (for example through price-promotions; or staging plays or shows that

attract audiences that generally would not consider going to the theatre, e.g. a play about a sports celebrity), but also on activities that promote the development of aesthetic taste amongst audience members. In particular, arts organisations could combine price-promotional activities to attract new audiences with a component that addresses the consumers' aesthetic taste. Since aesthetic taste is a function of general knowledge of the cultural goods category and aesthetic language proficiency for the category, useful ways to increase the level of aesthetic taste amongst consumers for the specific cultural goods category of theatre plays could entail, for example, participation in an active discussion and reflection about the theatre experience, after attending the play. This discussion might include theatre critics, who describe certain features or situations in the play by using specific rather than general language, thereby pointing out particular characteristics of the experience, that would have remained hidden otherwise. Perhaps theatres could even stage a play that "freezes" after certain – aesthetically important – moments, and a critic comes on stage and explains the situation or points out those subtle features that create moments of aesthetic experience. After the critic has finished the commentary, the scene could be "replayed", so that audiences can compare their own experience, before and after having learned about the scene's aesthetic qualities.

Obviously efforts that go in that direction do already exist. Examples are guided tours in art galleries; talks with the director or main actor about the theatre play after the play was performed; printed programs for music concerts or theatre plays sold at the venue; videostreams of interviews or samples of the performance being available to watch for free on the website of arts organisations; Nevertheless, in all these cases a certain amount of effort is required by the consumer: she has to *buy* the program at the music concert and read it; she has to *visit* to website and click on the video; she has to *stay* after the play and listen to the talk; she has to *pay* extra for the guided tour or wait some time until it starts. Only people who see value in these extra services will make the additional effort to purchase them, but people who never or rarely consume a certain cultural good most likely do not see

the value that these additional services provide. As a result they will not buy them, and thus will forgo the opportunity to develop aesthetic taste, have aesthetic experiences and gain greater utility. Hence organisational strategies aimed at new consumers should always include a component that targets aesthetic taste in such a way that supports the consumers' exposure with some form of aesthetic reflection on their experience.

7.2.2 AESTHETIC TASTE COULD FACILITATE ARTS IMPACT STUDIES

Perhaps aesthetic taste and the ability to measure it could also be useful for people working in arts policy, who are often required to measure the "impact" the arts have on society, or on the (local, regional or national) economy (see for example Seaman 1987). Aesthetic taste is a perceptive skill of a person, and past research has shown that increasing a perceptive skill increases the person's utility when using it (Redden 2008; Smallman and Roese 2008; Eisenstein 2010). Increasing utility (i.e. enjoyment or value) for consumers or citizens is often (if not always) an aim for public policy across the board, and specifically in the arts. Promoting the development of aesthetic taste is a way of achieving this.

In the same vein, Scitovsky pointed out that consumption skills (which aesthetic taste is) are necessary for "getting the most out of life" (1972, p.64). They increase a person's level of happiness and sense of purposefulness. Although they are not productive in an economic sense (i.e. do not contribute to generating wealth in the economy) and are therefore less desirable in a productivity-focused society, increasing consumption skills such as aesthetic taste does create value for the society that goes beyond the arts industry and its consumers.

For example, consumption skills such as aesthetic taste provide people with the capability to spend their leisure time more purposefully, reducing the tendency for people to use their leisure time for crime, vandalism or drug abuse. It is well known that a safer, healthier, prettier locality where the arts are strongly present attracts new, highly educated residents to regional/rural areas, thus stimulating wealth and economic activity in the region (Bille and Schulze 2006). It is for that reason that aesthetic taste development in and of itself

could become a key indicator along which effectiveness of arts policy interventions could be measured.

7.2.3 AESTHETIC TASTE ENCOURAGES CULTURAL CAPITAL DEVELOPMENT

More generally, fostering the development of aesthetic taste supports the creation and preservation of "cultural capital" (in the economic sense) which also is a desirable end in and of itself. Cultural capital can be defined "as an asset which embodies, stores or gives rise to cultural value in addition to whatever economic value it may possess" (Throsby 2011, p.167). "Cultural value" on the other hand is a multidimensional construct that subsumes the asset's (for example a culturally important building's) "cultural worth assessed in quantitative and/or qualitative terms against a variety of attributes such as its aesthetic quality, its spiritual meaning, its social function, its symbolic significance, its historical importance, its uniqueness, and so on (p. 167). Developing aesthetic taste is likely to increase one's interest in cultural capital assets, focusing particularly on the aesthetic component that is part of the asset's cultural value. People with high levels of aesthetic taste have knowledge about the existence, the creation and the greater importance of the aesthetic qualities of those assets, and possess the language required to describe these qualities; this is likely to promote the preservation of these cultural assets and the creation of more cultural capital.

For these reasons institutions responsible for preserving and managing built cultural heritage (such as public monuments and buildings) could encourage activities that promote the development of aesthetic taste. There certainly exist creative ways of raising people's awareness of particular features of monuments or buildings, as they walk past in their day-to-day life, for example by using spot lights to highlight features of the built structure; by creating a visual illusion that alters the building's appearance into one without certain aesthetic features; or by installing written signs or recorded messages that encourage people to feel ("touch the smoothness of the sandstone as opposed to the red brick."), smell ("breathe in the earthy coolness that dissipates through the hall."), hear ("notice how

symmetrically the echo resonates back your steps from all directions."), and of course see ("do you see how the greens and golds on the roof reflect the changing season of the chest nut trees opposite?") the aesthetic qualities present.

7.2.4 AESTHETIC TASTE DEVELOPMENT BROADENS CONSUMER PREFERENCES

This thesis has shown that the development of aesthetic taste does not lead to preferences becoming more discriminating, such that demand for some cultural goods within a cultural goods category would diminish after the development of aesthetic taste because these goods then are perceived as somehow "too vulgar" or "too ordinary" to be appreciated. Note that the idea of aesthetic taste development leading to discriminating preferences appeals to the sociological concept of taste as an indicator of belonging to a social class or status. We could not find any support for this claim. In fact, we found quite the opposite to be true: people who develop aesthetic taste become more omnivorous within a cultural goods category – in other words, they become open to a greater variety of plays. This has consequences both for arts policy and for individual arts organisations.

Arts policy has often been accused of catering only for a certain elite in the population, rather than the population as a whole. Being "elite" though, implies this elite to have specific "elitist" preferences that are presumably more restrictive (i.e. univorous) than those of the general population. However, our findings for theatre plays, as well as earlier research on other cultural good categories, showed, the contrary to be true: it is not those who consume artistic goods (in particular those termed "high art") that are elitist, in the sense that they refuse to consume non-artistic goods, but other parts of the population who refuse to consume artistic goods. In other words, fostering appreciation of cultural goods by encouraging the development of aesthetic taste leads to preferences becoming more omnivorous and less discriminating towards those more aesthetically rich cultural goods that might be termed "boring old rubbish" or "fluffy stuff" by those without aesthetic taste, whilst at the same time preferences for less aesthetic goods (that presumably attract a more general

audience) are not negatively affected. Put in short and succinct words: Arts policy makers need not be afraid that they may create elitist art snobs by encouraging aesthetic taste development.

Arts organisations such as theatres need to be aware of the likelihood that two distinct groups exist amongst their frequent consumers: aficionado consumers who presumably choose those plays that are more easily accessible and entertaining, but do not provide such a high aesthetic experience; and expert consumers, who also are open to plays with stronger aesthetic qualities. Aesthetically rewarding plays require more skill from consumers (higher levels of aesthetic taste), but also offer greater aesthetic reward. Theatre companies can make use of this relationship between "more cognitive effort" and "more aesthetic reward", for example by offering existing "aficionado consumers" opportunities to learn (to develop aesthetic taste) via encounters with critics, educational sessions or discussion before/after the actual consumption situation, as described above. Not only would such activities lead to "more bums on empty seats" in aesthetically more challenging plays, but it would also allow companies to offer a wider variety of plays which in due course would lead to greater cultural capital being developed.

7.3 IDEAS FOR FURTHER RESEARCH

7.3.1 GENERAL EXTENSIONS

The data collected to test the hypotheses in this thesis are quite noisy. The only restrictions for taking part in this specific survey and discrete choice experiment on theatre plays were that respondents needed to be Sydney residents and have attended at least one theatre play in the past 12 months. This led in fact to a large number of respondents being infrequent theatre attendees (as reflected in the general population), and consequently to their either not providing "good" data in regard to which plays they would attend (by choosing the "none" alternative in a great number of choice sets) or even randomly clicking through the survey (probably because of boredom). Therefore, in hindsight, these two restrictions on

residency and minimum past attendance seem to be too loose to provide us with data rich enough to test our very specific hypotheses. For future research, it would be desirable to oversample occasional and frequent theatre attendees to be better able to determine the different effects of past exposure and aesthetic taste development. Alternatively, it would be interesting to conduct a similar study only amongst more frequent theatre attenders (for example by distributing the survey or a link to the survey amongst attendees at several theatre venues). We would expect to find clearer support for the hypotheses in such samples.

This thesis has ignored the influence that other people's opinions and decisions have on people's choices. This was done deliberately, so that the role of aesthetic taste could be investigated without additional sources of interference. To develop more realistic models, however, explicit influence of word-of-mouth (popular opinion) or expert reviews of theatre plays would need to be included alongside aesthetic taste.

We were not able to fully investigate phenomenon 2 – that entertaining goods are generally more demanded than aesthetically rewarding goods – since we did not define "entertaining". An assumption that "entertaining" equals "comedic" plays (which is not necessarily the case), leads to contradictory results from our latent class analysis: Class 5, the "aficionado consumers", who presumably prefer plays that are entertaining, had in fact a significant negative coefficient for "comedic", whereas Class 3, the class containing the "expert consumers", had a significant positive coefficient for "comedic". One possible explanation for this surprising result is that, as mentioned before, we expect Class 3 to contain in fact both groups, the true "expert consumers" and the more mainstream consumers (who have a strong positive preference for entertaining plays). In regard to the second phenomenon we can thus only explain it to some degree, in that we found that expert consumers prefer theatre plays that have strong aesthetic character more so than do aficionado consumers. Future research that investigates this phenomenon should thus ensure that "entertaining" is defined prior to the data collection taking place and that

hypotheses with regard to the interaction effects between the attribute "entertaining" and aesthetic taste as well as familiarity are formulated.

A very interesting extension of the research described here would be to look at aesthetic taste development and its effect on consumer behaviour in a panel data set. It would be possible to conduct an experiment where data on aesthetic taste and choice behaviour are collected at a certain point in time, with respondents then randomly assigned to different groups, where each group receives (a) only knowledge information about the cultural goods category; or (b) only aesthetic language training; or (c) only exposure to the cultural good; or some combination of the first three options (groups d, e, f, g); or (h) no training or activity. In a second phase the same questionnaire on aesthetic taste and data as used in the first phase would be distributed to respondents. Such a research project would allow for aesthetic taste development to be investigated in much more detail.

7.3.2 METHODOLOGICAL EXTENSIONS

In this thesis, the three measures of aesthetic qualities were either derived from judgment by the author (*aestqual*; *aestattr1* and *aestattr2*), and were thus not independent, or by using expert star ratings (*smh_stars1, smh_stars2, to_stars1, to_stars2*) that are based on the experts having seen the actual play (i.e. they are based on information other than what the respondents saw). Thus another point to address in future research would be to obtain an *independent* judgment of aesthetic qualities of cultural goods, for example by having experts judge the aesthetic nature of the cultural goods in question, *based on the information presented* to the respondents (in the case of theatre this information would comprise the play title, playwright, venue, plot, and play description).

A methodological extension of the latent class analysis conducted within this thesis would be to allow for people within a latent class to differ in their scale. In essence this means that although people within a preference class have the same preferences (and thus part-worth utilities), they might differ in their level of uncertainty with regard to their choices,

which affects the variance. This difference in variance could be accounted for by implementing a scale-adjusted latent class model (Burke et al. 2010; Flynn et al. 2010; Campbell et al. 2011).

Another option could be a stepwise model that first calculates a probability of attending versus not attending a play, and in a second step calculates a choice probability for a particular play. To that end, the survey should ask if respondents would theoretically be open to attending a play, for example "in the next four weeks". Since the survey used in this thesis did not ask such a question, one could not possibly distinguish between people having a zero probability of attending any theatre play from those not wanting to attend any or the large majority of the 16 because the plays did not match their preferences.

APPENDIX 1

MNL with covariates: coefficients and z-values, Models 1-7 (results significant at p<= 0.1 bold)

Play	variable	Coefficients							z-statistic						
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
1	taste_dir1	**0.79**		0.13		**0.77**		0.10	2.15		0.33		2.16		0.26
	taste_dir2	**2.99**		**3.07**		**2.94**		**2.94**	7.26		7.30		7.44		7.24
	taste_ind1		**3.98**	**3.23**			**4.33**	**3.16**		5.53	4.17			6.36	4.21
	taste_ind2		0.78	**1.11**			0.71	**1.16**		1.58	2.17			1.48	2.34
	taste_ind3		0.46	0.40			0.61	0.46		1.16	1.00			1.55	1.16
	know_fake	-0.17	**0.72**	-0.23	**0.82**	-0.12	**0.76**	-0.17	-0.74	3.96	-1.03	4.62	-0.53	4.23	-0.78
	attpre18_1	0.10	0.17	0.06	0.27				0.53	0.97	0.31	1.54			
	attpre18_2	**-0.49**	-0.30	**-0.51**	-0.23				-2.53	-1.59	-2.64	-1.21			
	att12mths_1	0.27	**0.32**	0.17	**0.49**				1.56	1.85	0.98	2.87			
	att12mths_2	**0.44**	**0.55**	0.30	**0.88**				1.66	2.01	1.06	3.36			
	female	**0.43**	**0.45**	**0.40**	**0.50**	**0.46**	**0.48**	**0.43**	2.59	2.67	2.36	3.04	2.76	2.90	2.57
	age_1	**1.85**	**2.20**	**1.83**	**2.26**	**2.10**	**2.45**	**2.04**	3.39	4.05	3.32	4.19	4.00	4.72	3.86
	educ_1	-0.14	0.01	-0.13	0.00	-0.16	0.01	-0.14	-0.78	0.05	-0.73	0.01	-0.87	0.07	-0.80
	educ_2	-0.31	-0.15	-0.31	-0.14	-0.32	-0.16	-0.33	-1.40	-0.68	-1.40	-0.66	-1.50	-0.75	-1.52
	inc_1	0.23	0.24	0.25	0.17	0.27	0.29	0.30	1.14	1.24	1.27	0.89	1.41	1.50	1.54
	inc_2	**0.55**	**0.54**	**0.54**	**0.55**	**0.57**	**0.58**	**0.54**	2.66	2.59	2.57	2.68	2.77	2.82	2.61
	_cons	**-4.56**	**-6.59**	**-6.94**	**-3.53**	**-4.55**	**-6.76**	**-6.96**	-10.33	-10.04	-10.14	-9.74	-10.71	-10.46	-10.40
2	taste_dir1	**1.52**		**1.33**		**1.52**		**1.31**	4.62		3.77		4.70		3.75
	taste_dir2	**1.56**		**1.51**		**1.62**		**1.53**	4.19		4.03		4.53		4.17
	taste_ind1		**2.67**	1.18			**3.04**	**1.23**		3.92	1.60			4.76	1.75
	taste_ind2		0.26	0.09			0.19	0.13		0.56	0.20			0.43	0.29
	taste_ind3		0.35	0.22			0.50	0.30		0.99	0.63			1.41	0.87
	know_fake	**-0.53**	-0.06	**-0.57**	0.02	**-0.52**	-0.01	**-0.55**	-2.42	-0.34	-2.56	0.10	-2.37	-0.05	-2.47
	attpre18_1	-0.11	0.02	-0.12	0.06				-0.64	0.10	-0.67	0.34			
	attpre18_2	-0.18	-0.06	-0.18	0.00				-1.02	-0.34	-1.03	0.00			
	att12mths_1	**0.40**	**0.45**	**0.34**	**0.60**				2.47	2.81	2.07	3.82			
	att12mths_2	0.11	0.23	0.04	**0.47**				0.38	0.81	0.14	1.76			
	female	-0.11	-0.03	-0.12	0.00	-0.08	0.00	-0.09	-0.69	-0.22	-0.74	-0.01	-0.55	-0.02	-0.58
	age_1	**-1.77**	**-1.38**	**-1.75**	**-1.36**	**-1.61**	**-1.21**	**-1.62**	-3.29	-2.59	-3.25	-2.56	-3.10	-2.36	-3.10
	educ_1	**0.59**	**0.66**	**0.60**	**0.66**	**0.57**	**0.67**	**0.58**	3.56	4.00	3.58	3.97	3.46	4.06	3.50
	educ_2	0.30	**0.38**	0.30	**0.40**	0.27	**0.36**	0.27	1.48	1.89	1.49	2.03	1.35	1.80	1.33
	inc_1	**0.53**	**0.53**	**0.56**	**0.48**	**0.56**	**0.57**	**0.59**	3.03	3.04	3.16	2.78	3.22	3.28	3.38
	inc_2	0.29	**0.34**	0.29	**0.34**	0.33	**0.39**	0.32	1.49	1.73	1.45	1.75	1.67	1.99	1.61
	_cons	**-2.64**	**-3.48**	**-3.38**	**-1.57**	**-2.68**	**-3.65**	**-3.51**	-6.66	-5.85	-5.57	-4.80	-7.06	-6.34	-5.97

Play	variable	Coefficients							z-statistic						
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
3	taste_dir1	1.38		1.07		1.46		1.08	4.20		3.05		4.49		3.09
	taste_dir2	1.93		1.98		2.06		2.03	5.40		5.46		5.99		5.74
	taste_ind1		2.61	1.32			3.54	1.83		3.89	1.85			5.65	2.67
	taste_ind2		1.01	1.01			0.59	0.74		2.30	2.24			1.39	1.68
	taste_ind3		0.27	0.14			0.51	0.31		0.76	0.40			1.44	0.87
	know_fake	0.11	0.74	0.07	0.80	0.15	0.82	0.12	0.54	4.58	0.32	5.12	0.78	5.15	0.58
	attpre18_1	-0.18	-0.06	-0.19	-0.02				-1.09	-0.39	-1.15	-0.10			
	attpre18_2	-0.21	-0.04	-0.20	-0.01				-1.26	-0.27	-1.15	-0.05			
	att12mths_1	0.26	0.34	0.22	0.46				1.58	2.10	1.34	2.87			
	att12mths_2	0.94	1.17	0.95	1.33				4.08	4.93	3.94	5.96			
	female	-0.11	-0.06	-0.14	-0.01	-0.12	-0.06	-0.14	-0.73	-0.40	-0.93	-0.04	-0.78	-0.38	-0.93
	age_1	-1.07	-0.68	-1.11	-0.62	-0.44	0.00	-0.48	-2.11	-1.33	-2.17	-1.23	-0.91	-0.01	-0.99
	educ_1	0.28	0.36	0.29	0.35	0.31	0.43	0.32	1.77	2.26	1.81	2.22	1.92	2.73	2.00
	educ_2	-0.07	0.03	-0.06	0.04	-0.04	0.08	-0.04	-0.37	0.14	-0.31	0.22	-0.19	0.39	-0.21
	inc_1	0.24	0.21	0.26	0.17	0.20	0.18	0.22	1.36	1.20	1.45	0.96	1.13	1.07	1.28
	inc_2	0.15	0.14	0.12	0.17	0.17	0.21	0.15	0.76	0.75	0.61	0.90	0.89	1.11	0.78
	_cons	-2.77	-3.92	-3.98	-1.69	-3.11	-4.53	-4.53	-7.17	-6.67	-6.60	-5.40	-8.31	-7.97	-7.74
4	taste_dir1	1.12		0.14		1.10		0.06	3.57		0.41		3.57		0.18
	taste_dir2	3.33		3.45		3.42		3.46	9.67		9.74		10.23		9.95
	taste_ind1		5.71	4.80			6.08	4.79		9.10	7.01			10.44	7.37
	taste_ind2		1.33	1.72			0.98	1.60		3.22	3.97			2.44	3.74
	taste_ind3		0.08	0.01			0.23	0.08		0.23	0.03			0.67	0.22
	know_fake	-0.10	0.86	-0.20	1.01	-0.09	0.90	-0.20	-0.54	5.70	-1.06	6.94	-0.49	6.10	-1.07
	attpre18_1	-0.57	-0.51	-0.65	-0.34				-3.71	-3.32	-4.13	-2.31			
	attpre18_2	0.13	0.32	0.10	0.42				0.86	2.04	0.64	2.77			
	att12mths_1	0.28	0.37	0.21	0.53				1.87	2.47	1.35	3.61			
	att12mths_2	0.30	0.41	0.11	0.82				1.36	1.79	0.48	3.87			
	female	0.21	0.22	0.16	0.29	0.18	0.19	0.12	1.48	1.57	1.10	2.16	1.33	1.37	0.88
	age_1	1.44	1.77	1.40	1.86	1.83	2.16	1.72	3.01	3.76	2.90	4.00	4.00	4.78	3.71
	educ_1	0.24	0.41	0.27	0.37	0.26	0.46	0.28	1.56	2.69	1.74	2.47	1.69	3.06	1.83
	educ_2	0.15	0.32	0.17	0.30	0.16	0.35	0.17	0.83	1.81	0.95	1.72	0.92	1.98	0.93
	inc_1	0.64	0.63	0.65	0.56	0.56	0.54	0.57	3.95	3.86	3.93	3.55	3.50	3.44	3.50
	inc_2	0.62	0.59	0.57	0.62	0.62	0.61	0.57	3.54	3.41	3.25	3.67	3.64	3.57	3.29
	_cons	-4.21	-7.22	-7.60	-2.87	-4.55	-7.53	-7.87	-10.99	-12.45	-12.46	-9.42	-12.24	-13.44	-13.37

Play	variable	Coefficients							z-statistic						
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
5	taste_dir1	**0.90**		0.30		**0.86**		0.26	3.28		1.01		3.20		0.86
	taste_dir2	**0.96**		**1.10**		**0.91**		**1.04**	2.93		3.28		2.87		3.16
	taste_ind1		**3.02**	**2.48**			**3.13**	**2.47**		5.05	3.88			5.55	3.97
	taste_ind2		**1.89**	**1.86**			**1.93**	**1.95**		4.76	4.60			5.02	4.97
	taste_ind3		-0.19	-0.29			-0.05	-0.18		-0.57	-0.89			-0.17	-0.55
	know_fake	0.16	**0.41**	0.05	**0.50**	0.20	**0.45**	0.10	0.85	2.64	0.25	3.25	1.08	2.90	0.52
	attpre18_1	0.13	0.18	0.11	**0.25**				0.92	1.27	0.73	1.73			
	attpre18_2	**-0.62**	**-0.53**	**-0.60**	**-0.51**				-3.81	-3.32	-3.65	-3.22			
	att12mths_1	**0.33**	**0.37**	**0.31**	**0.44**				2.42	2.68	2.23	3.30			
	att12mths_2	0.22	0.37	0.26	**0.44**				0.93	1.53	1.05	1.95			
	female	**0.44**	**0.41**	**0.37**	**0.51**	**0.49**	**0.45**	**0.42**	3.26	2.97	2.69	3.74	3.62	3.34	3.06
	age_1	**1.07**	**1.25**	**0.97**	**1.37**	**1.23**	**1.46**	**1.17**	2.45	2.87	2.20	3.16	2.95	3.50	2.77
	educ_1	**0.32**	**0.38**	**0.34**	**0.36**	**0.27**	**0.34**	**0.29**	2.20	2.62	2.33	2.53	1.85	2.41	2.03
	educ_2	0.19	0.27	0.21	0.26	0.13	0.23	0.17	1.07	1.53	1.20	1.47	0.77	1.33	0.96
	inc_1	0.12	0.10	0.12	0.08	0.21	0.19	0.21	0.77	0.66	0.77	0.51	1.35	1.25	1.35
	inc_2	-0.07	-0.12	-0.13	-0.05	-0.03	-0.07	-0.09	-0.40	-0.64	-0.72	-0.29	-0.16	-0.36	-0.50
	_cons	**-2.97**	**-5.12**	**-4.99**	**-2.37**	**-2.90**	**-5.20**	**-5.05**	-8.93	-9.60	-9.35	-8.29	-9.19	-9.97	-9.67
6	taste_dir1	**1.14**		**0.67**		**1.09**		**0.59**	4.01		2.17		3.91		1.95
	taste_dir2	**2.16**		**2.31**		**2.19**		**2.28**	6.58		6.86		6.93		6.98
	taste_ind1		**2.98**	**1.85**			**3.56**	**2.15**		5.13	2.96			6.57	3.58
	taste_ind2		**1.73**	**1.83**			**1.28**	**1.53**		4.40	4.52			3.37	3.90
	taste_ind3		-0.11	-0.22			0.07	-0.10		-0.34	-0.70			0.21	-0.33
	know_fake	**-0.38**	0.27	**-0.47**	0.36	-0.32	0.35	**-0.40**	-2.04	1.75	-2.45	2.33	-1.76	2.25	-2.15
	attpre18_1	**-0.51**	**-0.40**	**-0.53**	**-0.33**				-3.64	-2.83	-3.71	-2.40			
	attpre18_2	-0.11	0.07	-0.10	0.10				-0.74	0.47	-0.62	0.65			
	att12mths_1	0.18	**0.31**	0.17	**0.38**				1.30	2.22	1.24	2.79			
	att12mths_2	**0.63**	**0.94**	**0.71**	**1.01**				3.06	4.44	3.33	5.14			
	female	**0.58**	**0.58**	**0.52**	**0.66**	**0.58**	**0.57**	**0.51**	4.38	4.31	3.85	5.02	4.37	4.31	3.86
	age_1	**1.96**	**2.32**	**1.88**	**2.43**	**2.55**	**2.98**	**2.52**	4.46	5.31	4.24	5.61	6.08	7.17	5.96
	educ_1	**0.49**	**0.60**	**0.51**	**0.58**	**0.51**	**0.66**	**0.55**	3.51	4.33	3.65	4.25	3.76	4.90	3.97
	educ_2	-0.24	-0.11	-0.21	-0.12	-0.20	-0.05	-0.18	-1.34	-0.59	-1.17	-0.70	-1.13	-0.27	-1.01
	inc_1	**0.63**	**0.60**	**0.64**	**0.56**	**0.55**	**0.53**	**0.55**	4.11	3.96	4.13	3.74	3.69	3.54	3.69
	inc_2	**0.53**	**0.49**	**0.46**	**0.55**	**0.52**	**0.52**	**0.47**	3.13	2.87	2.71	3.30	3.11	3.08	2.79
	_cons	**-3.86**	**-5.57**	**-5.61**	**-2.89**	**-4.29**	**-6.10**	**-6.11**	-11.17	-10.61	-10.43	-10.04	-12.73	-11.95	-11.69

Play	variable	Coefficients							z-statistic						
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
7	taste_dir1	0.61		-0.47		0.55		-0.63	1.68		-1.20		1.56		-1.59
	taste_dir2	2.10		2.18		2.05		2.02	5.09		5.13		5.15		4.90
	taste_ind1		5.80	5.65			5.73	5.53		7.65	6.85			8.10	6.96
	taste_ind2		1.13	1.38			1.07	1.40		2.19	2.60			2.15	2.74
	taste_ind3		0.53	0.44			0.58	0.45		1.23	1.03			1.39	1.06
	know_fake	0.41	0.98	0.30	1.11	0.45	0.98	0.34	1.84	5.50	1.38	6.40	2.09	5.56	1.57
	attpre18_1	-0.35	-0.36	-0.44	-0.21				-1.96	-2.01	-2.42	-1.21			
	attpre18_2	-0.39	-0.36	-0.46	-0.22				-1.94	-1.82	-2.28	-1.11			
	att12mths_1	0.15	0.12	0.04	0.31				0.80	0.64	0.19	1.69			
	att12mths_2	0.59	0.44	0.29	0.90				2.28	1.63	1.06	3.58			
	female	-0.05	-0.08	-0.10	0.01	-0.04	-0.06	-0.09	-0.30	-0.45	-0.60	0.08	-0.23	-0.38	-0.54
	age_1	1.16	1.48	1.13	1.57	1.69	1.90	1.54	1.99	2.53	1.91	2.71	3.03	3.42	2.73
	educ_1	0.52	0.65	0.57	0.61	0.52	0.64	0.56	2.78	3.45	2.99	3.29	2.79	3.47	2.98
	educ_2	0.45	0.57	0.46	0.57	0.45	0.57	0.45	2.07	2.63	2.09	2.68	2.09	2.67	2.07
	inc_1	0.51	0.52	0.54	0.45	0.48	0.51	0.51	2.63	2.69	2.75	2.34	2.55	2.68	2.69
	inc_2	0.27	0.23	0.23	0.27	0.26	0.21	0.20	1.22	1.06	1.06	1.23	1.20	0.97	0.93
	_cons	-3.74	-7.56	-7.60	-3.09	-4.10	-7.90	-7.87	-8.51	-10.71	-10.60	-8.24	-9.64	-11.42	-11.29
8	taste_dir1	1.82		1.12		1.84		1.10	6.64		3.79		6.82		3.73
	taste_dir2	2.17		2.29		2.22		2.28	7.14		7.31		7.62		7.51
	taste_ind1		4.57	3.14			5.05	3.23		8.28	5.30			9.78	5.68
	taste_ind2		1.98	2.02			1.71	1.92		5.33	5.28			4.79	5.15
	taste_ind3		1.05	0.90			1.10	0.89		3.57	3.04			3.83	3.06
	know_fake	-0.45	0.28	-0.47	0.35	-0.43	0.31	-0.46	-2.54	1.96	-2.66	2.52	-2.48	2.18	-2.62
	attpre18_1	-0.24	-0.13	-0.28	-0.03				-1.77	-0.97	-2.00	-0.20			
	attpre18_2	0.25	0.42	0.25	0.47				1.80	3.07	1.80	3.53			
	att12mths_1	-0.12	-0.06	-0.22	0.12				-0.95	-0.49	-1.64	0.99			
	att12mths_2	0.11	0.29	0.03	0.59				0.58	1.43	0.17	3.14			
	female	0.01	0.06	-0.03	0.13	-0.02	0.02	-0.06	0.11	0.46	-0.20	1.13	-0.15	0.19	-0.45
	age_1	0.79	1.25	0.76	1.33	0.92	1.38	0.88	1.94	3.06	1.84	3.32	2.35	3.52	2.20
	educ_1	0.54	0.63	0.55	0.62	0.56	0.70	0.58	4.08	4.79	4.10	4.79	4.28	5.38	4.38
	educ_2	0.34	0.44	0.34	0.45	0.37	0.50	0.37	2.14	2.81	2.14	2.90	2.34	3.18	2.33
	inc_1	0.37	0.40	0.43	0.32	0.31	0.32	0.35	2.61	2.79	2.92	2.29	2.18	2.29	2.47
	inc_2	0.11	0.08	0.05	0.17	0.10	0.10	0.04	0.70	0.52	0.30	1.08	0.66	0.63	0.25
	_cons	-3.34	-6.27	-6.33	-1.96	-3.55	-6.51	-6.56	-10.27	-12.51	-12.28	-7.53	-11.19	-13.22	-12.92

Play	variable	Coefficients							z-statistic						
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
9	taste_dir1	0.54		-0.41		0.48		-0.49	*1.36*		*-0.94*		*1.24*		*-1.14*
	taste_dir2	1.91		**2.11**		**1.92**		**2.04**	*4.16*		*4.47*		*4.30*		*4.42*
	taste_ind1		**4.48**	**4.31**			**4.59**	**4.24**		*5.23*	*4.64*			*5.74*	*4.75*
	taste_ind2		**2.04**	**2.27**			**1.97**	**2.30**		*3.51*	*3.81*			*3.52*	*3.97*
	taste_ind3		0.47	0.39			0.61	0.49		*1.00*	*0.82*			*1.33*	*1.06*
	know_fake	0.26	**0.83**	0.16	**0.90**	0.31	**0.88**	0.21	*1.04*	*4.16*	*0.63*	*4.58*	*1.27*	*4.42*	*0.86*
	attpre18_1	-0.04	-0.01	-0.10	0.10				*-0.17*	*-0.07*	*-0.46*	*0.46*			
	attpre18_2	-0.60	**-0.52**	**-0.61**	**-0.45**				*-2.62*	*-2.27*	*-2.61*	*-2.01*			
	att12mths_1	0.56	**0.56**	**0.48**	**0.71**				*2.72*	*2.72*	*2.32*	*3.47*			
	att12mths_2	0.60	**0.61**	0.47	**0.88**				*1.87*	*1.85*	*1.41*	*2.79*			
	female	-0.13	-0.15	-0.18	-0.07	-0.09	-0.10	-0.14	*-0.70*	*-0.77*	*-0.94*	*-0.38*	*-0.47*	*-0.52*	*-0.72*
	age_1	0.06	0.39	-0.05	0.50	0.50	0.82	0.38	*0.09*	*0.58*	*-0.07*	*0.74*	*0.77*	*1.26*	*0.57*
	educ_1	0.34	**0.48**	0.41	**0.43**	0.33	**0.46**	**0.38**	*1.62*	*2.26*	*1.92*	*2.03*	*1.55*	*2.18*	*1.81*
	educ_2	0.24	0.38	0.26	0.37	0.23	0.37	0.25	*0.97*	*1.56*	*1.06*	*1.52*	*0.95*	*1.53*	*1.04*
	inc_1	**0.87**	**0.90**	**0.92**	**0.82**	**0.93**	**0.97**	**0.98**	*4.15*	*4.22*	*4.33*	*3.88*	*4.52*	*4.64*	*4.71*
	inc_2	**0.43**	0.40	0.40	**0.43**	**0.47**	**0.44**	**0.42**	*1.72*	*1.57*	*1.59*	*1.72*	*1.90*	*1.73*	*1.68*
	_cons	**-3.71**	**-7.26**	**-7.27**	**-3.17**	**-3.75**	**-7.39**	**-7.34**	*-7.46*	*-9.03*	*-8.94*	*-7.33*	*-7.93*	*-9.46*	*-9.32*
10	taste_dir1	**1.79**		**1.38**		**1.72**		**1.34**	*4.99*		*3.66*		*4.90*		*3.59*
	taste_dir2	**1.63**		**1.62**		**1.49**		**1.44**	*4.21*		*4.13*		*4.02*		*3.83*
	taste_ind1		**3.64**	**2.27**			**3.56**	**1.85**		*5.10*	*3.01*			*5.28*	*2.54*
	taste_ind2		0.61	0.52			0.73	0.68		*1.26*	*1.04*			*1.57*	*1.41*
	taste_ind3		0.35	0.19			0.35	0.15		*0.92*	*0.51*			*0.92*	*0.41*
	know_fake	0.04	**0.52**	-0.02	**0.62**	0.08	**0.53**	0.03	*0.17*	*2.91*	*-0.11*	*3.55*	*0.38*	*3.00*	*0.15*
	attpre18_1	**0.31**	**0.42**	0.29	**0.48**				*1.68*	*2.32*	*1.58*	*2.66*			
	attpre18_2	**-0.55**	**-0.43**	**-0.57**	**-0.34**				*-2.87*	*-2.26*	*-2.95*	*-1.82*			
	att12mths_1	-0.10	-0.07	-0.18	0.11				*-0.60*	*-0.43*	*-1.08*	*0.67*			
	att12mths_2	0.16	0.25	0.05	**0.55**				*0.55*	*0.85*	*0.18*	*2.01*			
	female	-0.09	-0.04	-0.12	0.02	-0.05	0.00	-0.08	*-0.56*	*-0.23*	*-0.73*	*0.12*	*-0.34*	*-0.01*	*-0.50*
	age_1	**-1.90**	**-1.54**	**-1.95**	**-1.46**	**-1.86**	**-1.55**	**-1.91**	*-3.36*	*-2.73*	*-3.42*	*-2.60*	*-3.40*	*-2.84*	*-3.47*
	educ_1	-0.23	-0.16	-0.23	-0.17	-0.28	-0.17	-0.26	*-1.28*	*-0.89*	*-1.24*	*-0.93*	*-1.53*	*-0.95*	*-1.44*
	educ_2	-0.11	-0.01	-0.11	0.02	-0.11	-0.01	-0.11	*-0.51*	*-0.04*	*-0.52*	*0.12*	*-0.55*	*-0.05*	*-0.55*
	inc_1	**0.65**	**0.64**	**0.68**	**0.58**	**0.72**	**0.71**	**0.74**	*3.51*	*3.51*	*3.67*	*3.19*	*3.97*	*3.91*	*4.05*
	inc_2	**0.45**	**0.47**	**0.44**	**0.48**	**0.44**	**0.48**	**0.42**	*2.14*	*2.23*	*2.09*	*2.28*	*2.09*	*2.29*	*1.98*
	_cons	**-2.79**	**-4.20**	**-4.27**	**-1.50**	**-2.67**	**-4.05**	**-4.01**	*-6.60*	*-6.75*	*-6.65*	*-4.47*	*-6.59*	*-6.58*	*-6.35*

Play	variable	Coefficients							z-statistic						
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
11	taste_dir1	**1.60**		**1.06**		**1.62**		**1.05**	4.54		2.81		4.70		2.81
	taste_dir2	**1.31**		**1.33**		**1.43**		**1.37**	3.47		3.47		3.88		3.63
	taste_ind1		**3.92**	**2.76**			**4.36**	**2.90**		5.49	3.62			6.54	3.98
	taste_ind2		**0.98**	**0.86**			**0.81**	**0.81**		2.09	1.81			1.76	1.71
	taste_ind3		0.10	-0.01			0.28	0.11		0.27	-0.03			0.75	0.30
	know_fake	0.20	**0.55**	0.12	**0.66**	0.21	**0.61**	0.14	0.94	3.22	0.56	3.94	1.01	3.57	0.66
	attpre18_1	-0.15	-0.07	-0.17	0.01				-0.82	-0.39	-0.98	0.06			
	attpre18_2	-0.15	-0.05	-0.16	0.03				-0.82	-0.26	-0.91	0.17			
	att12mths_1	**0.50**	**0.52**	**0.43**	**0.67**				2.95	3.04	2.48	4.02			
	att12mths_2	0.42	**0.48**	0.32	**0.76**				1.55	1.74	1.14	2.91			
	female	-0.24	-0.21	**-0.27**	-0.14	-0.21	-0.18	-0.25	-1.49	-1.32	-1.72	-0.92	-1.36	-1.13	-1.56
	age_1	-0.85	-0.55	**-0.89**	-0.48	-0.54	-0.24	-0.63	-1.56	-1.01	-1.63	-0.89	-1.03	-0.46	-1.18
	educ_1	0.26	**0.35**	0.29	**0.32**	0.26	**0.37**	0.28	1.52	2.02	1.65	1.85	1.51	2.14	1.64
	educ_2	0.14	0.22	0.15	0.22	0.13	0.22	0.13	0.67	1.09	0.72	1.11	0.62	1.08	0.62
	inc_1	**0.34**	0.34	**0.37**	0.29	**0.36**	0.36	0.39	1.84	1.79	1.94	1.55	1.96	1.96	2.10
	inc_2	**0.38**	0.39	0.36	0.42	0.42	0.45	0.40	1.91	1.99	1.82	2.12	2.15	2.27	2.01
	_cons	**-3.09**	**-4.97**	**-4.91**	**-1.97**	**-3.17**	**-5.19**	**-5.10**	-7.40	-7.79	-7.59	-5.82	-7.91	-8.45	-8.17
12	taste_dir1	**1.11**		0.28		**1.18**		0.29	3.76		0.87		4.08		0.90
	taste_dir2	**0.95**		**1.08**		**1.12**		**1.15**	2.79		3.11		3.42		3.39
	taste_ind1		**4.34**	**3.83**			**4.94**	**4.20**		6.70	5.50			8.11	6.25
	taste_ind2		**1.85**	**1.82**			**1.64**	**1.68**		4.41	4.24			4.03	4.02
	taste_ind3		-0.15	-0.25			0.10	-0.03		-0.44	-0.73			0.30	-0.09
	know_fake	0.40	**0.61**	0.25	**0.74**	**0.44**	**0.69**	0.29	2.15	3.91	1.32	4.91	2.36	4.47	1.56
	attpre18_1	0.14	0.18	0.11	0.26				0.91	1.11	0.66	1.63			
	attpre18_2	**-0.51**	**-0.46**	**-0.53**	**-0.38**				-3.10	-2.80	-3.15	-2.39			
	att12mths_1	**0.65**	**0.66**	**0.60**	**0.78**				4.25	4.23	3.82	5.18			
	att12mths_2	**0.96**	**1.00**	**0.89**	**1.21**				4.04	4.03	3.58	5.22			
	female	-0.21	-0.23	**-0.27**	-0.13	-0.16	-0.17	-0.21	-1.44	-1.57	-1.84	-0.93	-1.15	-1.17	-1.49
	age_1	**-1.92**	**-1.76**	**-2.05**	**-1.61**	**-1.38**	**-1.23**	**-1.55**	-3.88	-3.52	-4.08	-3.26	-2.90	-2.56	-3.21
	educ_1	0.25	**0.34**	0.30	0.29	0.24	**0.34**	0.28	1.60	2.21	1.93	1.88	1.56	2.24	1.82
	educ_2	-0.21	-0.11	-0.17	-0.13	-0.21	-0.10	-0.18	-1.08	-0.59	-0.91	-0.71	-1.10	-0.54	-0.95
	inc_1	0.05	0.05	0.07	0.01	0.13	0.14	0.16	0.31	0.31	0.42	0.07	0.74	0.84	0.95
	inc_2	**0.52**	**0.51**	**0.50**	**0.55**	**0.59**	**0.58**	**0.55**	2.98	2.86	2.79	3.13	3.38	3.31	3.15
	_cons	**-1.97**	**-4.87**	**-4.73**	**-1.25**	**-2.00**	**-5.15**	**-4.99**	-5.60	-8.45	-8.20	-4.18	-5.98	-9.26	-8.96

Play	variable	Coefficients							z-statistic						
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
13	taste_dir1	**1.34**		**1.06**		**1.42**		**1.13**	5.02		3.64		5.40		3.89
	taste_dir2	**1.28**		**1.42**		**1.37**		**1.50**	4.06		4.41		4.56		4.81
	taste_ind1		**1.82**	0.65			**2.53**	0.96		3.25	1.09			4.78	1.65
	taste_ind2		**1.76**	**1.65**			**1.55**	**1.54**		4.66	4.25			4.26	4.11
	taste_ind3		0.44	0.28			**0.63**	0.42		1.48	0.96			2.16	1.44
	know_fake	**-0.37**	0.09	**-0.39**	0.09	**-0.33**	0.17	**-0.35**	-2.01	0.58	-2.08	0.61	-1.83	1.13	-1.88
	attpre18_1	**0.46**	**0.58**	**0.47**	**0.61**				3.22	4.10	3.25	4.30			
	attpre18_2	**-0.46**	**-0.31**	**-0.42**	**-0.31**				-3.19	-2.17	-2.88	-2.22			
	att12mths_1	**0.26**	**0.34**	**0.25**	**0.42**				1.94	2.57	1.83	3.25			
	att12mths_2	**0.62**	**0.91**	**0.73**	**0.94**				2.98	4.21	3.33	4.59			
	female	0.09	0.11	0.05	0.18	0.12	0.16	0.09	0.73	0.89	0.39	1.46	0.99	1.24	0.68
	age_1	0.06	0.39	0.01	0.45	0.21	0.60	0.20	0.13	0.94	0.03	1.10	0.54	1.52	0.49
	educ_1	0.13	0.19	0.14	0.19	0.12	**0.22**	0.13	0.96	1.41	1.01	1.41	0.87	1.63	0.99
	educ_2	-0.07	0.02	-0.05	0.02	-0.08	0.03	-0.06	-0.42	0.10	-0.33	0.10	-0.50	0.17	-0.39
	inc_1	-0.02	-0.05	-0.02	-0.07	0.06	0.05	0.07	-0.15	-0.31	-0.13	-0.46	0.42	0.30	0.47
	inc_2	0.21	0.17	0.15	0.24	**0.26**	0.26	0.21	1.30	1.07	0.93	1.51	1.63	1.60	1.28
	_cons	**-2.68**	**-3.96**	**-3.91**	**-1.78**	**-2.51**	**-4.02**	**-3.92**	-8.44	-8.03	-7.80	-6.68	-8.28	-8.32	-7.98
14	taste_dir1	**2.00**		**1.44**		**2.06**		**1.43**	4.08		2.76		4.26		2.77
	taste_dir2	**1.56**		**1.54**		**1.71**		**1.59**	3.20		3.10		3.57		3.23
	taste_ind1		**4.37**	**2.89**			**5.02**	**3.21**		4.89	3.02			5.98	3.49
	taste_ind2		0.69	0.58			0.35	0.40		1.13	0.93			0.60	0.65
	taste_ind3		-0.68	-0.77			-0.46	-0.61		-1.32	-1.51			-0.89	-1.21
	know_fake	0.06	**0.43**	-0.07	**0.62**	0.10	**0.52**	-0.03	0.21	1.97	-0.27	2.89	0.36	2.38	-0.10
	attpre18_1	-0.17	-0.06	-0.19	0.02				-0.76	-0.28	-0.83	0.10			
	attpre18_2	-0.20	-0.09	-0.23	0.01				-0.89	-0.39	-1.01	0.05			
	att12mths_1	**0.51**	**0.58**	**0.47**	**0.70**				2.29	2.55	2.06	3.15			
	att12mths_2	**0.76**	**0.89**	**0.69**	**1.17**				2.46	2.77	2.13	3.86			
	female	-0.28	-0.30	**-0.36**	-0.18	-0.27	-0.27	**-0.34**	-1.43	-1.52	-1.81	-0.91	-1.36	-1.39	-1.70
	age_1	**1.67**	**2.01**	**1.62**	**2.09**	**2.17**	**2.53**	**2.09**	2.47	2.98	2.39	3.11	3.33	3.92	3.20
	educ_1	**0.73**	**0.83**	**0.75**	**0.79**	**0.74**	**0.87**	**0.76**	3.39	3.86	3.48	3.72	3.49	4.10	3.56
	educ_2	0.24	0.31	0.24	0.31	0.24	0.32	0.23	0.86	1.12	0.86	1.14	0.89	1.18	0.84
	inc_1	0.37	0.31	0.35	0.30	0.36	0.32	0.36	1.60	1.33	1.51	1.33	1.60	1.41	1.57
	inc_2	-0.05	-0.05	-0.08	-0.01	-0.01	0.02	-0.04	-0.20	-0.18	-0.29	-0.05	-0.04	0.06	-0.14
	_cons	**-5.33**	**-6.66**	**-6.73**	**-3.88**	**-5.51**	**-7.00**	**-7.05**	-9.18	-8.22	-8.09	-8.51	-9.79	-8.95	-8.75

Play	variable	Coefficients							z-statistic						
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
15	taste_dir1	**1.46**		**1.13**		**1.63**		**1.18**	5.54		3.99		6.26		4.22
	taste_dir2	**1.71**		**1.66**		**2.14**		**1.94**	5.55		5.38		7.23		6.43
	taste_ind1		**3.20**	1.89			**4.32**	2.55		6.10	3.33			8.75	4.68
	taste_ind2		0.33	0.21			-0.12	-0.08		0.90	0.55			-0.35	-0.20
	taste_ind3		0.20	0.06			0.51	0.30		0.69	0.22			1.79	1.08
	know_fake	**-0.77**	**-0.27**	**-0.82**	-0.18	**-0.76**	-0.14	**-0.81**	-4.37	-1.82	-4.63	-1.20	-4.30	-0.94	-4.54
	attpre18_1	0.12	**0.23**	0.10	**0.29**				0.86	1.72	0.75	2.21			
	attpre18_2	0.03	0.13	0.01	0.21				0.21	1.01	0.06	1.61			
	att12mths_1	**0.71**	0.75	**0.65**	0.89				5.53	5.77	4.95	7.08			
	att12mths_2	**0.95**	1.04	**0.85**	1.31				4.90	5.22	4.22	6.98			
	female	0.08	0.11	0.06	0.16	0.07	0.13	0.07	0.64	0.97	0.50	1.34	0.63	1.15	0.61
	age_1	**3.26**	**3.65**	**3.27**	**3.67**	**3.57**	**4.02**	**3.56**	7.99	8.99	7.98	9.09	9.06	10.30	8.99
	educ_1	**0.38**	**0.47**	**0.39**	**0.46**	**0.41**	**0.54**	**0.42**	2.90	3.61	2.97	3.56	3.19	4.17	3.20
	educ_2	**0.35**	**0.42**	**0.35**	**0.43**	**0.36**	**0.45**	**0.34**	2.26	2.73	2.25	2.85	2.37	2.98	2.26
	inc_1	**0.58**	**0.57**	**0.60**	**0.52**	**0.55**	**0.57**	**0.60**	4.08	4.03	4.23	3.76	4.01	4.13	4.31
	inc_2	**0.37**	**0.40**	**0.37**	**0.41**	**0.44**	**0.49**	**0.44**	2.41	2.61	2.40	2.71	2.88	3.26	2.89
	_cons	**-4.55**	**-5.68**	**-5.64**	**-3.44**	**-4.46**	**-5.90**	**-5.87**	-13.58	-11.74	-11.46	-12.35	-13.96	-12.69	-12.30
16	taste_dir1	**0.72**		0.12		**0.85**		0.22	2.01		0.29		2.39		0.57
	taste_dir2	**1.33**		**1.58**		**1.46**		**1.65**	3.04		3.46		3.46		3.76
	taste_ind1		**2.20**	**1.72**			**3.00**	**2.18**		2.95	2.16			4.20	2.81
	taste_ind2		**2.77**	**2.84**			**2.55**	**2.70**		5.25	5.28			5.04	5.20
	taste_ind3		**1.30**	**1.20**			**1.59**	**1.43**		3.30	3.02			4.06	3.64
	know_fake	-0.16	0.34	-0.17	0.29	-0.10	**0.45**	-0.10	-0.66	1.61	-0.70	1.44	-0.41	2.18	-0.40
	attpre18_1	**0.54**	**0.65**	**0.58**	**0.65**				2.80	3.38	2.97	3.43			
	attpre18_2	**-0.69**	**-0.54**	**-0.63**	**-0.57**				-3.38	-2.64	-3.03	-2.83			
	att12mths_1	**0.65**	**0.65**	**0.57**	**0.78**				3.64	3.53	3.11	4.37			
	att12mths_2	**0.79**	**1.03**	**0.90**	**1.04**				2.80	3.50	3.04	3.74			
	female	-0.23	-0.25	**-0.28**	-0.18	-0.18	-0.18	-0.22	-1.42	-1.46	-1.66	-1.09	-1.13	-1.10	-1.30
	age_1	**2.99**	**3.42**	**3.04**	**3.36**	**3.29**	**3.76**	**3.35**	5.29	5.99	5.29	5.98	5.98	6.75	5.95
	educ_1	-0.19	-0.11	-0.17	-0.13	-0.22	-0.12	-0.20	-1.01	-0.57	-0.87	-0.69	-1.20	-0.63	-1.05
	educ_2	-0.31	-0.18	-0.28	-0.22	-0.36	-0.20	-0.30	-1.31	-0.78	-1.17	-0.97	-1.58	-0.86	-1.30
	inc_1	0.18	0.17	0.18	0.14	0.30	0.31	**0.32**	0.90	0.87	0.91	0.72	1.56	1.60	1.66
	inc_2	-0.08	-0.20	-0.21	-0.06	0.01	-0.10	-0.12	-0.32	-0.82	-0.86	-0.24	0.05	-0.40	-0.52
	_cons	**-4.34**	**-7.24**	**-7.18**	**-3.80**	**-4.06**	**-7.29**	**-7.20**	-9.79	-10.19	-10.03	-9.86	-9.67	-10.41	-10.21

MNL with covariates: odds ratios Models 1-7 (results significant at p<= 0.1 in bold)

Play	variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
1	taste_dir1	**2.20**		1.14		**2.17**		1.11
	taste_dir2	**19.80**		**21.58**		**18.95**		**18.88**
	taste_ind1		**53.42**	**25.33**			75.93	**23.48**
	taste_ind2		2.18	**3.04**			2.03	**3.20**
	taste_ind3		1.59	1.49			1.85	1.59
	know_fake	0.85	**2.05**	0.79	**2.27**	0.89	**2.15**	0.84
	attpre18_1	1.10	1.19	1.06	1.31			
	attpre18_2	**0.61**	0.74	**0.60**	0.80			
	att12mths_1	1.31	**1.38**	1.19	**1.63**			
	att12mths_2	**1.56**	**1.74**	1.35	**2.40**			
	female	**1.54**	**1.56**	**1.49**	**1.65**	**1.58**	**1.62**	**1.54**
	age_1	**6.38**	**8.99**	**6.21**	**9.57**	**8.16**	**11.64**	**7.68**
	educ_1	0.87	1.01	0.88	1.00	0.86	1.01	0.87
	educ_2	0.74	0.86	0.74	0.87	0.72	0.85	0.72
	inc_1	1.25	1.28	1.29	1.19	1.32	1.34	1.35
	inc_2	**1.74**	**1.71**	**1.71**	**1.73**	**1.76**	**1.78**	**1.71**
2	taste_dir1	**4.55**		**3.78**		**4.57**		**3.70**
	taste_dir2	**4.74**		**4.53**		**5.07**		**4.64**
	taste_ind1		**14.41**	3.25			**20.82**	**3.42**
	taste_ind2		1.29	1.10			1.21	1.14
	taste_ind3		1.42	1.25			1.64	1.36
	know_fake	**0.59**	0.94	**0.56**	1.02	**0.59**	0.99	**0.57**
	attpre18_1	0.90	1.02	0.89	1.06			
	attpre18_2	0.84	0.94	0.83	1.00			
	att12mths_1	**1.49**	**1.57**	**1.40**	**1.82**			
	att12mths_2	1.11	1.26	1.04	**1.61**			
	female	0.90	0.97	0.89	1.00	0.92	1.00	0.91
	age_1	**0.17**	**0.25**	**0.17**	**0.26**	**0.20**	**0.30**	**0.20**
	educ_1	**1.81**	**1.94**	**1.82**	**1.93**	**1.77**	**1.95**	**1.79**
	educ_2	1.35	**1.46**	1.35	**1.50**	1.31	**1.43**	1.31
	inc_1	**1.70**	**1.71**	**1.75**	**1.62**	**1.74**	**1.76**	**1.80**
	inc_2	1.34	**1.41**	1.33	**1.41**	1.39	**1.48**	1.37

Play	variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
3	taste_dir1	**3.98**		**2.93**		**4.31**		**2.96**
	taste_dir2	**6.86**		**7.25**		**7.87**		**7.59**
	taste_ind1		**13.63**	**3.74**			**34.58**	**6.24**
	taste_ind2		**2.75**	**2.75**			1.80	**2.09**
	taste_ind3		1.32	1.15			1.66	1.36
	know_fake	1.11	**2.09**	1.07	**2.23**	1.17	**2.27**	1.12
	attpre18_1	0.84	0.94	0.83	0.98			
	attpre18_2	0.81	0.96	0.82	0.99			
	att12mths_1	1.29	**1.41**	1.25	**1.58**			
	att12mths_2	**2.56**	**3.22**	**2.58**	**3.79**			
	female	0.90	0.94	0.87	0.99	0.89	0.95	0.87
	age_1	**0.34**	0.51	**0.33**	0.54	0.64	1.00	0.62
	educ_1	**1.33**	**1.44**	**1.34**	1.43	**1.36**	**1.54**	**1.38**
	educ_2	0.93	1.03	0.94	**1.04**	0.96	1.08	0.96
	inc_1	1.27	1.24	1.30	1.18	1.22	1.20	1.25
	inc_2	1.16	1.16	1.13	1.19	1.19	1.24	1.16
4	taste_dir1	**3.06**		1.15		**3.00**		1.06
	taste_dir2	**27.82**		**31.59**		**30.68**		**31.74**
	taste_ind1		**302.23**	**121.27**			**436.04**	**119.93**
	taste_ind2		**3.78**	**5.59**			**2.67**	**4.94**
	taste_ind3		1.08	1.01			1.25	1.08
	know_fake	0.91	**2.36**	0.82	**2.75**	0.91	**2.46**	0.82
	attpre18_1	**0.56**	**0.60**	**0.52**	**0.71**			
	attpre18_2	1.14	**1.37**	1.11	**1.52**			
	att12mths_1	**1.32**	**1.45**	1.23	**1.69**			
	att12mths_2	1.35	**1.51**	1.12	**2.28**			
	female	1.23	1.24	1.17	**1.34**	1.20	1.21	1.13
	age_1	**4.20**	**5.89**	**4.06**	**6.44**	**6.21**	**8.64**	**5.56**
	educ_1	1.27	**1.50**	**1.31**	1.45	1.29	**1.58**	1.32
	educ_2	1.16	**1.37**	1.19	**1.35**	1.18	**1.41**	1.18
	inc_1	**1.90**	**1.87**	**1.92**	**1.76**	**1.75**	**1.72**	**1.76**
	inc_2	**1.85**	**1.81**	**1.77**	**1.87**	**1.87**	**1.84**	**1.77**

Play 5

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
taste_dir1	2.46		1.35		2.36		1.29
taste_dir2	2.62		3.01		2.48		2.82
taste_ind1		20.41	11.95			22.97	11.81
taste_ind2		6.61	6.40			6.88	7.03
taste_ind3		0.83	0.75			0.95	0.84
know_fake	1.17	1.51	1.05	1.64	1.22	1.57	1.10
attpre18_1	1.14	1.20	1.11	1.28			
attpre18_2	0.54	0.59	0.55	0.60			
att12mths_1	1.39	1.45	1.37	1.56			
att12mths_2	1.24	1.45	1.29	1.56			
female	1.56	1.50	1.45	1.66	1.63	1.58	1.52
age_1	2.91	3.50	2.63	3.93	3.43	4.31	3.22
educ_1	1.38	1.46	1.40	1.44	1.30	1.41	1.34
educ_2	1.21	1.31	1.23	1.29	1.14	1.26	1.18
inc_1	1.13	1.11	1.13	1.08	1.23	1.21	1.23
inc_2	0.93	0.89	0.88	0.95	0.97	0.94	0.91

Play 6

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
taste_dir1	3.12		1.95		2.97		1.81
taste_dir2	8.69		10.06		8.90		9.74
taste_ind1		19.68	6.38			35.33	8.57
taste_ind2		5.63	6.23			3.59	4.63
taste_ind3		0.90	0.80			1.07	0.90
know_fake	0.68	1.31	0.63	1.43	0.72	1.41	0.67
attpre18_1	0.60	0.67	0.59	0.72			
attpre18_2	0.89	1.07	0.91	1.10			
att12mths_1	1.20	1.36	1.19	1.46			
att12mths_2	1.87	2.55	2.04	2.76			
female	1.79	1.78	1.68	1.94	1.78	1.76	1.67
age_1	7.09	10.20	6.52	11.40	12.75	19.78	12.37
educ_1	1.63	1.82	1.66	1.79	1.67	1.94	1.73
educ_2	0.78	0.90	0.81	0.88	0.82	0.95	0.83
inc_1	1.87	1.83	1.89	1.76	1.73	1.69	1.74
inc_2	1.70	1.63	1.59	1.74	1.68	1.67	1.60

Play 7

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
taste_dir1	1.83		0.62		1.74		0.54
taste_dir2	8.13		8.80		7.79		7.50
taste_ind1		328.98	282.94			309.31	251.81
taste_ind2		3.11	3.99			2.90	4.06
taste_ind3		1.69	1.55			1.79	1.56
know_fake	1.50	2.67	1.35	3.04	1.57	2.65	1.40
attpre18_1	0.70	0.70	0.64	0.81			
attpre18_2	0.68	0.69	0.63	0.81			
att12mths_1	1.16	1.12	1.04	1.36			
att12mths_2	1.80	1.55	1.34	2.45			
female	0.95	0.93	0.90	1.01	0.96	0.94	0.91
age_1	3.20	4.41	3.10	4.82	5.41	6.72	4.67
educ_1	1.68	1.91	1.76	1.84	1.68	1.90	1.75
educ_2	1.56	1.77	1.58	1.78	1.57	1.77	1.57
inc_1	1.66	1.69	1.71	1.56	1.62	1.67	1.67
inc_2	1.30	1.26	1.26	1.30	1.29	1.23	1.22

Play 8

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
taste_dir1	6.18		3.08		6.30		3.01
taste_dir2	8.77		9.89		9.24		9.79
taste_ind1		96.11	23.09			155.78	25.26
taste_ind2		7.23	7.52			5.55	6.83
taste_ind3		2.85	2.46			3.01	2.43
know_fake	0.64	1.33	0.62	1.42	0.65	1.36	0.63
attpre18_1	0.79	0.88	0.76	0.97			
attpre18_2	1.28	1.52	1.29	1.60			
att12mths_1	0.88	0.94	0.80	1.13			
att12mths_2	1.12	1.34	1.04	1.81			
female	1.01	1.06	0.97	1.14	0.98	1.02	0.95
age_1	2.21	3.49	2.15	3.77	2.51	3.97	2.41
educ_1	1.72	1.88	1.73	1.86	1.75	2.02	1.79
educ_2	1.40	1.56	1.41	1.57	1.44	1.64	1.45
inc_1	1.45	1.49	1.53	1.38	1.36	1.38	1.42
inc_2	1.12	1.09	1.05	1.18	1.11	1.10	1.04

Play		odds ratio						
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
9	taste_dir1	1.71		0.66		1.62		0.61
	taste_dir2	6.76		8.26		6.85		7.71
	taste_ind1		88.53	74.75			98.79	69.65
	taste_ind2		7.66	9.72			7.18	10.00
	taste_ind3		1.59	1.47			1.85	1.64
	know_fake	1.29	2.30	1.17	2.45	1.37	2.41	1.24
	attpre18_1	0.96	0.99	0.91	1.10			
	attpre18_2	0.55	0.59	0.54	0.64			
	att12mths_1	1.75	1.76	1.62	2.03			
	att12mths_2	1.82	1.85	1.60	2.40			
	female	0.88	0.86	0.83	0.93	0.92	0.91	0.87
	age_1	1.07	1.48	0.95	1.64	1.65	2.27	1.46
	educ_1	1.41	1.62	1.51	1.54	1.38	1.58	1.47
	educ_2	1.27	1.47	1.30	1.45	1.26	1.45	1.29
	inc_1	2.40	2.46	2.52	2.26	2.54	2.63	2.67
	inc_2	1.54	1.49	1.50	1.54	1.60	1.55	1.53
10	taste_dir1	5.99		3.97		5.56		3.84
	taste_dir2	5.12		5.05		4.43		4.23
	taste_ind1		38.23	9.69			35.33	6.38
	taste_ind2		1.84	1.67			2.08	1.97
	taste_ind3		1.42	1.21			1.42	1.16
	know_fake	1.04	1.68	0.98	1.85	1.09	1.70	1.03
	attpre18_1	1.36	1.53	1.34	1.62			
	attpre18_2	0.58	0.65	0.56	0.71			
	att12mths_1	0.91	0.93	0.83	1.11			
	att12mths_2	1.17	1.28	1.05	1.74			
	female	0.91	0.96	0.89	1.02	0.95	1.00	0.92
	age_1	0.15	0.21	0.14	0.23	0.16	0.21	0.15
	educ_1	0.79	0.85	0.80	0.85	0.76	0.84	0.77
	educ_2	0.90	0.99	0.90	1.02	0.89	0.99	0.89
	inc_1	1.91	1.90	1.97	1.78	2.05	2.03	2.10
	inc_2	1.58	1.60	1.56	1.61	1.55	1.61	1.52

Play		odds ratio						
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
11	taste_dir1	4.93		2.88		5.08		2.85
	taste_dir2	3.71		3.76		4.19		3.92
	taste_ind1		50.53	15.82			77.89	18.17
	taste_ind2		2.66	2.36			2.25	2.24
	taste_ind3		1.11	0.99			1.33	1.12
	know_fake	1.22	1.74	1.13	1.94	1.24	1.84	1.15
	attpre18_1	0.86	0.93	0.84	1.01			
	attpre18_2	0.86	0.95	0.85	1.03			
	att12mths_1	1.65	1.68	1.53	1.96			
	att12mths_2	1.51	1.62	1.37	2.14			
	female	0.79	0.81	0.76	0.87	0.81	0.84	0.78
	age_1	0.43	0.58	0.41	0.62	0.58	0.78	0.54
	educ_1	1.30	1.42	1.33	1.37	1.30	1.44	1.33
	educ_2	1.15	1.25	1.16	1.25	1.13	1.24	1.13
	inc_1	1.41	1.40	1.44	1.33	1.43	1.43	1.48
	inc_2	1.46	1.48	1.44	1.52	1.53	1.56	1.49
12	taste_dir1	3.03		1.32		3.27		1.33
	taste_dir2	2.57		2.93		3.07		3.16
	taste_ind1		77.05	46.11			139.37	66.89
	taste_ind2		6.37	6.17			5.15	5.36
	taste_ind3		0.86	0.78			1.11	0.97
	know_fake	1.49	1.83	1.28	2.09	1.56	1.99	1.34
	attpre18_1	1.16	1.19	1.11	1.29			
	attpre18_2	0.60	0.63	0.59	0.68			
	att12mths_1	1.92	1.93	1.82	2.19			
	att12mths_2	2.61	2.71	2.44	3.36			
	female	0.81	0.80	0.76	0.88	0.85	0.85	0.81
	age_1	0.15	0.17	0.13	0.20	0.25	0.29	0.21
	educ_1	1.28	1.40	1.35	1.33	1.27	1.41	1.32
	educ_2	0.81	0.89	0.84	0.87	0.81	0.90	0.84
	inc_1	1.06	1.06	1.08	1.01	1.13	1.16	1.18
	inc_2	1.69	1.66	1.64	1.73	1.80	1.79	1.74

Play	variable	odds ratio Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
13	taste_dir1	3.83		2.89		4.15		3.09
	taste_dir2	3.59		4.15		3.94		4.47
	taste_ind1		6.17	1.92			12.62	2.62
	taste_ind2		5.83	5.20			4.71	4.67
	taste_ind3		1.55	1.33			1.87	1.52
	know_fake	0.69	1.09	0.68	1.10	0.72	1.19	0.70
	attpre18_1	1.58	1.79	1.60	1.83			
	attpre18_2	0.63	0.73	0.66	0.73			
	att12mths_1	1.29	1.41	1.28	1.52			
	att12mths_2	1.86	2.48	2.07	2.55			
	female	1.10	1.12	1.05	1.20	1.13	1.17	1.09
	age_1	1.06	1.47	1.01	1.57	1.24	1.83	1.22
	educ_1	1.14	1.21	1.15	1.21	1.12	1.24	1.14
	educ_2	0.93	1.02	0.95	1.02	0.92	1.03	0.94
	inc_1	0.98	0.95	0.98	0.93	1.07	1.05	1.07
	inc_2	1.23	1.19	1.16	1.28	1.30	1.29	1.23
14	taste_dir1	7.36		4.22		7.83		4.18
	taste_dir2	4.78		4.66		5.53		4.88
	taste_ind1		78.67	18.01			151.06	24.67
	taste_ind2		2.00	1.78			1.43	1.49
	taste_ind3		0.51	0.46			0.63	0.54
	know_fake	1.06	1.54	0.93	1.86	1.10	1.68	0.97
	attpre18_1	0.84	0.94	0.83	1.02			
	attpre18_2	0.82	0.92	0.80	1.01			
	att12mths_1	1.67	1.78	1.59	2.01			
	att12mths_2	2.15	2.44	2.00	3.21			
	female	0.75	0.74	0.70	0.84	0.77	0.76	0.72
	age_1	5.33	7.44	5.05	8.06	8.77	12.59	8.07
	educ_1	2.07	2.29	2.12	2.21	2.10	2.38	2.14
	educ_2	1.27	1.36	1.27	1.37	1.28	1.38	1.26
	inc_1	1.44	1.36	1.42	1.35	1.43	1.37	1.43
	inc_2	0.95	0.95	0.93	0.99	0.99	1.02	0.96

Play	variable	odds ratio Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
15	taste_dir1	4.30		3.10		5.08		3.25
	taste_dir2	5.51		5.28		8.50		6.94
	taste_ind1		24.63	6.59			75.12	12.78
	taste_ind2		1.40	1.23			0.88	0.93
	taste_ind3		1.22	1.06			1.66	1.36
	know_fake	0.46	0.76	0.44	0.84	0.47	0.87	0.45
	attpre18_1	1.12	1.26	1.11	1.34			
	attpre18_2	1.03	1.14	1.01	1.23			
	att12mths_1	2.04	2.11	1.91	2.44			
	att12mths_2	2.58	2.84	2.35	3.71			
	female	1.08	1.12	1.06	1.17	1.08	1.14	1.08
	age_1	26.07	38.51	26.36	39.07	35.59	55.54	35.11
	educ_1	1.47	1.60	1.48	1.59	1.51	1.71	1.52
	educ_2	1.42	1.52	1.42	1.54	1.43	1.57	1.41
	inc_1	1.78	1.76	1.83	1.69	1.74	1.76	1.82
	inc_2	1.45	1.49	1.45	1.51	1.55	1.64	1.56
16	taste_dir1	2.06		1.12		2.34		1.25
	taste_dir2	3.78		4.85		4.29		5.22
	taste_ind1		8.99	5.57			20.01	8.80
	taste_ind2		15.99	17.18			12.75	14.83
	taste_ind3		3.68	3.32			4.89	4.19
	know_fake	0.85	1.40	0.84	1.34	0.91	1.57	0.91
	attpre18_1	1.72	1.92	1.79	1.92			
	attpre18_2	0.50	0.58	0.53	0.57			
	att12mths_1	1.92	1.91	1.78	2.18			
	att12mths_2	2.21	2.80	2.47	2.83			
	female	0.79	0.78	0.76	0.84	0.83	0.83	0.80
	age_1	19.91	30.48	21.00	28.68	26.84	42.99	28.42
	educ_1	0.83	0.90	0.85	0.88	0.80	0.89	0.82
	educ_2	0.74	0.83	0.76	0.80	0.70	0.82	0.74
	inc_1	1.19	1.19	1.20	1.15	1.35	1.36	1.38
	inc_2	0.93	0.82	0.81	0.95	1.01	0.91	0.88

APPENDIX 2

Model 1, odds ratios

```
Iteration 0:    log likelihood = -11813.591
Iteration 1:    log likelihood = -11647.316
Iteration 2:    log likelihood = -11647.258
Iteration 3:    log likelihood = -11647.258
```

```
Conditional (fixed-effects) logistic regression     Number of obs   =      40600
                                                    LR chi2(16)     =    2842.76
                                                    Prob > chi2     =     0.0000
Log likelihood = -11647.258                         Pseudo R2       =     0.1088
```

choicemost	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf. Interval]	
gotheatre	.2156413	.0110514	-29.93	0.000	.1950332	.2384269
playwright_1	1.402631	.0834411	5.69	0.000	1.248264	1.576089
playwright_2	2.106657	.1430401	10.97	0.000	1.844157	2.406521
thvenue_1	.9417745	.0584172	-0.97	0.333	.8339651	1.063521
thvenue_2	1.030587	.0862417	0.36	0.719	.8746906	1.21427
tickprice_1	.9278833	.0485816	-1.43	0.153	.8373877	1.028159
tickprice_2	1.04091	.0736479	0.57	0.571	.9061246	1.195745
romance	1.372328	.0933686	4.65	0.000	1.201006	1.56809
catastrophic	1.169903	.0519651	3.53	0.000	1.072361	1.276318
artistic	1.246688	.0536772	5.12	0.000	1.145799	1.35646
critical	.8329914	.0447831	-3.40	0.001	.7496843	.9255559
comedic	1.977035	.1096608	12.29	0.000	1.773374	2.204084
tragic	.8047906	.0583569	-2.99	0.003	.6981691	.927695
psychol	.9648434	.05257	-0.66	0.511	.867119	1.073581
aestattr1	1.250221	.1012195	2.76	0.006	1.066774	1.465214
aestattr2	.7413067	.0517249	-4.29	0.000	.6465544	.8499448

Model 2, odds ratios

```
Iteration 0:    log likelihood = -11805.859
Iteration 1:    log likelihood = -11640.318
Iteration 2:    log likelihood = -11640.265
Iteration 3:    log likelihood = -11640.265
```

```
Conditional (fixed-effects) logistic regression     Number of obs   =      40600
                                                    LR chi2(15)     =    2856.74
                                                    Prob > chi2     =     0.0000
Log likelihood = -11640.265                         Pseudo R2       =     0.1093
```

choicemost	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf. Interval]	
gotheatre	.2118383	.0109214	-30.10	0.000	.1914787	.2343626
playwright_1	1.568803	.0886246	7.97	0.000	1.404373	1.752485
playwright_2	2.264034	.1587185	11.66	0.000	1.973377	2.597502
thvenue_1	.9272212	.0570767	-1.23	0.220	.8218379	1.046118
thvenue_2	.9223998	.0785343	-0.95	0.343	.7806329	1.089912
tickprice_1	.99204	.0536917	-0.15	0.883	.8921955	1.103058
tickprice_2	1.14285	.0822451	1.86	0.064	.9925048	1.31597
romance	1.391936	.0918843	5.01	0.000	1.22301	1.584195
catastrophic	1.121015	.0494874	2.59	0.010	1.028099	1.222329
artistic	1.23897	.0534218	4.97	0.000	1.138568	1.348227
critical	.8275004	.0439146	-3.57	0.000	.7457543	.918207
comedic	1.727379	.082697	11.42	0.000	1.572668	1.89731
tragic	.9720649	.0551857	-0.50	0.618	.8697034	1.086474
psychol	1.1556	.0581945	2.87	0.004	1.046989	1.275478
aestqual	.6291428	.0379193	-7.69	0.000	.5590442	.7080312

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Model 3, Odds ratios

```
Iteration 0:    log likelihood = -11770.051
Iteration 1:    log likelihood = -11604.555
Iteration 2:    log likelihood = -11604.489
Iteration 3:    log likelihood = -11604.489
```

Conditional (fixed-effects) logistic regression

Number of obs	= 40600
LR chi2(18)	= 2928.29
Prob > chi2	= 0.0000
Pseudo R2	= 0.1120

Log likelihood = -11604.489

choicemost	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf. Interval]	
gotheatre	.2841528	.0171587	-20.84	0.000	.2524363	.3198541
playwright_1	.9417873	.0772114	-0.73	0.464	.8019883	1.105956
playwright_2	1.350467	.1154625	3.51	0.000	1.142109	1.596835
thvenue_1	.8347255	.0648738	-2.32	0.020	.7167859	.9720709
thvenue_2	1.39826	.138657	3.38	0.001	1.151276	1.69823
tickprice_1	1.008468	.0573645	0.15	0.882	.902077	1.127408
tickprice_2	1.140542	.0928169	1.62	0.106	.9723908	1.337771
romance	1.553119	.1114504	6.14	0.000	1.349346	1.787665
catastrophic	1.003493	.063613	0.06	0.956	.8862484	1.136249
artistic	1.611305	.0985929	7.80	0.000	1.429204	1.816608
critical	1.002522	.0616643	0.04	0.967	.8886634	1.130969
comedic	1.169777	.0683228	2.68	0.007	1.043247	1.311653
tragic	.862002	.0462396	-2.77	0.006	.7759756	.9575655
psychol	1.237913	.0654609	4.04	0.000	1.116037	1.373098
smh_stars1	1.36346	.1219417	3.47	0.001	1.144234	1.624688
smh_stars2	.4078507	.0376414	-9.72	0.000	.3403627	.4887203
to_stars1	.7621194	.0453558	-4.56	0.000	.6782124	.8564072
to_stars2	1.054481	.060856	0.92	0.358	.941704	1.180764

Model 4, Odds ratios

```
Iteration 0:    log likelihood = -11450.72
Iteration 1:    log likelihood = -11111.896
Iteration 2:    log likelihood = -11110.491
Iteration 3:    log likelihood = -11110.491
```

Conditional (fixed-effects) logistic regression

Number of obs	= 40600
LR chi2(37)	= 3916.29
Prob > chi2	= 0.0000
Pseudo R2	= 0.1498

Log likelihood = -11110.491

choicemost	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf. Interval]	
gotheatre	.005255	.0010906	-25.29	0.000	.0034988	.0078926
gotheatre1	1.683783	.2091375	4.19	0.000	1.31996	2.147886
gotheatre2	5.726636	.7120546	14.04	0.000	4.488079	7.306993
gotheatre3	8.828415	2.442902	7.87	0.000	5.13272	15.18511
gotheatre4	6.075245	1.083447	10.12	0.000	4.283139	8.617185
gotheatre5	.946274	.1294834	-0.40	0.687	.7236736	1.237346
gotheatre6	1.325489	.0808656	4.62	0.000	1.176105	1.493848
gotheatre7	2.101132	.1987021	7.85	0.000	1.745646	2.529011
playwright_1	1.412246	.0845389	5.77	0.000	1.255903	1.58805
playwright_2	2.112843	.1443365	10.95	0.000	1.84807	2.415551
thvenue_1	.9527657	.059266	-0.78	0.437	.8434081	1.076303
thvenue_2	1.063919	.0895233	0.74	0.462	.9021617	1.25468
tickprice_1	.9225727	.0485405	-1.53	0.126	.8321762	1.022789
tickprice_2	.9994931	.0714696	-0.01	0.994	.8687881	1.149862
romance	1.391154	.0954305	4.81	0.000	1.216142	1.591351
catastrophic	1.176485	.0527905	3.62	0.000	1.077437	1.284639
artistic	1.239624	.0539527	4.94	0.000	1.138263	1.35001
critical	.8250121	.0448142	-3.54	0.000	.7416918	.9176924
comedic	1.978853	.1120013	12.06	0.000	1.771073	2.211011
tragic	.8009037	.0586984	-3.03	0.002	.6937382	.9246237
psychol	.9609581	.0530854	-0.72	0.471	.8623474	1.070845
aestattr1	1.291849	.5170643	0.64	0.522	.5895451	2.830781
aestattr11	1.251612	.3024943	0.93	0.353	.7793782	2.009978
aestattr12	1.1026	.2200217	0.49	0.625	.7456969	1.630323
aestattr13	1.407017	.7166541	0.67	0.503	.5184967	3.818148
aestattr14	.3941329	.124818	-2.94	0.003	.2118729	.7331788
aestattr15	1.633866	.4067137	1.97	0.049	1.003066	2.66136
aestattr16	.7819534	.0827739	-2.32	0.020	.6354432	.9622435
aestattr17	.453742	.0772089	-4.64	0.000	.3250635	.6333587
aestattr2	.6165824	.2597788	-1.15	0.251	.2699992	1.408056
aestattr21	2.182384	.5594205	3.04	0.002	1.320501	3.606812
aestattr22	.9758736	.201871	-0.12	0.906	.6505977	1.463776
aestattr23	.6552809	.3504445	-0.79	0.429	.229723	1.869177
aestattr24	.309786	.1016518	-3.57	0.000	.1628366	.5893474
aestattr25	2.507531	.634312	3.63	0.000	1.527299	4.116884
aestattr26	1.264512	.1415921	2.10	0.036	1.015338	1.574835
aestattr27	.7033056	.122813	-2.02	0.044	.499465	.9903372

Model 5, Odds ratios

```
Iteration 0:    log likelihood = -11455.285
Iteration 1:    log likelihood = -11119.346
Iteration 2:    log likelihood = -11118.029
Iteration 3:    log likelihood = -11118.029
```

Conditional (fixed-effects) logistic regression

Number of obs	=	40600			
LR chi2(29)	=	3901.21			
Prob > chi2	=	0.0000			

Log likelihood = -11118.029

Pseudo R2   =   0.1493

choicemost	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf. Interval]	
gotheatre	.0055985	.0010843	-26.77	0.000	.0038301	.0081833
gotheatre1	1.883135	.2169834	5.49	0.000	1.502458	2.360265
gotheatre2	5.298699	.6084473	14.52	0.000	4.230835	6.636091
gotheatre3	8.796491	2.261617	8.46	0.000	5.314492	14.55986
gotheatre4	4.728564	.7778668	9.44	0.000	3.425337	6.527624
gotheatre5	1.078561	.1368448	0.60	0.551	.8410979	1.383066
gotheatre6	1.236854	.0695976	3.78	0.000	1.107698	1.381069
gotheatre7	1.799752	.16077	6.58	0.000	1.510691	2.144122
playwright_1	1.580931	.0898663	8.06	0.000	1.414254	1.767253
playwright_2	2.276968	.1604573	11.68	0.000	1.983229	2.614212
thvenue_1	.9345665	.0576045	-1.10	0.272	.828217	1.054572
thvenue_2	.9460447	.0809102	-0.65	0.517	.8000422	1.118692
tickprice_1	.9914192	.0538559	-0.16	0.874	.8912886	1.102799
tickprice_2	1.105549	.0802923	1.38	0.167	.9588662	1.27467
romance	1.409383	.0937804	5.16	0.000	1.237058	1.605714
catastrophic	1.123514	.0500335	2.62	0.009	1.029608	1.225985
artistic	1.232139	.0536433	4.79	0.000	1.131361	1.341894
critical	.8217593	.0440607	-3.66	0.000	.7397847	.9128174
comedic	1.733562	.0841707	11.33	0.000	1.576197	1.906638
tragic	.9703824	.0562423	-0.52	0.604	.86618	1.08712
psychol	1.156352	.059341	2.83	0.005	1.045703	1.278708
aestqual	.3423633	.1372295	-2.67	0.007	.156063	.7510594
aestqual1	1.382569	.332133	1.35	0.178	.8633831	2.213961
aestqual2	1.453537	.2762565	1.97	0.049	1.001494	2.109619
aestqual3	1.038682	.5220375	0.08	0.940	.3878574	2.78159
aestqual4	.5859167	.1793992	-1.75	0.081	.3215217	1.06773
aestqual5	1.720556	.406576	2.30	0.022	1.082744	2.734085
aestqual6	1.448137	.1512867	3.54	0.000	1.180008	1.777193
aestqual7	.8896968	.1455762	-0.71	0.475	.6456017	1.226082

Model 6, Odds ratios

```
Iteration 0:    log likelihood = -11399.509
Iteration 1:    log likelihood = -11066.029
Iteration 2:    log likelihood = -11064.634
Iteration 3:    log likelihood = -11064.634
```

Conditional (fixed-effects) logistic regression

Number of obs	=	40600
LR chi2(53)	=	4008.00
Prob > chi2	=	0.0000
Pseudo R2	=	0.1533

Log likelihood = -11064.634

choicemost	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf. Interval]	
gotheatre	.0068687	.0018463	-18.53	0.000	.0040558	.0116325
gotheatre1	1.824419	.3034759	3.61	0.000	1.316845	2.527635
gotheatre2	4.950764	.7548883	10.49	0.000	3.671823	6.675176
gotheatre3	8.914108	3.127585	6.24	0.000	4.481539	17.73081
gotheatre4	5.764838	1.296638	7.79	0.000	3.709653	8.958615
gotheatre5	1.260893	.2203633	1.33	0.185	.8951912	1.775991
gotheatre6	1.223334	.095227	2.59	0.010	1.050233	1.424966
gotheatre7	1.547335	.1858165	3.64	0.000	1.222828	1.957959
playwright_1	.949983	.0783227	-0.62	0.534	.8082343	1.116592
playwright_2	1.344285	.1159054	3.43	0.001	1.135272	1.591779
thvenue_1	.8355724	.0652685	-2.30	0.021	.7169597	.9738083
thvenue_2	1.443411	.1445037	3.67	0.000	1.186244	1.75633
tickprice_1	1.008991	.0576858	0.16	0.876	.9020333	1.128631
tickprice_2	1.097851	.0902843	1.14	0.256	.9344217	1.289864
romance	1.582115	.1149448	6.31	0.000	1.372132	1.824232
catastrophic	1.006421	.0644569	0.10	0.920	.887695	1.141026
artistic	1.604932	.0990973	7.66	0.000	1.421997	1.8114
critical	.9964335	.0621429	-0.06	0.954	.8817853	1.125988
comedic	1.15818	.0684095	2.49	0.013	1.03157	1.30033
tragic	.8556395	.0471051	-2.83	0.005	.7681217	.9531289
psychol	1.241728	.0673333	3.99	0.000	1.116529	1.380967
smh_stars1	1.029057	.3924261	0.08	0.940	.4873464	2.172907
smh_stars11	1.856845	.4569526	2.51	0.012	1.146312	3.007798
smh_stars12	1.028154	.2089821	0.14	0.891	.6903084	1.531345
smh_stars13	.8723732	.4198947	-0.28	0.777	.3396238	2.240818
smh_stars14	.6653444	.2075424	-1.31	0.191	.3610183	1.226207
smh_stars15	1.793025	.4352025	2.41	0.016	1.114251	2.885292
smh_stars16	.7706796	.0837087	-2.40	0.016	.6229012	.9535173
smh_stars17	.7911938	.1267649	-1.46	0.144	.5779676	1.083084
smh_stars2	.2754439	.0999925	-3.55	0.000	.1352158	.5610982
smh_stars21	.6178848	.140509	-2.12	0.034	.3956776	.9648804
smh_stars22	1.910821	.3628204	3.41	0.001	1.317033	2.77232
smh_stars23	2.314694	1.061961	1.83	0.067	.9418247	5.688754
smh_stars24	.8454871	.2503544	-0.57	0.571	.4732171	1.510614
smh_stars25	.8903457	.2088951	-0.50	0.621	.5621441	1.410164
smh_stars26	.9288401	.0977506	-0.70	0.483	.7557202	1.141618
smh_stars27	1.108846	.1606593	0.71	0.476	.8347217	1.472993
to_stars1	.8049903	.2588353	-0.67	0.500	.4286439	1.511766
to_stars11	.9792128	.2027121	-0.10	0.919	.6526274	1.469227
to_stars12	1.154916	.2016733	0.82	0.409	.8201858	1.626255
to_stars13	1.037193	.4307488	0.09	0.930	.4595716	2.340807
to_stars14	.8260076	.2206688	-0.72	0.474	.4893107	1.394387
to_stars15	.7570838	.1586457	-1.33	0.184	.5020836	1.141595
to_stars16	1.169781	.1094168	1.68	0.094	.9738372	1.40515
to_stars17	1.082758	.1492292	0.58	0.564	.8264494	1.418557
to_stars2	1.453492	.4526089	1.20	0.230	.7895026	2.675912
to_stars21	1.169224	.2336428	0.78	0.434	.7903224	1.72978
to_stars22	.9139058	.1543479	-0.53	0.594	.6563621	1.272505
to_stars23	.6626613	.2668481	-1.02	0.307	.3009678	1.459027
to_stars24	.6545286	.1697903	-1.63	0.102	.3936585	1.088272
to_stars25	.7705074	.1572611	-1.28	0.201	.5164711	1.149497
to_stars26	1.332763	.1225649	3.12	0.002	1.112945	1.595997
to_stars27	1.601897	.2086125	3.62	0.000	1.241035	2.067689

Model 7, Odds ratios

```
Iteration 0:    log likelihood = -11836.414
Iteration 1:    log likelihood = -11670.216
Iteration 2:    log likelihood = -11670.164
Iteration 3:    log likelihood = -11670.164
```

Conditional (fixed-effects) logistic regression

Number of obs	=	40600
LR chi2(14)	=	2796.94
Prob > chi2	=	0.0000
Pseudo R2	=	0.1070

Log likelihood = -11670.164

choicemost	Odds Ratio	Std. Err.	z	P>|z|	[95% Conf.	Interval]
gotheatre	.2213707	.0113143	-29.50	0.000	.2002697	.2446951
playwright_1	1.566917	.0882552	7.97	0.000	1.403146	1.749803
playwright_2	1.811918	.1165426	9.24	0.000	1.597311	2.05536
thvenue_1	.9057437	.055284	-1.62	0.105	.8036194	1.020846
thvenue_2	1.030328	.0868121	0.35	0.723	.8734864	1.215332
tickprice_1	.8939791	.0463265	-2.16	0.031	.8076396	.9895485
tickprice_2	1.052825	.0749231	0.72	0.469	.9157597	1.210406
romance	1.466156	.0945641	5.93	0.000	1.29205	1.663723
catastrophic	1.159228	.0511061	3.35	0.001	1.063267	1.263849
artistic	1.240527	.0532079	5.03	0.000	1.140504	1.349321
critical	.8361499	.0440214	-3.40	0.001	.7541717	.927039
comedic	1.664549	.0779018	10.89	0.000	1.518658	1.824456
tragic	.7898082	.0398544	-4.68	0.000	.7154335	.8719147
psychol	1.03641	.050521	0.73	0.463	.941974	1.140314

APPENDIX 3

	# of classes	LL	BIC(LL)	AIC(LL)	AIC3(LL)	Npar	L²	df	p-value	Class. Err.	R²(0)	R²	best seed	conver-gence
Model1	1	-11588.7	23348.52	23215.48	23234.48	19	23177.4801	8101	7.5e-1428	0.00	0.10	0.02		
Model1	2	-10928.2	22351.47	21966.35	22021.35	55	21856.3514	8065	6.0e-1252	0.11	0.29	0.22		
Model1	3	-10640.3	22099.77	21462.58	21553.58	91	21280.5776	8029	2.9e-1181	0.09	0.29	0.22	1626109	
Model1	4	-10344.1	21831.52	20942.25	21069.25	127	20688.2538	7993	3.0e-1109	0.03	0.23	0.15	1.65E+06	
Model1	5	-10094	21655.24	20513.9	20676.9	163	2.02E+04	7957	2.4e-1050	0.03	0.25	0.18	1.83E+06	
Model 1	6	-9940.14	21671.69	20278.27	20477.27	199	19880.2721	7921	3.0e-1017	0.05	0.28	0.22	1474538	no
Model 2	6	-9992.5	21776.41	20383	20582	199	19984.9973	7921	6.0e-1031	0.10	0.36	0.30	1887685	
Model 3	6	-10060.4	21912.18	20518.76	20717.76	199	20120.7633	7921	8.6e-1049	0.09	0.29	0.22	2461012	
Model 4	6	-9893.97	21579.35	20185.93	20384.93	199	19787.9328	7921	3.4e-1005	0.04	0.27	0.20	628050	
Model 5	6	-9878.95	21549.31	20155.9	20354.9	199	19757.8985	7921	2.8e-1001	0.03	0.27	0.20	2004702	
Model 6	6	-9975.99	21743.4	20349.98	20548.98	199	19951.9831	7921	1.3e-1026	0.07	0.28	0.22	695431	
Model 7	6	-9940.27	21671.95	20278.54	20477.54	199	19880.5374	7921	2.8e-1017	0.04	0.28	0.22	528960	no
Model 8	6	-10010.4	21812.18	20418.76	20617.76	199	20020.7612	7921	1.2e-1035	0.06	0.30	0.24	1811789	
Model 9	6	-9993.12	21777.65	20384.24	20583.24	199	19986.2372	7921	4.1e-1031	0.04	0.26	0.20	2759744	no
Model 10	6	-10026.8	21844.98	20451.57	20650.57	199	20053.5653	7921	6.0e-1040	0.12	0.38	0.32	2001548	
Model 11	6	-9934.83	21661.08	20267.66	20466.66	199	19869.664	7921	7.4e-1016	0.04	0.27	0.20	2325841	no
Model 12	6	-9965.31	21722.03	20328.62	20527.62	199	19930.6179	7921	7.9e-1024	0.06	0.29	0.23	792098	no
Model 13	6	-10028.4	21848.2	20454.79	20653.79	199	20056.7889	7921	2.2e-1040	0.05	0.27	0.20	2324503	
Model 14	6	-9964.39	21720.2	20326.79	20525.79	199	19928.7894	7921	1.4e-1023	0.06	0.30	0.23	717145	
Model 15	6	-9995.75	21782.92	20389.51	20588.51	199	19991.5063	7921	8.4e-1032	0.05	0.28	0.21	722845	no
Model 16	6	-9884.39	21560.2	20166.79	20365.79	199	19768.7899	7921	1.1e-1002	0.04	0.28	0.21	1011724	
Model 17	6	-10054.1	21899.71	20506.29	20705.29	199	20108.291	7921	3.8e-1047	0.11	0.31	0.25	678042	no
Model 18	6	-9956.45	21704.32	20310.91	20509.91	199	19912.9099	7921	1.6e-1021	0.08	0.30	0.23	2527052	no
Model 19	6	-9939.35	21670.11	20276.7	20475.7	199	19878.6985	7921	4.9e-1017	0.03	0.26	0.20	1912777	
Model 20	6	-10003.7	21798.86	20405.45	20604.45	199	20007.4452	7921	6.8e-1034	0.04	0.26	0.20	1912100	no
Model 21	6	-10154.7	22100.84	20707.43	20906.43	199	20309.4258	7921	1.0e-1073	0.14	0.35	0.30	870320	
Model 22	6	-9903.08	21597.58	20204.17	20403.17	199	19806.1699	7921	1.4e-1007	0.04	0.27	0.20	2233701	no
Model 23	6	-9972.2	21735.82	20342.41	20541.41	199	19944.4094	7921	1.2e-1025	0.06	0.29	0.22	424983	no
Model 24	6	-10021.2	21833.81	20440.4	20639.4	199	20042.3961	7921	1.7e-1038	0.10	0.31	0.25	183146	
Model 25	6	-10010.6	21812.64	20419.23	20618.23	199	20021.2287	7921	1.1e-1035	0.04	0.26	0.19	679107	
Model 26	6	-10052.6	21896.67	20503.26	20702.26	199	20105.2599	7921	9.5e-1047	0.10	0.35	0.29	1787225	
Model 27	6	-9921.01	21633.44	20240.03	20439.03	199	19842.0256	7921	3.0e-1012	0.09	0.32	0.26	740121	
Model 28	6	-10052.5	21896.35	20502.93	20701.93	199	20104.932	7921	1.0e-1046	0.09	0.33	0.27	1029547	no
Model 29	6	-10030.6	21852.63	20459.22	20658.22	199	20061.2151	7921	5.9e-1041	0.09	0.31	0.25	2267706	
Model 30	6	-9981.94	21755.3	20361.88	20560.88	199	19963.8826	7921	3.5e-1028	0.07	0.31	0.25	1652514	
Model 31	6	-10025.8	21843.1	20449.68	20648.68	199	20051.6827	7921	1.1e-1039	0.08	0.28	0.21	555176	no
Model 32	6	-10020.5	21832.35	20438.93	20637.93	199	20040.9339	7921	2.7e-1038	0.05	0.28	0.21	2742243	
Model 33	6	-10056.6	21904.61	20511.19	20710.19	199	20113.1928	7921	8.5e-1048	0.09	0.32	0.26	2435890	
Model 34	6	-9932.61	21656.63	20263.22	20462.22	199	19865.219	7921	2.8e-1015	0.06	0.28	0.22	1016092	no
Model 35	6	-9911.13	21613.68	20220.27	20419.27	199	19822.2672	7921	1.1e-1009	0.05	0.27	0.21	912309	no
Model 36	6	-10004.2	21799.76	20406.34	20605.34	199	20008.3432	7921	5.2e-1034	0.09	0.29	0.22	2381101	
Model 37	6	-9989.46	21770.33	20376.91	20575.91	199	19978.9115	7921	3.7e-1030	0.06	0.29	0.22	2363158	no
Model 38	6	-10032.6	21856.66	20463.24	20662.24	199	20065.2448	7921	1.7e-1041	0.09	0.28	0.22	198466	no
Model 39	6	-9926.05	21643.52	20250.11	20449.11	199	19852.1091	7921	1.5e-1013	0.05	0.30	0.23	1670346	
Model 40	6	-9997.04	21785.5	20392.08	20591.08	199	19994.0833	7921	3.8e-1032	0.04	0.26	0.20	669319	
Model 41	6	-10118	22027.45	20634.04	20833.04	199	20236.0362	7921	5.3e-1064	0.11	0.32	0.26	1088958	
Model 42	6	-9878.42	21548.26	20154.85	20353.85	199	19756.8495	7921	3.8e-1001	0.04	0.26	0.20	544672	
Model 43	6	-9968.79	21728.99	20335.58	20534.58	199	19937.5783	7921	9.7e-1025	0.04	0.26	0.20	1987252	
Model 44	6	-10021.4	21834.28	20440.87	20639.87	199	20042.8694	7921	1.5e-1038	0.05	0.29	0.22	2352540	no
Model 45	6	-9985.1	21761.62	20368.21	20567.21	199	19970.2096	7921	5.2e-1029	0.07	0.31	0.25	1643295	
Model 46	6	-9923.77	21638.95	20245.53	20444.53	199	19847.5307	7921	5.7e-1013	0.04	0.26	0.19	581187	no
Model 47	6	-10070.6	21932.61	20539.19	20738.19	199	20141.1943	7921	1.8e-1051	0.10	0.33	0.27	1105533	
Model 48	6	-10024.6	21840.66	20447.24	20646.24	199	20049.2438	7921	2.2e-1039	0.09	0.33	0.26	1428545	
Model 49	6	-9974.12	21739.66	20346.25	20545.25	199	19948.2489	7921	3.9e-1026	0.04	0.27	0.20	2410290	
Model 50	6	-9980.74	21752.89	20359.47	20558.47	199	19961.4744	7921	7.2e-1028	0.06	0.27	0.20	2729688	no

Model 51	6	-10050.1	21891.57	20498.15	20697.15	199	20100.1529	7921	4.4e-1046	0.07	0.28	0.21	2330646	
Model 52	6	-10024.5	21840.35	20446.94	20645.94	199	20048.9371	7921	2.4e-1039	0.09	0.32	0.26	1621340	
Model 53	6	-9952.98	21697.37	20303.96	20502.96	199	19905.9581	7921	1.3e-1020	0.05	0.28	0.21	1142971	no
Model 54	6	-9864.28	21519.98	20126.56	20325.56	199	19728.5608	7921	1.8e-997	0.03	0.27	0.20	1443950	
Model 55	6	-10054.5	21900.5	20507.09	20706.09	199	20109.0898	7921	3.0e-1047	0.06	0.29	0.23	769310	
Model 56	6	-9996.82	21785.06	20391.65	20590.65	199	19993.6477	7921	4.4e-1032	0.07	0.28	0.21	1003469	
Model 57	6	-10031.1	21853.52	20460.1	20659.1	199	20062.1013	7921	4.5e-1041	0.07	0.31	0.24	2699537	no
Model 58	6	-9968.19	21727.79	20334.38	20533.38	199	19936.3765	7921	1.4e-1024	0.05	0.29	0.22	1670062	
Model 59	6	-10102.6	21996.58	20603.17	20802.17	199	20205.1681	7921	6.4e-1060	0.13	0.34	0.28	2242479	
Model 60	6	-9980.66	21752.73	20359.32	20558.32	199	19961.3164	7921	7.6e-1028	0.07	0.32	0.26	2655325	
Model 61	6	-9990.66	21772.74	20379.32	20578.32	199	19981.3212	7921	1.8e-1030	0.06	0.27	0.20	1582076	
Model 62	6	-9988.23	21767.87	20374.45	20573.45	199	19976.4509	7921	7.9e-1030	0.06	0.29	0.22	1405898	no
Model 63	6	-10029.8	21851.02	20457.6	20656.6	199	20059.6048	7921	9.6e-1041	0.11	0.33	0.27	1920321	
Model 64	6	-9960.41	21712.24	20318.83	20517.83	199	19920.8289	7921	1.5e-1022	0.04	0.26	0.19	834268	
Model 65	6	-9990.55	21772.51	20379.09	20578.09	199	19981.0901	7921	1.9e-1030	0.11	0.33	0.27	2186383	no
Model 66	6	-9989.46	21770.33	20376.91	20575.91	199	19978.9115	7921	3.7e-1030	0.06	0.29	0.22	2363158	no
Model 67	6	-9922.96	21637.34	20243.92	20442.92	199	19845.9228	7921	9.3e-1013	0.04	0.28	0.21	958808	
Model 68	6	-9980.07	21751.56	20358.14	20557.14	199	19960.1428	7921	1.1e-1027	0.07	0.30	0.23	1978905	
Model 69	6	-9977.06	21745.54	20352.12	20551.12	199	19954.1201	7921	6.6e-1027	0.08	0.31	0.24	795324	no
Model 70	6	-9919.65	21630.72	20237.3	20436.3	199	19839.3013	7921	6.8e-1012	0.04	0.28	0.21	2275787	
Model 71	6	-10060.9	21913.18	20519.76	20718.76	199	20121.7624	7921	6.4e-1049	0.07	0.29	0.23	824927	no
Model 72	6	-10084.2	21959.88	20566.46	20765.46	199	20168.4642	7921	4.4e-1055	0.13	0.29	0.23	1595895	
Model 73	6	-9940.25	21671.91	20278.5	20477.5	199	19880.4968	7921	2.8e-1017	0.05	0.27	0.21	2433106	no
Model 74	6	-9908.24	21607.89	20214.48	20413.48	199	19816.476	7921	6.5e-1009	0.05	0.28	0.21	2600413	
Model 75	6	-10023.4	21838.17	20444.75	20643.75	199	20046.7535	7921	4.7e-1039	0.04	0.25	0.19	2684568	
Model 76	6	-10006.7	21804.8	20411.38	20610.38	199	20013.383	7921	1.1e-1034	0.10	0.30	0.24	406401	no
Model 77	6	-9913.52	21618.45	20225.04	20424.04	199	19827.0378	7921	2.7e-1010	0.04	0.27	0.21	1904322	
Model 78	6	-9954.35	21700.11	20306.69	20505.69	199	19908.694	7921	5.9e-1021	0.05	0.29	0.22	1611394	
Model 79	6	-9993.2	21777.82	20384.4	20583.4	199	19986.4034	7921	3.9e-1031	0.08	0.31	0.24	2000123	
Model 80	6	-9928.7	21648.82	20255.4	20454.4	199	19857.4042	7921	3.0e-1014	0.07	0.29	0.23	1780165	
Model 81	6	-10009.9	21811.2	20417.78	20616.78	199	20019.7814	7921	1.6e-1035	0.10	0.32	0.26	1628329	
Model 82	6	-10015.1	21821.68	20428.26	20627.26	199	20030.263	7921	6.9e-1037	0.10	0.31	0.24	1841920	
Model 83	6	-9904.28	21599.97	20206.56	20405.56	199	19808.558	7921	7.0e-1008	0.05	0.27	0.21	1435673	
Model 84	6	-10015.4	21822.18	20428.76	20627.76	199	20030.7602	7921	5.9e-1037	0.09	0.33	0.27	1923584	
Model 85	6	-10119.6	22030.61	20637.2	20836.2	199	20239.1997	7921	2.0e-1064	0.11	0.31	0.24	2406151	
Model 86	6	-10038.7	21868.81	20475.4	20674.4	199	20077.3976	7921	4.4e-1043	0.10	0.33	0.27	2485211	
Model 87	6	-10024	21839.37	20445.96	20644.96	199	20047.9574	7921	3.3e-1039	0.09	0.35	0.29	680933	no
Model 88	6	-10054.8	21901.11	20507.69	20706.69	199	20109.6934	7921	2.5e-1047	0.08	0.33	0.27	2765079	
Model 89	6	-10040.5	21872.36	20478.94	20677.94	199	20080.9413	7921	1.5e-1043	0.12	0.34	0.28	1619811	no
Model 90	6	-9935.11	21661.63	20268.21	20467.21	199	19870.2137	7921	6.3e-1016	0.04	0.26	0.20	1195651	no
Model 91	6	-9933.89	21659.19	20265.78	20464.78	199	19867.7795	7921	1.3e-1015	0.04	0.26	0.19	1963715	
Model 92	6	-10134.9	22061.29	20667.88	20866.88	199	20269.8793	7921	1.8e-1068	0.11	0.33	0.27	588352	
Model 93	6	-9938.01	21667.44	20274.03	20473.03	199	19876.0255	7921	1.1e-1016	0.08	0.31	0.25	1281370	no
Model 94	6	-9991.59	21774.59	20381.18	20580.18	199	19983.1799	7921	1.0e-1030	0.04	0.26	0.19	2720838	
Model 95	6	-10108.7	22008.89	20615.48	20814.48	199	20217.4752	7921	1.5e-1061	0.10	0.33	0.27	1584163	no
Model 96	6	-9972.6	21736.61	20343.2	20542.2	199	19945.1988	7921	9.8e-1026	0.05	0.29	0.22	2407045	no
Model 97	6	-10011.2	21813.82	20420.4	20619.4	199	20022.4028	7921	7.4e-1036	0.04	0.27	0.20	2172573	no
Model 98	6	-9954.68	21700.78	20307.36	20506.36	199	19909.3627	7921	4.8e-1021	0.07	0.29	0.22	2399776	
Model 99	6	-9918.46	21628.33	20234.92	20433.92	199	19836.9193	7921	1.4e-1011	0.04	0.28	0.21	2224105	no
Model 100	6	-10010.9	21813.2	20419.79	20618.79	199	20021.7899	7921	8.9e-1036	0.08	0.31	0.25	2736945	
Model1	7	-9836.72	21788.94	20143.45	20378.45	235	19673.4491	7885	1.9e-997	0.08	0.31	0.25	1343272	no
Model2	7	-9878.93	21873.34	20227.85	20462.85	235	19757.8512	7885	1.9e-1008	0.05	0.29	0.22	2460380	no
Model3	7	-9834.26	21784.01	20138.52	20373.52	235	19668.5234	7885	8.4e-997	0.05	0.28	0.21	1276016	no
Model4	7	-9793.22	21701.93	20056.44	20291.44	235	19586.4395	7885	3.9e-986	0.06	0.30	0.24	2429258	
Model5	7	-9877.41	21870.32	20224.83	20459.83	235	19754.8262	7885	4.7e-1008	0.08	0.32	0.25	1711854	no
Model6	7	-9847.55	21810.6	20165.11	20400.11	235	19695.1079	7885	2.9e-1000	0.08	0.32	0.26	608978	
Model7	7	-9804.23	21723.95	20078.46	20313.46	235	19608.4628	7885	5.4e-989	0.05	0.29	0.23	1019242	no
Model8	7	-9806.1	21727.69	20082.2	20317.2	235	19612.1966	7885	1.8e-989	0.06	0.29	0.23	430680	no
Model9	7	-9914.09	21943.66	20298.17	20533.17	235	19828.1705	7885	1.2e-1017	0.12	0.34	0.28	1073878	no
Model10	7	-9919.94	21955.38	20309.89	20544.89	235	19839.8896	7885	3.6e-1019	0.07	0.30	0.23	650238	
Model11	7	-9886.2	21887.9	20242.41	20477.41	235	19772.4067	7885	2.4e-1010	0.06	0.29	0.23	1409208	no
Model12	7	-9862.9	21841.29	20195.8	20430.8	235	19725.7992	7885	2.9e-1004	0.07	0.31	0.25	2632369	no
Model13	7	-9754.89	21625.28	19979.79	20214.79	235	19509.7865	7885	3.3e-976	0.05	0.31	0.25	2569189	

Choice probabilities for each class and each alternative in every choice set (set profile)

Alternative chosen	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Overall	Observed
Set Average (n=8120)								
1	0.24	0.01	0.17	0.13	0.08	0.04	0.13	0.13
2	0.22	0.01	0.19	0.13	0.10	0.08	0.14	0.14
3	0.22	0.04	0.19	0.17	0.08	0.09	0.15	0.15
4	0.20	0.03	0.23	0.13	0.08	0.07	0.15	0.14
5	0.12	0.90	0.22	0.44	0.65	0.73	0.43	0.43
Set 1 (n=406)								
1	0.17	0.01	0.14	0.23	0.04	0.10	0.12	0.12
2	0.19	0.01	0.16	0.16	0.20	0.09	0.15	0.18
3	0.36	0.00	0.35	0.23	0.11	0.10	0.24	0.26
4	0.14	0.01	0.13	0.03	0.05	0.01	0.08	0.07
5	0.13	0.97	0.22	0.35	0.59	0.71	0.41	0.36
Set 2 (n=406)								
1	0.17	0.03	0.12	0.11	0.06	0.02	0.10	0.10
2	0.19	0.01	0.15	0.24	0.20	0.10	0.16	0.16
3	0.27	0.03	0.41	0.05	0.14	0.07	0.21	0.23
4	0.25	0.01	0.11	0.03	0.02	0.03	0.09	0.09
5	0.12	0.92	0.21	0.56	0.58	0.78	0.44	0.43
Set 3 (n=406)								
1	0.21	0.01	0.20	0.20	0.21	0.09	0.17	0.18
2	0.13	0.00	0.08	0.06	0.04	0.05	0.07	0.05
3	0.32	0.04	0.25	0.13	0.07	0.07	0.17	0.19
4	0.20	0.01	0.20	0.11	0.07	0.11	0.13	0.10
5	0.14	0.93	0.27	0.50	0.61	0.69	0.45	0.48
Set 4 (n=406)								
1	0.39	0.00	0.22	0.03	0.07	0.00	0.15	0.15
2	0.16	0.01	0.11	0.17	0.19	0.11	0.13	0.15
3	0.15	0.06	0.08	0.16	0.06	0.07	0.09	0.10
4	0.21	0.07	0.44	0.21	0.11	0.08	0.24	0.27
5	0.10	0.86	0.15	0.43	0.57	0.74	0.38	0.33
Set 5 (n=406)								
1	0.28	0.00	0.18	0.13	0.08	0.02	0.14	0.12
2	0.19	0.01	0.19	0.13	0.20	0.06	0.16	0.19
3	0.22	0.02	0.12	0.11	0.04	0.15	0.11	0.09
4	0.19	0.11	0.25	0.28	0.09	0.13	0.19	0.20
5	0.12	0.87	0.26	0.35	0.58	0.63	0.41	0.40
Set 6 (n=406)								
1	0.15	0.04	0.12	0.09	0.07	0.03	0.09	0.11
2	0.14	0.01	0.15	0.27	0.05	0.13	0.13	0.13
3	0.23	0.00	0.15	0.18	0.09	0.04	0.13	0.13
4	0.38	0.00	0.33	0.03	0.10	0.00	0.19	0.17
5	0.10	0.95	0.24	0.43	0.69	0.80	0.46	0.47

Alternative chosen	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Overall	Observed
Set 7 (n=406)								
1	0.20	0.01	0.15	0.29	0.05	0.09	0.14	0.11
2	0.31	0.03	0.43	0.04	0.16	0.06	0.23	0.21
3	0.14	0.00	0.07	0.06	0.05	0.04	0.07	0.08
4	0.20	0.06	0.12	0.17	0.07	0.05	0.12	0.11
5	0.14	0.90	0.23	0.44	0.67	0.75	0.45	0.49
Set 8 (n=406)								
1	0.19	0.01	0.17	0.23	0.05	0.07	0.13	0.12
2	0.27	0.01	0.13	0.02	0.03	0.02	0.09	0.09
3	0.21	0.10	0.25	0.31	0.12	0.13	0.20	0.24
4	0.20	0.01	0.19	0.08	0.08	0.08	0.12	0.09
5	0.13	0.87	0.26	0.37	0.72	0.70	0.45	0.47
Set 9 (n=406)								
1	0.16	0.01	0.11	0.23	0.05	0.08	0.11	0.13
2	0.21	0.02	0.08	0.12	0.05	0.16	0.10	0.09
3	0.28	0.04	0.16	0.09	0.08	0.06	0.13	0.14
4	0.23	0.07	0.49	0.18	0.14	0.05	0.26	0.24
5	0.12	0.87	0.17	0.37	0.69	0.66	0.40	0.41
Set 10 (n=406)								
1	0.18	0.04	0.14	0.09	0.07	0.02	0.11	0.11
2	0.36	0.00	0.42	0.28	0.13	0.08	0.26	0.26
3	0.12	0.00	0.07	0.06	0.05	0.04	0.06	0.08
4	0.22	0.02	0.11	0.15	0.05	0.18	0.12	0.10
5	0.12	0.94	0.25	0.42	0.69	0.68	0.45	0.45
Set 11 (n=406)								
1	0.23	0.02	0.23	0.03	0.13	0.05	0.15	0.15
2	0.30	0.00	0.19	0.21	0.10	0.07	0.17	0.18
3	0.16	0.09	0.11	0.28	0.09	0.14	0.14	0.13
4	0.20	0.05	0.35	0.16	0.11	0.05	0.20	0.19
5	0.11	0.83	0.12	0.32	0.57	0.69	0.35	0.34
Set 12 (n=406)								
1	0.31	0.00	0.27	0.03	0.10	0.00	0.16	0.15
2	0.17	0.01	0.09	0.03	0.03	0.03	0.07	0.07
3	0.24	0.00	0.30	0.32	0.13	0.12	0.21	0.20
4	0.20	0.05	0.17	0.14	0.08	0.09	0.13	0.13
5	0.08	0.94	0.18	0.48	0.67	0.76	0.43	0.45
Set 13 (n=406)								
1	0.25	0.00	0.15	0.16	0.09	0.03	0.13	0.14
2	0.32	0.00	0.36	0.25	0.12	0.10	0.23	0.24
3	0.15	0.06	0.12	0.14	0.07	0.06	0.11	0.09
4	0.16	0.01	0.16	0.08	0.07	0.12	0.11	0.10
5	0.11	0.92	0.22	0.37	0.65	0.69	0.42	0.43

Alternative chosen	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Overall	Observed
Set 14 (n=406)								
1	0.20	0.03	0.10	0.10	0.07	0.03	0.10	0.11
2	0.16	0.01	0.10	0.04	0.05	0.01	0.07	0.07
3	0.28	0.07	0.51	0.26	0.13	0.07	0.28	0.29
4	0.21	0.01	0.13	0.11	0.07	0.13	0.11	0.09
5	0.14	0.88	0.17	0.49	0.69	0.77	0.44	0.44
Set 15 (n=406)								
1	0.25	0.00	0.13	0.22	0.09	0.04	0.13	0.12
2	0.24	0.03	0.38	0.05	0.16	0.08	0.21	0.19
3	0.27	0.04	0.18	0.14	0.07	0.08	0.14	0.13
4	0.12	0.01	0.11	0.04	0.05	0.01	0.07	0.05
5	0.11	0.92	0.20	0.54	0.63	0.79	0.44	0.50
Set 16 (n=406)								
1	0.28	0.01	0.16	0.03	0.03	0.02	0.11	0.14
2	0.24	0.02	0.15	0.18	0.06	0.18	0.14	0.13
3	0.19	0.06	0.17	0.21	0.09	0.05	0.14	0.14
4	0.15	0.01	0.19	0.04	0.06	0.01	0.10	0.07
5	0.14	0.91	0.34	0.54	0.76	0.74	0.52	0.52
Set 17 (n=406)								
1	0.44	0.00	0.34	0.03	0.10	0.00	0.20	0.20
2	0.12	0.00	0.07	0.06	0.05	0.04	0.06	0.09
3	0.19	0.11	0.23	0.40	0.11	0.17	0.20	0.22
4	0.13	0.01	0.13	0.04	0.06	0.01	0.08	0.07
5	0.12	0.88	0.24	0.47	0.69	0.78	0.45	0.42
Set 18 (n=406)								
1	0.18	0.03	0.14	0.07	0.08	0.02	0.10	0.10
2	0.18	0.06	0.13	0.14	0.08	0.05	0.12	0.11
3	0.31	0.03	0.24	0.09	0.08	0.06	0.16	0.14
4	0.20	0.09	0.24	0.31	0.11	0.16	0.20	0.21
5	0.13	0.79	0.25	0.39	0.66	0.71	0.42	0.44
Set 19 (n=406)								
1	0.36	0.00	0.27	0.04	0.08	0.00	0.17	0.17
2	0.22	0.03	0.35	0.05	0.15	0.06	0.19	0.18
3	0.17	0.02	0.08	0.21	0.04	0.17	0.11	0.13
4	0.15	0.01	0.13	0.13	0.07	0.09	0.10	0.10
5	0.10	0.94	0.18	0.57	0.65	0.69	0.43	0.42
Set 20 (n=406)								
1	0.28	0.00	0.13	0.20	0.09	0.04	0.13	0.14
2	0.24	0.01	0.09	0.02	0.03	0.03	0.08	0.11
3	0.12	0.00	0.05	0.06	0.05	0.06	0.06	0.07
4	0.24	0.07	0.54	0.24	0.14	0.08	0.29	0.31
5	0.12	0.92	0.19	0.48	0.69	0.79	0.43	0.38

APPENDIX 4

MACQUARIE UNIVERSITY

Anita Zednik <anita.zednik@mq.edu.au>

Final Approval - 5201200335(D)
1 message

Mrs Yanru Ouyang <yanru.ouyang@mq.edu.au>   Mon, Jul 9, 2012 at 6:21 AM
To: Prof David Throsby <david.throsby@mq.edu.au>
Cc: Ms Anita Zednik <anita.zednik@students.mq.edu.au>

Dear Prof. David Throsby

Re: Taste refinement and demand for artistic goods. Ref. No. 5201200335(D)
Thank you for your recent correspondence. Your response has addressed the
issues raised by the Faculty of Business & Economics Human Research Ethics
Sub Committee, and you may now commence your research.

This research meets the requirements of the National Statement on Ethical
Conduct in Human Research (2007). The National Statement is available at
the following web site:
http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/e72.pdf.

The following personnel are authorised to conduct this research:
Chief Investigator: David Throsby
Other Personnel: Anita Zednik

NB. STUDENTS: IT IS YOUR RESPONSIBILITY TO KEEP A COPY OF THIS APPROVAL
EMAIL TO SUBMIT WITH YOUR THESIS.

Please note the following standard requirements of approval:
1.   The approval of this project is conditional upon your continuing
compliance with the National Statement on Ethical Conduct in Human Research
(2007).
2.   Approval will be for a period of five (5) years subject to the provision
of annual reports.
Progress Report 1 Due: 9 July 2013
Progress Report 2 Due: 9 July 2014
Progress Report 3 Due: 9 July 2015

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