# INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

**The quality of this reproduction is dependent upon the quality of the copy submitted.** Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps.

The Production and Use of Verbal Irony:

An Examination of Expectations and the Asymmetry of Affect


By

Jeff Hancock


Dissertation Committee Members:

Dr. Philip Dunham (supervisor)

Dr. John Barresi

Dr. Darcy Santor


Dr. Albert Katz (external examiner)


Submitted in partial fulfilment of the requirements for the degree of Ph.D. at Dalhousie University, August 2002.

DALHOUSIE UNIVERSITY

FACULTY OF GRADUATE STUDIES

The undersigned hereby certify that they have read and recommend to the Faculty of Graduate Studies for acceptance a thesis entitled "The Production and Use of Verbal Irony: An Examination of Expectations and the Asymmetry of Affect", by Jeffrey Todd Hancock, in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Dated: _____ August 9, 2002 _____

External Examiner:

Research Supervisor:

Examining Committee:

DALHOUSIE UNIVERSITY

DATE:  August 14, 2002
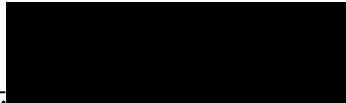
AUTHOR:  Jeffrey Todd Hancock

TITLE:  The Production and Use of Verbal Irony: An Examination of Expectations and the Asymmetry of Affect

DEPARTMENT OR SCHOOL:  Department of Psychology

DEGREE:  Ph.D.  CONVOCATION:  October  YEAR:  2002

Permission is herewith granted to Dalhousie University to circulate and to have copied for non-commercial purposes, at its discretion, the above title upon the request of individuals or institutions.

Signature of Author

The author reserves other publication rights, and neither the thesis nor extensive extracts from it may be printed or otherwise reproduced without the author's written permission.

The author attests that permission has been obtained for the use of any copyrighted material appearing in the thesis (other than the brief excerpts requiring only proper acknowledgement in scholarly writing), and that all such use is clearly acknowledged.

iii

## Dedication

To my families — the new one I am starting with my wife Aimee, and to the family I grew up with, Mom, Dad, Brent and Darcy — and to my friends, Mike, Amy and Mia Woodworth.

# Table of Contents

## List of Tables

## List of Figures

# Abstract

One of the interesting phenomena to emerge from contemporary research on the comprehension of ironic statements has been called the asymmetry of affect. Essentially, data from a substantial number of studies suggest that we find ironic criticisms easier to comprehend than ironic compliments. For example, a typical listener finds it easier to detect the ironic intent of a speaker who refers to a terrible meal as "wonderful food" than a speaker who refers to a delicious meal as "disgusting food." Various theories have assumed that the listener's expectations play an important role in this asymmetry and in the comprehension of irony in general. The present research extends this body of data by exploring these theoretical accounts of the asymmetry of affect in the context of spontaneous irony production. The empirical goals of the research were to determine if a similar asymmetry occurs when individuals spontaneously produce ironic statements, and to identify the conditions under which an asymmetry in production is most likely to be observed.

In Experiment 1 a novel procedure assessed whether the same asymmetry emerges in spontaneous irony production when speakers have equal opportunities to produce ironic criticisms and compliments. The results revealed a robust asymmetry consistent with the existing comprehension data. Experiments 2 and 3 examined the role of specific expectations on spontaneous irony production in dyadic conversations when the speakers' expectations were either violated or confirmed. In Experiment 2 the dyads were strangers, and in Experiment 3 they were friends. In both experiments, more ironic criticisms were generated, confirming the asymmetry of affect across the various experimental conditions. However, the violation of speaker expectations facilitated irony production only in Experiment 3, suggesting that some degree of acquaintance may be necessary for the expectation manipulations to have the predicted effect. Experiment 4 employed a novel forced irony procedure in order to control contextual factors such as speaker expectations and verbal politeness objectives, and explore the potential role of differential cognitive constraints (i.e., the difficulties associated with negating negations) on the verbal production of positive and negative forms of irony. Under these conditions, forced irony production was symmetrical across positive and negative forms suggesting that differential cognitive constraints are not a likely explanation for the asymmetry of affect in production.

Considered together, this research suggests that speakers are more likely to produce irony spontaneously when 1) the context or situation is negative, 2) the speaker's specific expectations have been violated (i.e. primed by a prediction or engendered by the context), and 3) the speaker is acquainted with their conversational partner. These findings are discussed in terms of their implications for traditional theoretical accounts of irony comprehension, generally described as "echoic" theories, and for more general pragmatic aspects of language use, such as verbal politeness objectives and common ground effects.

# Acknowledgements

Background

The word irony is originally derived from the Greek <u>eironia</u>, which means, "to dissemble." The term was used, for example, to describe Socrates and his method of feigning ignorance to demonstrate the weaknesses in his opponent's arguments (i.e., the Socratic method). Many kinds of irony have since been identified, but four related yet distinct forms of irony tend to be consistently described by scholars (Dane, 1991). The broadest and most recently developed ironic form is <u>romantic irony</u>, which is concerned primarily with the relationship between authors and their writing. This conception of irony, introduced by Schlegel and his contemporaries in the 19th century, is most tangibly expressed by the authors' self-conscious detachment or distancing from their work, typically by framing their writing as subjective and contextual, rather than as authoritative and completely objective (see Dane, 1991). A more specific form of irony is <u>dramatic irony</u>, a theatrical device in which the audience knows more than the protagonist (Gibbs, 1994). Typically, the protagonist utters words or embarks in actions that have a special meaning for the audience that the protagonist is unaware of. This form is most commonly seen in tragedies, such as <u>Oedipus Rex</u>, in which the audience observes Oedipus unknowingly pledge his own destruction. A third form of irony, <u>situational irony</u> (or irony of fate), refers to situations in which the opposite of what was expected has come to pass (Littman & Mey, 1991). An example of this type of irony would be a firehouse that burns down while the firemen are away fighting another fire. Finally, Myers (1977) defined <u>verbal irony</u> as any utterance that is meant to convey the pragmatic opposite of its literal interpretation. "That's a really classy shirt" said to a friend wearing a gaudy floral print is one example of this type of

1

oppositional, or counterfactual, irony. Note that the implied meaning is not necessarily a literal opposite to the statement. Instead, the opposition lies in the contrast between the intended pragmatic effect of the statement (to highlight the fact that the friend is wearing an ugly shirt) and the typical meaning associated with the statement (to compliment someone on their appearance). Verbal irony has also been distinguished from sarcasm, although the distinction is the subject of some debate. One point of view considers sarcasm as a form of irony requiring an explicit victim (e.g., Gibbs & O'Brien, 1991; Kreuz & Glucksberg, 1989; Lee & Katz, 1998; Meucke, 1969), while others consider sarcasm to be a pragmatic device separate from irony (Littman & Mey, 1991). For the purpose of this research, following Gibbs and O'Brien, the term verbal irony is used more generally and subsumes forms that some would describe as sarcastic.

Verbal irony and the asymmetry of affect

The present research is concerned primarily with verbal irony. A considerable body of psychological research has investigated verbal irony over the last three decades, and a survey of this literature reveals that the majority of theoretical and empirical work has focused on the comprehension of process (Giora, 1998; Kreuz, 1996, 2000). One of the most reliably observed and salient phenomena to emerge from this well developed literature is what Clark and Gerrig (1984) called an "asymmetry of affect" (see also Colston, 2000; Kreuz, 1996; Kreuz & Glucksberg, 1989; Kumon-Nakamura Glucksberg, & Brown., 1995; Sperber, 1984; Sperber & Wilson, 1981; Sperber & Wilson, 1986/1995). In general, a substantial amount of data reveal that

positively phrased statements are more readily interpreted as ironic than their negatively phrased counterparts. Consider, for example, two friends shopping for new clothes. When one emerges from the change room with an incredibly ugly dress, the other says

(1)     "Oh, that's beautiful."

This type of positive statement is readily understood as ironic, and the critical and humorous intent of the remark is immediately apparent. However, when one of the friends emerges with a stunningly beautiful outfit and the other says

(2)     "Oh, that's ugly"

the ironic use of the negative statement in (2) seems anomalous (Kreuz & Glucksberg, 1989).

Indeed, since its earliest formulation as a figure of speech, the asymmetric nature of irony across positive and negative forms of evaluation has been noted. According to Dane's (1991) historical analysis of the concept of irony, the association of negative and positive evaluations with irony repeats throughout its lexical development, although even in the writings of some of the earliest commentators, such as Cicero and Quintillian, the more common definitional example of irony in the rhetorical tradition was that of blame by apparent praise rather than its reverse, praise by apparent blame (see also Muecke, 1969, p. 67-83). Consider, for example, this definition of irony from the Oxford English Dictionary:

A figure of speech in which the intended meaning is the opposite of that

expressed by the words used; usually taking the form of sarcasm or

ridicule in which laudatory expressions are used to imply condemnation or contempt (1989, vol. 5, p. 484).

This definition implies that the evaluative force of irony tends to be asymmetric, and that an ironist is more likely to say (1) in a negative context than (2) in a positive one.

A substantial amount of recent theoretical and empirical work has attempted to identify the reasons underlying this asymmetry across positive and negative forms of irony. Theoretical explanations of the asymmetry of affect tend to fall into one of two categories: models that simply define irony as a vehicle for expressing primarily negative evaluations and models that appeal to broader asymmetries in human preferences, desires, expectations and social norms.

In the first category, in what has been referred to as a standard pragmatic model of irony (Grice, 1975, 1978; Searle, 1979), participants are assumed to comply with a cooperative principle during conversations requiring them to be truthful and relevant in their remarks. When a speaker says something that is obviously false, such as "What lovely weather" during a downpour, the listener notes the violation of the cooperation principle, rejects the literal meaning as the intended meaning and infers that the speaker means something other than what was said. As Gibbs (1986b) has suggested, the standard pragmatic model implies a three-stage model of irony comprehension. The hearer must first analyze the literal meaning of the remark, decide whether the literal meaning is the speaker's intended meaning, and if the literal interpretation is inappropriate, reject the literal meaning and infer that the speaker meant the opposite of the literal meaning. The hypothesis that irony requires multiple stages of processing has generated considerable debate in the irony comprehension literature, and this issue has

yet to be fully resolved (Dews & Winner, 1995; Gibbs, 1983, 1986b, 1994; Giora, 1995; Giora & Fein, 1999; Giora, Fein, & Schwartz, 1998; Schwoebel, Dews, Winner, & Srinivas, 2000).

Although the standard pragmatic account of irony does not <u>logically</u> imply any differential comprehension or production of irony across positive and negative forms, Grice's (1989) more explicit comments essentially defined irony as a negative device. For example, he states: "Irony is intimately connected with the expression of a feeling, attitude, or evaluation. I cannot say something ironically unless what I say is intended to reflect a hostile or derogatory judgment or a feeling such as indignation or contempt" (Grice, 1989, p. 53). That is, a speaker chooses irony primarily to express <u>dissatisfaction</u> with an outcome that has failed to meet some expectation, preference or desire.

The pretense theory of irony (Clark, 1996; Clark & Gerrig, 1984; see also Haiman, 1990, 1998 for a similar dramaturgical conception of irony) significantly expands Grice's view of irony. As Clark and Gerrig note, Grice remarked that "to be ironical is, among other things, to pretend (as the etymology suggests), and while one wants the pretense to be recognized as such, to announce it as a pretense would spoil the effect" (as cited in Clark & Gerrig, 1984, p. 121). The pretense theory formalized this aspect of irony and claimed that the ironist, on one level, pretends to be an "injudicious" or "ignorant" person speaking to an uninitiated audience. On another level, the speaker expresses his or her derogatory attitude about the pretend speaker and listener to a knowing audience that is expected to see through the pretense. As with the standard pragmatic model, the pretense theory assumes that the asymmetry simply

reflects the fact that speakers use irony primarily to express a negative or derogatory attitude towards events that transpire in a manner in which the speaker did not prefer, desire or expect.

Note that both the standard pragmatic model and pretense models simply conceptualize the asymmetry as an inherent property of verbal irony. Note, however, that not every ironic utterance can be interpreted as expressing a negative evaluation. Consider the following example provided by Kaufer (1981, p. 25), in which he refers to a colleague who is both an administrator and a frequently published scholar:

(3)     "that X, if only s/he were a little more prolific."

As Kaufer notes, it is not the case that he is negatively evaluating his colleague. In fact, he is doing quite the opposite, offering praise in the guise of blame. Such examples undermine the standard pragmatic and pretense models' assumption that irony is inherently negative.

A second category of theories, generally described as the "echoic" theories, include Sperber and Wilson's (1981, 1986/1995; Sperber, 1984) echoic mention/interpretation theory of verbal irony, Kreuz and Glucksberg's (1989) echoic reminder theory and most recently Kumon-Nakamura et al.'s (1995) allusional pretense theory of discourse irony. These accounts provide a more principled explanation for the asymmetry of affect phenomenon. Although the specific mechanisms vary, in general, the echoic models argue that ironic comments echo or allude to explicit expectations or implicit norms that have been violated by ensuing events, and that ironists allude to these expectations in an effort to highlight the contrast between what was expected and what has actually transpired.

Although calling attention to the discrepancy between "what is" and "what should have been" frequently results in the expression of negative attitudes or evaluations, the echoic theories argue that negative attitudes are not an inherent property of irony. Instead, the asymmetry across negative and positive forms of irony is assumed to reflect more general asymmetries in human expectations, norms and preferences. For example, Matlin and Stang (1978) documented a wide range of evidence implying that humans tend to have positively biased expectations, desires and social norms; a bias they called the Pollyanna Hypothesis (see also Boucher & Osgood, 1969; Zajonc, 1968). According to the echoic theories, because general expectations tend to be positive, ironists will be more likely to allude to commonly held implicit positive expectations and norms that have been subsequently violated than to less frequently held negative expectations. Thus, positively phrased statements can be used ironically by alluding to generally positive social norms and expectations, while negatively phrased statements are less likely to find an appropriate context to echo. For example, the statement

(4)    "It's a beautiful day"

used to convey that it is a terrible day implicitly echoes the conventional desire for good weather, while the statement

(5)    "It's a terrible day"

used to convey that it is a beautiful day does not allude to any general desire or expectation (i.e., there is no general desire for awful weather), and is therefore anomalous. Because this type of explanation for the asymmetry in verbal irony depends upon the presumed broader asymmetry in human expectations and norms,

Gibbs (1986b) has referred to the echoic models' account of the asymmetry as the social norm hypothesis.

## Echoic theories of verbal irony and the social norm hypothesis

The general echoic account was originally outlined by Sperber and Wilson (1981; Sperber, 1984) with their echoic mention theory of verbal irony. The echoic mention theory rejected the standard pragmatic model's distinction between literal and non-literal meanings in ironic language (i.e., irony is conveyed by using an utterance to implicate a non-literal meaning that is the opposite of the utterance's literal meaning). Sperber and Wilson noted that it is difficult, if not impossible, in many ironic instances to distinguish between the literal and its opposite non-literal meaning. It is difficult, for example, to identify the non-literal opposite of the ironically intended "Thank you" after a friend has failed to hold open a door. In their echoic mention theory of irony, Sperber and Wilson instead distinguished between the "use" and "mention" of propositions. According to them, when an expression is used, it refers to what the expression denotes, and when an expression is mentioned, it refers to the expression itself. The following example illustrates the distinction: the word "jazz" in (6) is used to refer to a type of music, whereas in (7) it is mentioned to refer to the word "jazz" itself.

(6) I love jazz.

(7) The term "jazz" has come to define several musical styles.

When a whole utterance is mentioned, it does not have the same illocutionary force (Austin, 1962) as it would in a context in which it was used. For example, the phrase in

(8) is a request whereas the same utterance in (9) is uttered with out actually being intended as a request

>(8) Please pass the salt.

>(9) "Please pass the salt" is a four word sentence.

Sperber and Wilson argued that in language it is not only possible to mention words and sentences, but also meanings or propositions. Of the various forms of mention, <u>echoic mention</u> is the most directly relevant to the use of verbal irony. Echoic mention can take the form of "echoing" a previous utterance, such as when one friend says to another just before it begins to rain:

>(10a)   First friend:     The weather will be perfect for a picnic.

>(10b)   Second friend:    Oh yeah, the weather is just perfect for a
>
>                         picnic (as it begins to rain).

By repeating what the first friend has said previously, the second friend is mentioning the propositions used by the first friend. The utterance in (10b) is not intended to inform the first friend that it is perfect weather for a picnic. Instead, Sperber and Wilson argue that the utterance is mentioned in such a way as to make it patently clear that the speaker does not actually believe it to be true or appropriate, but instead is using it to express a negative or derogatory attitude toward the prediction in (10a).

In addition to cases of explicit echo, in which a speaker repeats a previous utterance, there are various types and degrees of implicit mention of a proposition that are considered to be echoic. For example, there are cases where a speaker echoes not what she has heard, but what she thinks was implied by a previous speaker, as in (11),

or she believes is popular wisdom, received opinions or some general social norm, as in (12)

> (11)   Oh, yeah, you're real smart! (after a friend misses an easy trivia question)

> (12)   Isn't life grand! (after spraining an ankle)

As Jorgenson, Miller, and Sperber (1984) note, the echoic mention theory can be expanded to predict irony's asymmetry of affect. Because expectations of success and excellence are the norm in human action, as suggested by the Pollyanna Hypothesis (Matlin & Stang, 1978), it is always possible to mention these positive expectations ironically when they are frustrated, or to mention norms ironically when they are violated. In contrast, "expectations of failure or criticism occur only on specific occasions, and it is only on those occasions that they can be mentioned ironically and serve to bestow praise under the guise of blame" (p. 115). That is, negatively phrased comments can only be used to ironically convey praise (e.g., "What a failure!" to ironically reference a success) when a specific negative expectation is in place (e.g., that the person would fail). As noted earlier, the notion that the asymmetry of affect in verbal irony reflects broader asymmetries in human desires, preferences, expectations and social norms has been called the social norm hypothesis, a central feature of the echoic models of irony (Gibbs, 1986b).

Although the echoic mention theory relied heavily on the use-mention distinction in its original account of ironic language, Sperber and Wilson (1986/1995) later concluded that the notion of mention was too restrictive for the full range of ironic utterances. They therefore discarded the term mention in favor of the more general term

interpretation and called this newer version an echoic interpretation theory of verbal irony (Sperber & Wilson, 1986/1995). Echoic interpretation is broader than mention because, unlike mention, which requires "copying" the original utterance or thought, interpretation represents the speaker's interpretation of a previous utterance or thought. That is, the thought of the speaker that is interpreted by his or her own ironic utterance is itself an interpretation of someone else's thought (Sperber & Wilson, 1986/1995, p. 229). By interpreting someone else's thought, the speaker informs the listener of the fact that the speaker has in mind what someone else has said, and that the speaker has a certain negative attitude towards it.

As with echoic mention, an echoic utterance need not interpret a precisely attributable thought; it may also echo the thought of a certain person, or of people in general (e.g., popular wisdom, preferences, etc.), or of some social norm. Again, because the majority of social norms are assumed to involve positive expectations, ironists can always use echoic interpretation of an addressee's beliefs about positive norms (e.g., "You're a fine friend") to highlight the fact that the expectation (e.g., that friends should help each other) has been violated (e.g., the friend failed to help the other move some furniture) and that the comment should be taken ironically. In contrast, negative statements (ironic praise) can only be used in situations in which a specific negative expectation has not come to fruition.

While the echoic mention/interpretation theory focused primarily on the linguistic properties of irony (i.e., use vs. mention), Kreuz and Glucksberg (1989) developed a derivative theory, the echoic reminder theory, that focused on a different aspect of irony use, namely, how the communicative goals of irony are accomplished.

According to Kreuz and Glucksberg, echoing a proposition not only allows the ironist to remind listeners of antecedent events, social norms or shared expectations, it also highlights the discrepancy between what is and what should have been. For example, suppose that one of two friends trying clothes on at the store predicted that a certain suit would look quite sexy on him, but when he tries it on and shows his friend, it looks frumpy. When the second friend says (13)

(13)    "Oh, that's quite sexy."

she is echoing what the first friend said about the outfit, and by doing so, she is reminding him of his previous incorrect prediction as well as the contrast between the actual state of affairs and what had been expected.

Echoic reminder theory also extended the applicability of the original echoic mention/interpretation hypothesis. For example, the original formulation of the echoic hypothesis has difficulty accounting for utterances that are meant both literally (i.e., are used) and ironically (i.e., are mentioned/interpreted). Kreuz and Glucksberg (1989) provide the example of a mother speaking to her daughter in (14) to illustrate this limitation

(14)    "Would you very much mind if I asked you, please, to perhaps

consider cleaning up your room sometime this month?" (p.383)

Here, the mother is <u>using</u> the utterance to ask a question and to indirectly make a request. At the same time, she is also being ironic. Thus, the statement simultaneously communicates a request and, by calling attention to the violated expectation that the listener should clean her room, <u>reminds</u> the listener of the speaker's attitude towards the listener's current behavior. This clearly is a case of use, not mention, and cannot be

explained by the echoic mention or interpretation account. In contrast, the echoic reminder theory can account for ironic utterances in which literal meanings are also intended by highlighting the reminding function of ironic utterances. Because echoic reminder theory can account for ironic utterances that are not strictly mention or interpretation (i.e., not all antecedent events are actual or even implied utterances), such as example (14) above, Kreuz and Glucksberg argued that echoic mention can therefore "be considered a special case of echoic reminding, in which implicit antecedents are echoically mentioned in order to remind a listener of those antecedents ... to derogate an idea and the source of that idea." (p. 384).

Like the echoic mention/interpretation theories before it, the echoic reminder model appeals to the social norm hypothesis to account for the asymmetry of affect observed in irony. According to the echoic reminder theory, implicit societal norms and expectations are almost invariably positive, and when such expectations are frustrated an ironist can echo them in an effort to remind the hearer of what was expected and to highlight the discrepancy between what was expected and what came to be. The position outlined by Kreuz and Glucksberg also specifically predicts that the comprehension of ironic praise can be facilitated if an explicit and relevant antecedent is available. Where the statement

(15)    "That's a really classy shirt."

can implicitly echo a general positive expectation that people dress according to societal norms, the ironic interpretation of the statement

(16)    "That's a really ugly shirt."

requires some explicit antecedent that primes a violated <u>negative</u> expectation, such as a previous statement by the friend (e.g., "I'm afraid I just bought an incredibly ugly shirt" when in fact the shirt is quite beautiful). Indeed, in research described below, Kreuz and Glucksberg demonstrated that negatively phrased statements uttered in positive contexts can be both sensible and appropriate as ironic compliments when an explicit negative expectation is available (e.g., a negative prediction).

Considered together, the echoic interpretation and echoic reminder theories address two fundamental aspects of verbal irony. The first concerns how language is manipulated by the speaker to convey irony (i.e., the linguistic operation of irony). In the echoic models, the important distinction between verbal irony and other forms of language is that ironic utterances are echoically mentioned or interpreted and not used, in the technical sense, as described above. Irony is conveyed when the listener understands that the speaker does not actually hold the proposition to be true or appropriate, but is echoing some previous expectation or social norm that has been violated by ensuing events. The second aspect of verbal irony concerns why a speaker might choose to echo a violated expectation or norm (i.e., its pragmatic operation). According to the echoic reminder theory, irony functions to remind the listener of a violated expectation in an effort to highlight the discrepancy or contrast between what is and what should have been.

A third form of the echoic formulation, the allusional pretense theory of discourse irony (Kumon-Nakamura, et al., 1995), substantially extended the scope of both the linguistic and pragmatic aspects of the echoic models of irony. Consider first the linguistic operation of irony. Recall that the echoic model's technical distinction

between the use and the echoic mention or interpretation of an utterance was an attempt to capture how the ironist literally says one thing but means something else. As Kreuz and Glucksberg (1989) noted previously, however, this distinction may not be sufficient to account for all types of verbal irony, such as true assertions used ironically (see example (14) above). To address this problem, Kumon-Nakamura et al. proposed the concept of pragmatic insincerity to expand the range of ironic utterances that could be accounted for by their model. These authors claim that insincerity is a characteristic common to any ironic utterance, in which the speaker does not sincerely intend to communicate what his or her utterance is generally supposed to imply. The insincerity is described as pragmatic because the speaker's insincerity does not apply to the semantic properties of an utterance, but instead applies to how the language is used (i.e., the pragmatic level).

More specifically, Kumon-Nakamura et al. (19995) argued that all ironic utterances involve pragmatic insincerity by violating one or more of the felicity conditions for well-formed utterances, as originally discussed by Austin (1962) and later elaborated on by Searle (1979). Felicity conditions involve (a) the propositional content of an utterance, which should be true, (b) the preparatory condition, which concerns the status of the speaker and the hearer of the utterance, (c) the sincerity of the psychological state expressed or implied by the utterance (i.e., that the speaker actually holds the psychological state expressed or implied by the utterance), and (d) the perception of the speaker's sincerity by the hearer. According to Kumon-Nakamura et al., "pragmatic insincerity occurs whenever a speaker is perceived as intentionally violating a felicity condition for at least one of these aspects of an utterance" (p. 5). For

example, declaratives such as (15) and (16) should be true, and not counterfactual. Similarly, requests should contain levels of politeness appropriate to the status of the speaker and listener, which clearly is not the case in the example of irony in (14). Note also that because speakers who use echoic mention and interpretation to convey their ironic intent do not actually hold the proposition to be true or appropriate and do not represent the actual psychological state of the speaker, echoic mention and interpretations violate felicity conditions (a) and (c) described above. As such, the linguistic functions of echoic mention or interpretation can be subsumed by the more general concept of pragmatic insincerity (Kumon-Nakamura et al., 1995).

Consider next the pragmatic function of irony. Earlier echoic theories suggested that the ironist echoes a previous utterance, thought, expectation, preference or social norm in order to highlight a discrepancy between what is and what should have been according to the expectations or norms in place. Although the echoic hypothesis appears to be sufficient in explaining the canonical form of verbal irony, counterfactual ironic statements, Kumon-Nakamura et al. (1995) argued that the echoic function of irony, as formulated by the echoic mention/interpretation and reminder theories, can not adequately account for other forms of irony, such as the following examples:

> (a) true assertions, such as "You sure know a lot" to someone who is arrogantly showing off their knowledge; (b) questions, such as "How old did you say you were?" to someone acting inappropriately for their age; (c) offerings, such as "How about another small piece of pizza?" to someone who has just gobbled up the whole pie; (d) over-polite requests, such as "Would you mind very much if I

asked you to consider cleaning up your room some time this year?" to an inconsiderate and slovenly housemate. (p. 4)

It is difficult to describe any of these ironic sentences as echoing anything, although (a) may be an exception. "You sure know a lot" may be construed as an interpretation of the offending person's view of him or herself. In contrast, the question, offering and request (b-d) do not appear to echo any previous utterance or thought, nor are they statements reflecting a common belief or prevailing expectation or norm. Kumon-Nakamura et al. argued that these ironies are instead allusive, in that they are intended to call the listener's attention to a prior expectation that has been violated in some way. All of the examples above appear to allude to some violated expectation or norm: in (a) that people are expected to be modest about their knowledge, in (b) that people are expected to act their age, in (c) that people are expected to share, and in (d) that people are expected to be considerate roommates.

Allusion can operate directly, as in (a), in which part of the expected or desired state of affairs is explicitly stated (i.e., that people should be knowledgeable). The statement is allusive because it evokes a different aspect of the situation (i.e., that knowledgeable people should not show off their knowledge), and that this aspect of the situation represents a violation of some expectation or norm. Note that this comment type is not strictly echoic since the statement echoes the non-violated elements of the situation (i.e., that people should be knowledgeable), and not the violated (i.e., that they shouldn't show that knowledge off). Allusion can also be indirect, as in (b-d). These comments do not explicitly reference any specific norm or expectation. Instead, questions, offers and over-polite requests involve <u>eliciting</u> expectations or desires in the

mind of the addressee in an effort to call attention to the fact that these expectations have not come to fruition.

Kumon-Nakamura et al. (1995) argued that the previous forms of the echoic hypothesis are special cases of the broader mechanism of allusion. Consider the act of echoing, via mention or interpretation (Sperber & Wilson, 1981, 1986/1995). Echoing someone else's previous explicit or implicit thoughts, beliefs or desires is simply a direct form of allusion, in which the speaker uses a direct reference to a violated expectation to allude to that expectation and call the listener's attention to it. Similarly, Kreuz and Glucksberg's (1989) concept of echoic reminder is necessarily a special case of allusion. Recall that in this treatment of the echoic hypothesis, the ironist is assumed to use echoic mention or interpretation as a way of reminding the listener of a failed expectation, and that such reminding can be accomplished without necessarily echoing a prior utterance or thought. Instead, ironic utterances are used to remind a listener of antecedent events, norms or expectations, and to highlight the contrast between what is and what should be, as in (14) above. Allusion can be accomplished by reminding someone about an expectation or norm, as described by the echoic reminder theory, but allusion can also function without reminding at all. Kumon-Nakamura et al. note that there are cases in which both speaker and the addressee are fully aware of a failed expectation and that no reminding is necessary, or even possible, given that the failed expectation is already part of their shared awareness. For example, suppose a mother and daughter arrange for the mother to pick the daughter up at a certain time and place. The mother arrives on time, but the daughter arrives fifteen minutes late, looking sheepishly apologetic. The mother says

(17)    "Right on time, as usual."

Because it is clear that the mother and daughter are both aware that the daughter has

violated the expectation of meeting at a certain time, it is not necessary for the mother

to remind her of the expectation. Thus, Kumon-Nakamura et al. argued that although

verbal irony may seem to often work as a reminder of a disconfirmed expectation by

alluding to it, such a reminding function is not a necessary condition for verbal irony.

Thus, the previous forms of the echoic hypothesis can be included under the broader

rubric of allusion.

With regards to the asymmetry of affect, the allusional pretense model follows

the social norm hypothesis outlined above, but highlights the fact that if a general norm

or implicit expectation is negative, then irony can be expressed by negative statements

without an explicit antecedent, as implied by the echoic reminder theory. That is, if a

generally held expectation is negative (e.g., New York subways are dirty) and is

subsequently disconfirmed by a positive event (e.g., an immaculately clean subway car

arrives), negatively phrased statements that allude to those negative expectations, such

as

(18)    "New York subways sure are dirty."

can communicate irony without an explicit antecedent. Note first that this rendering of

the social norm hypothesis is not substantially different from the previous versions

outlined by the earlier echoic theories. Instead, the emphasis in the allusional-pretense

model is placed on the fact that irony can allude to positive or negative explicit or

implicit expectations and norms. Note also that the asymmetry is assumed to persist

because the majority of general expectations and human social norms, preferences and

desires are assumed to be biased towards the positive. Thus, although ironic utterances can convey irony by alluding to implicit negative expectations, utterances are much more likely to allude ironically to more frequently held positive expectations that have been violated by negative events (Kumon-Nakamura et al., 1995).

In summary, the echoic theories describe two fundamental aspects of verbal irony. First, the speaker must say one thing but mean something else. The speaker can accomplish this linguistic operation via the mention/use distinction, or more generally, by intentionally violating one of the felicity conditions of well-formed speech acts (i.e., be pragmatically insincere). Second, ironic remarks echo or allude to some violated expectation or social norm in order to accomplish the pragmatic effect of highlighting the discrepancy between what is and what should have been.

Before proceeding to consider empirical work relevant to these theoretical accounts of verbal irony, it is perhaps important to clarify a few semantic issues arising in the preceding discussion. The three models described above have been referred to as the echoic theories, despite the fact that the allusional-pretense model considers the echoic function a special case of the more general allusional mechanism. Indeed, the allusional-pretense theory holds that some forms of irony do not involve any aspect of echo, suggesting perhaps that the term "echoic" is a misnomer for this line of theories. An important advantage of the term, however, is that it emphasizes the basic notion that ironic utterances function primarily by referring, be it via echoic mention, interpretation, reminder or allusion, to violated expectations. As such, classifying these theories as echoic highlights 1) that the subsequent echoic reminder and allusional-pretense theories are essentially extensions (albeit a substantial one in the case of the

allusional-pretense model) of the original echoic mention/interpretation theory of irony and 2) the fact that the original echoic formulation, first set forth by Sperber and Wilson (1981), represented an important and radical departure from conventional thinking about irony at the time, which held that the speaker implicated a non-literal meaning opposite to the literal meaning of the utterance (i.e., the standard pragmatic model).

## Empirical investigations of the echoic account and the asymmetry of affect

A substantial body of research has examined various aspects of the general echoic hypothesis, primarily within the context of irony comprehension. The majority of this research has employed variations on a methodology that Graesser, Swamer and Hu (1997; see also Clark, 1994) have called "textoid" procedures. In general, textoid research require participants to read a series of short scenarios with two or more characters interacting (e.g., two friends) and terminating with one character making a remark to other (e.g., "You're a fine friend."). The scenarios or short stories are manipulated so that they contain either a positive or negative context (e.g., the friend was helpful or not helpful) and end with either a literal or ironically phrased target statement. Participants are then required to perform a speeded reaction task (e.g., Dews & Winner, 1999; Gibbs, 1986b; Schoewbel et al., 2000), or are asked a variety of questions, such as "How ironic or sarcastic was the last statement" (Colston, 1997, 2000; Kumon-Nakamura et al., 1995; Pexman & Olineck, in press), "How sensible or appropriate was the statement" (Kreuz & Glucksberg, 1989), or "What did the character mean in the last statement" (Gibbs, 1986b).

For example, in the first empirical investigation of the echoic hypothesis, Jorgenson et al. (1984) employed a textoid procedure to assess whether positively phrased counterfactual utterances (i.e., ironic criticisms) that explicitly echoed a previous statement were perceived as ironic more frequently than statements that did not echo. Participants were asked to answer the question "Why did (name of character) say (a repeat of the final utterance)?" and were allowed unlimited time to write out their answers for each story. In general, participants viewed echoic ironic statements as ironic more frequently than non-echoic statements, suggesting that the presence of an echo significantly increased the probability that a listener (or reader) perceived irony (cf. Clark & Gerrig, 1984).

A number of other studies have also examined the echoic hypothesis within the context of ironic criticisms. In a seminal paper, Gibbs (1986b, Experiment 1) measured the reading times for counterfactual ironic criticisms that either explicitly echoed a previous utterance or did not. The general procedure required participants to read a series of textoids presented one sentence at a time on a computer screen. In the final sentence, one character said something to another character. Participants pressed a button after they had read and understood each sentence, and after their response to the last sentence, participants provided a speeded true-false judgment on a possible paraphrase of the target sentence to determine whether they had correctly interpreted the final sentence. Consistent with the echoic hypothesis, when an utterance such as "This sure is an exciting life" echoed a textoid's earlier claim that the Navy was "not just a job, but an adventure," reading times were faster than when an explicit echo was not present, suggesting that an important process in irony comprehension is locating the

source of an ironist's echo (i.e., the violated expectation) (cf. Giora, 1995). Other studies have employed this basic procedure to assess participants' perceptions of potentially ironic remarks with unspeeded scalar responses (e.g., "On a scale of 1 to 7, how ironic do you think Maurice was being?"). For example, Gerrig and Goldvarg (2000) observed that directly echoic ironic criticisms, which highlighted the discrepancy between an explicit positive expectation or prediction and ensuing events, were rated as more ironic than statements that did not directly echo a previous statement, providing additional evidence for the role of expectations in irony comprehension.

The textoid procedure has also been used to determine whether people remember irony for which there is an explicit echo of a violated expectation better than irony for which there is not. In general, the data from these studies suggest that ironic criticisms based on explicit echoes were remembered better, providing further support for the notion that ironic utterances achieve their pragmatic effect by echoing or referring to prior expectations that have been violated (e.g., Gibbs, 1986b, Experiment 5; for other memory effects associated with irony, see Katz & Pexman, 1997, Keenan, MacWhinney, & Mayhew, 1977 and Kreuz, Long & Church, 1991).

Evidence from developmental research with this general method also supports the general echoic hypothesis in the context of ironic criticisms, suggesting that echoic cues are one of several sources of information used by children to detect the non-literal intent of ironic remarks. Keenan and Quigley (1999), for example, presented 6-to-10 year-olds with nine stories, each of which had a literal version, an explicit echo version and an implicit echo version. After hearing the stories and looking at the

accompanying pictures, the children were asked several questions that assessed the child's understanding of the story and the target final utterance. Responses to these questions indicated that, when sarcastic intonation cues were unavailable, children found it easier to grasp the speaker's ironic intent when the target utterance contained an explicit echo. Given that developmental research across a wide range of methods and procedures suggest that children are only beginning to comprehend simple counterfactual forms of irony at this age (Dews & Winner, 1997; Hancock, Purdy & Dunham, 2000), these data suggest that expectations play an important role in irony comprehension during the earliest stages of comprehension.

Note that while these studies provide substantial support for the echoic hypothesis and the role of expectations within the context of <u>ironic criticisms</u>, these data do not address irony's asymmetry of affect and the predictions of the social norm hypothesis, one of the central tenets of the echoic theories. As discussed earlier, the social norm hypothesis predicts an asymmetry in the comprehension of ironic criticisms and ironic praise consistent with prevailing asymmetries in broader cultural norms and expectations. Because human desires, preferences, norms and expectations tend to be biased towards the positive, ironic criticisms should in general allude to these positive expectations, but ironic compliments should only be interpreted ironically on specific occasions when a negative expectation has been violated (Kreuz & Glucksberg, 1989; Kumon-Nakamura et al., 1995; Sperber & Wilson, 1986/1995). Gibbs (1986b, Experiment 3) was the first to experimentally compare irony comprehension across its positive and negative forms (i.e., ironic criticism vs. ironic praise). Employing the

reading time paradigm described above, Gibbs compared the time required to read

target utterances that were positively phrased ironic criticisms, such as

(19)    "You're a fine friend."

in the context of an unhelpful friend, with reading times required to read

negatively phrased ironic compliments, such as

(20)    "You're a terrible friend."

in the context of a helpful friend.  As expected, an asymmetry in reading times was

observed. Participants read ironic criticisms reliably faster than ironic praise and made

fewer errors when judging paraphrases of ironic criticisms than their complimentary

counterparts.

In several experiments that have since examined unspeeded responses to ironic

criticisms and compliments (e.g., "How ironic was the last statement?"), a similar

asymmetry in comprehension has been observed (Colston, 2000; Kreuz & Glucksberg,

1989; Kumon-Nakamura, et al. 1995; Pexman & Olineck, in press; Slugoski &

Turnbull, 1988).  In general, these studies have employed the textoid method to directly

compare perceptions of positive and negatively phrased utterances in either literally or

ironically biasing contexts.  For example, in a comprehensive study that addressed a

number of questions across positive and negative forms of verbal irony, Pexman and

Olineck (in press) examined the perceptions of positive and negative metaphoric

statements (e.g., "her love is a blossoming rose" vs. "her love is a withering rose") that

were presented in positive, negative or neutral contexts. As expected, participants rated

ironic criticisms as more sarcastic than ironic compliments.  Furthermore, participants

were more confident that they had correctly interpreted the speaker's intent for ironic

criticisms than for ironic compliments. Indeed, the asymmetry emerges even with textoids that contain minimal background or context (e.g., a one line sentence of context) (Colston, 2000). It appears that positive comments about negative situations are rated as more ironic than negative comments about positive situations, regardless of the context.

Considered together, these results describe a reliable asymmetry across positive and negative forms of verbal irony, at least within the context of comprehension. Ironic criticisms tend to be understood more quickly and confidently than ironic compliments, and they tend to be perceived as more ironic and conversationally appropriate. This overall asymmetry across positive and negative forms is consistent with the echoic model's social norm hypothesis, which predicts an asymmetry in verbal irony that reflects the broader asymmetry in human norms and expectations. Note, however, that although these data support the social norm hypothesis in general, a strong test of this argument requires a direct comparison of both violated and fulfilled expectations across both positive and negative forms of irony. Specifically, the social norm hypothesis predicts that while positively phrased ironies (e.g. "That's a classy shirt") can always allude to general positive expectations, the ironic interpretation of negatively phrased remarks (e.g., "That's a crappy shirt") should be facilitated only when they allude to specific violated negative expectations. That is, when specific negative expectations are made available, ironic compliments should be understood more readily, and the asymmetry of affect across positive and negative forms of irony should be attenuated. None of the previous research described has employed this more rigorous rationale.

In their seminal paper, Kreuz and Glucksberg (1989) provided the first test of this hypothesis. In a series of experiments, these authors compared the perception of positive and negative remarks after either a positive or negative expectation had been violated or fulfilled. The general procedure involved participants reading a set of textoids that crossed three factors: (1) a prediction statement that was either positive or negative, (2) an event that was either positive or negative, and (3) a remark that was either positive or negative. Thus, for each story, a positive or negative expectation, primed by an antecedent prediction statement, was either violated or fulfilled and subsequently remarked upon with a true or counterfactual statement (see Table 1 for an example story). After each story, participants responded to a set of questions, including "How sarcastic was the last remark?" "How sensible was the last remark?" and "How appropriate was the last remark?"

The results from three experiments that used this general procedure were largely consistent. First, that data indicated that participants observed positive statements as more ironic than negative statements, consistent with the powerful asymmetry previously observed in irony comprehension (e.g., Gibbs, 1986b, Experiment 3). Second, remarks were perceived as more ironic if they referred to a situation in which an expectation was violated, providing support for the role of violated expectations in the comprehension of verbal irony. However, the predicted interaction between statement polarity and expectation status (i.e., violated or fulfilled) did not achieve significance for perceived irony ratings in any of the experiments. According to the

Table 1.　　　Example scenario employed in Kreuz & Glucksberg (1989)

---

### Prediction statement

Positive prediction
　　　"The weather should be nice tomorrow," said Jane, who was always
　　　trying, with little success, to predict the weather.
Negative prediction
　　　"It's probably going to rain tomorrow," said Jane, who was always
　　　trying, with little success, to predict the weather.

---

### Event sentence

Positive outcome
　　　The next day was a sunny and warm one.
Negative outcome
　　　The next day was a cold and stormy one.

---

### Reaction sentence

Positive remark
　　　As she looked out the window, Nancy said, "This certainly is
　　　beautiful weather."
Negative remark
　　　As she looked out the window, Nancy said, "This certainly is awful
　　　weather."

---

social norm hypothesis, explicit violated expectations (e.g., "It will probably rain tomorrow" said before a beautiful day) should be more important for positively phrased ironies (e.g., "This certainly is awful weather") than for negatively phrased ironies. However, specific negative expectations in this procedure did not reliably reduce the asymmetry in comprehension across positive and negative ironic forms. Kreuz and Glucksberg (1989) concluded that the interaction effect might have been masked by a ceiling effect (i.e., the high degree of irony that is perceived in any blatantly counterfactual statement).

Although the irony data did not fit the predicted interaction pattern, responses to both the "sensibility" (Experiment 1) and "appropriateness" (Experiment 3) questions did reveal the interaction, indicating that for these types of judgments, the asymmetry of affect was attenuated by specific expectations. The violation of an expectation was more important for negative statements (i.e., ironic compliments) to be perceived as sensible or appropriate than for positive ones (i.e., ironic criticisms). These data indicate that negatively phrased ironies (i.e., ironic praise) make more sense and are more conversationally appropriate when they refer to an explicitly violated negative expectation, while positively phrased ironies are always perceived as sensible and conversationally appropriate. As such, these data support the social norm hypothesis and, more generally, the echoic models' view of violated expectations in verbal irony.

While Kreuz and Glucksberg (1989) restricted their analysis to expectations generated by explicit antecedents (e.g., "It will probably rain tomorrow"), Kumon-Nakamura et al. (1995, Experiment 2) extended the analysis of this issue by examining the role of implicit expectations in the asymmetry of affect. Specifically, Kumon-

Nakamura et al. investigated the more general claim that positive ironies can refer or allude to deviations from negative expectations, whether they are explicit or implicit. To test this hypothesis, the authors identified a number of situations for which people tend to hold negative expectations as a norm (e.g., New York subway cars are generally expected to be dirty). A set of textoids was constructed so that a true or counterfactual comment (e.g., "New York subways sure are dirty") was preceded by a negative expectation that was either violated (e.g., the story's characters encountered a sparkling clean subway car) or fulfilled (e.g., the characters encountered a filthy subway car). The data revealed that, overall, when expectations were violated, participants rated counterfactual statements as more ironic than when expectations had been confirmed. More importantly, when implicit negative expectations were available, negative statements regarding an unexpected positive situation were interpreted as more ironic than positive statements, suggesting that the asymmetry was reduced to some extent. Nonetheless, participants in this study again rated positive statements (e.g., "New York subways sure are clean") as more ironic overall than negative statements (e.g., "New York subways sure are dirty"), despite the fact that negative expectations were available, highlighting the strength of the asymmetry across positive and negative forms of irony comprehension.

Considered together, these studies provide substantial evidence that expectations are operating in verbal irony as predicted by the general echoic account, at least within the context of irony comprehension. First, overall, remarks that echo or allude to a disconfirmed expectation are rated as more ironic than statements that do not. Second, as predicted by the social norm hypothesis, the asymmetry of affect in

irony appears to reflect broader asymmetries in human desires, norms and expectations. Positively phrased ironies uttered in negative contexts can always allude to broadly held positive expectations. Negatively phrased ironies uttered in positive contexts, on the other hand, tend to be interpreted ironically only if they allude to either implicit or explicit disconfirmed negative expectations.

Clearly, expectations appear to play a fundamental role in irony comprehension. Indeed, even when expectations are not explicitly available, listeners tend to infer an expectation when they encounter counterfactual remarks (Colston, 2000). In an interesting series of experiments that investigated the conditions necessary for the comprehension of verbal irony, Colston designed a set of short textoids that provided only a minimal context in an effort to eliminate context-specific expectations (e.g., You tell your housemate Marilyn that the person moving in with you two was adored at his previous home. She says "That sure is frightening."). Surprisingly, despite the absence of negative expectations, participants perceived negative remarks uttered in positive contexts as relatively ironic, implying that, in contrast to the social norm hypothesis and the data outlined above, negative utterances were perceived as ironic without a violated implicit or explicit negative expectation. However, follow up studies revealed that participants were generating inferences regarding the speaker's expectations. In particular, when a speaker uttered a counterfactual negative statement in a positive context, participants inferred that the speaker had expected a negative outcome and was surprised by the positive event. Thus, hearers of ironic compliments assumed that some negative expectation held by the speaker had been violated even if that expectation was not explicitly part of the background or context.

Prompted by data suggesting that expectations play an important role in adult comprehension of verbal irony and the asymmetry of affect, Hancock et al. (2000) examined the role of expectations across positive and negative forms of irony within a developmental context. In two experiments, children aged six-to-seven years of age viewed a series of short videotaped stories, in which a character first boasted (e.g., "Watch, I'm good at basketball") or self-deprecated (e.g., "Watch, I'm bad at basketball) before attempting some feat (e.g., shooting a ball into a basket). After the first character either failed or succeeded at the task, a second character uttered a positive (e.g., "You sure are good at basketball") or negative statement (e.g., "You sure are bad at basketball"). The results indicated that, consistent with the asymmetry of affect observed in adult comprehension, ironic criticisms (i.e., positive statements after a failure) were detected as non-literal by the children more frequently than ironic compliments (i.e., negative statements after a success). With regards to the role of expectations, the data followed predictions flowing from the social norm hypothesis. The presence of a negative antecedent statement, which generated an explicit negative expectation, facilitated the perception of ironic compliments, but the presence of a positive antecedent had no effect on the detection of ironic criticisms. That is, specific expectations generated by antecedent statements played no role in ironic criticisms, which could always allude to more general positive expectations that are presumably in place even at this young age. On the other hand, when negative expectations generated by antecedent statements were violated, performance on ironic compliments improved, suggesting that the ironic compliments required a specific negative expectation to refer or allude to. Thus, the effect of expectations on irony comprehension, and in particular,

on the asymmetry of affect, is operating in the manner predicted by the echoic theories even during this early period of irony comprehension development.

The available research appears to be consistent in its support for the various aspects of the echoic account of irony. Across a range of age groups and a large number of studies assessing several different dimensions of irony comprehension, each of the major predictions of the general echoic model have been empirically tested and to a large extent supported. First, positively phrased ironic remarks (i.e., ironic criticisms) are processed faster (e.g., Gibbs, 1986b, Experiment 3) and are rated as more ironic (e.g., Kreuz & Glucksberg, 1989; Kumon-Nakamura et al., 1995; Pexman & Olineck, in press) than negatively phrased ironic remarks (i.e., ironic compliments). Second, overall, utterances that echo or allude to a disconfirmed expectation tend to be comprehended more quickly (e.g., Gibbs, 1986b, Experiment 1) and are perceived as more ironic (e.g., Gerrig & Goldvarg, 2000; Kreuz & Glucksberg, 1989; Kumon-Nakamura et al., 1995; Pexman & Olineck, in press), sensible and appropriate (e.g., Kreuz & Glucksberg, 1989) than utterances that do not refer to a violated expectation. Finally, consistent with the social norm hypothesis, specific violated expectations are more important for the comprehension of ironic compliments (i.e., encountering a clean New York subway car) than for ironic criticisms, as predicted by the echoic models' social norm hypothesis (e.g., Hancock et al., 2000; Kreuz & Glucksberg, 1989; Kumon-Nakamura et al., 1995).

Some limitations on existing irony research

    As the preceding discussion illustrates, there is a rich history of theory and research on verbal irony that has identified some of the important factors that contribute to a listener's ability to process this form of figurative language when it is encountered during verbal discourse. The available research also offers a viable explanation for the asymmetry in a listener's comprehension across positive and negative forms. There are, however, at least two fundamental weaknesses in the literature concerned with verbal irony.

    First, previous work on verbal irony has focused almost entirely on the listener's ability to comprehend irony and has ignored issues of production, a situation that parallels the state of language research in general (Clark, 1994; Levelt, 1994). Although the theoretical accounts of verbal irony clearly identify some of the basic conditions that should also influence a speaker's decision to employ this kind of figurative language, there has been very little effort to determine the extent to which production is actually influenced by these factors. We do not know, for example, whether a speaker is also sensitive to violated expectations when deciding to employ ironic forms. Nor do we know whether there is a similar asymmetry in the production process in which speakers are less likely to employ ironic praise. As such, additional systematic research concerned with the production of irony is required to examine the generality of prevailing theoretical accounts across both speaker and listener processes, and to potentially shed additional light on the mechanisms that underlie both the comprehension and production of irony.

A second and perhaps related weakness in the existing research on verbal irony concerns the widely used textoid methodology described in the preceding analysis of existing empirical research. While the ability to manipulate theoretically important variables with rigorous experimental control has made textoid procedures the preferred method in irony research, the approach also has several important limitations (Kreuz, 2000). In general, those working in the areas of discourse and text processing have criticized the use of textoids for several reasons. Graesser et al. (1997), among others (e.g., Clark, 1994, 1997; Katz, 1996), have noted that textoid-based procedures reduce ecological validity by forcing participants to read and judge experimenter-constructed texts within vaguely defined pragmatic contexts. Participants that read the material are not actively involved in the conversation but participate as overhearers (Clark & Carlson, 1982). A number of disadvantages of the overhearer perspective on language use have been identified (e.g., Schober, 1998; Schober & Clark, 1989), and Toplak and Katz (2000) have demonstrated that different conversational perspectives (e.g., speaker, hearer, overhearer) can result in important differences in the perception of ironic remarks (see Kreuz, 2000 and Clift, 1999 for a related argument).

The lack of research on irony production and the limitations associated with the textoid approach has prompted several leading language and irony scholars to call for the development of novel methods and new research to begin examining the production of ironic speech (Gibbs, 2000; Giora, 1998; Kreuz, 2000). The experiments that follow were designed to address these issues, and they explore several basic questions about the production of irony using novel procedures intended to move the current literature beyond the textoid methodology toward more ecologically valid techniques. The first

experiment tests whether an asymmetry also emerges in spontaneous irony

production when speakers are provided with equal opportunities to produce ironic

criticisms and compliments. Experiments two and three explore the role of speakers'

expectations in the production of irony. Are speakers more likely to produce irony

when their expectations have been violated than when they have been fulfilled, as

suggested by the echoic account? Do expectations operate differentially across positive

and negative forms of irony production? And, are relational factors, such as friends

versus strangers, important in the operation of expectations in the spontaneous

production of irony? Finally, the last experiment explores the possibility that additional

factors, such as verbal politeness norms and the cognitive processing constraints

associated with generating verbal irony, also play a role in irony production and the

asymmetry of affect.

# Experiment 1

## Testing the asymmetry in the production of irony

As noted earlier, a survey of the literature reveals that the vast majority of empirical research on irony has focused almost exclusively on comprehension, and as such, very little work has examined the asymmetry of affect in the context of production. In contrast to the highly controlled experimental procedures employed in research on irony comprehension, existing research on irony production has been restricted to qualitative, descriptive analyses of instances of spontaneous irony in conversation or the media. A number of these studies approach irony within a socio-linguistic or conversation-analytic framework and consist of careful examinations of selected conversation fragments containing one or more ironic utterances (e.g., Clift, 1999; Drew, 1987; Ducharme, 1994; Kotthoff, as cited in Clift, 1999; Seckman & Couch, 1989; Tannen, 1984). The conversation analysis approach, for example, focuses on dissecting naturally occurring conversation in an effort to discover rules, techniques, procedures or maxims that are used to make conversations orderly and sensible to the participants, and, ultimately, to create the structures of social organization (Atkinson & Heritage, 1984; Sacks, 1984). Because of the detailed level of analysis required by this approach, analysts tend to analyze only a very small number of fragments. For example, Kotthoff (as cited in Clift, 1999) considered only four fragments of irony in a German conversational context, Clift (1999) examined fourteen examples, Ducharme (1994) analyzed four sarcastic exchanges and Tannen (1984) described the use of irony within a single dinner conversation.

A survey of the discourse fragments reported in these analyses reveals that both negative and positive forms of irony occur in naturalistic discourse. Consider this example of ironic criticism described by Ducharme (1994, p.56), in which several females in a cafeteria comment on two males that do not meet their standards of attractiveness

Girl #1:     Hey, here comes a hot babe for ya. [She nods in the male

                student's direction, and the other women look.]

Girl #2:     Mmm, yeah. That's one smokin' hot babe! [The women

                laugh.]

Girl #3:     He's mine!

Girl #2:     Well...OK, you can have him, but I want his little friend!

Each utterance in this excerpt is positively phrased but is used to convey the speaker's negative evaluation of the males. Consider next the following example of a negatively phrased irony, provided by Drew (1987, p. 225) in his analysis of responses to teases

(Gerald has a brand new Mustang sports car.)

1  Gerald:    Hi how are you

2  Martha:    Well, you're late as usual

3  Gerald:    eheh eheh eheh eheh

4  Lee:       What's the matter couldn't get your car started?

5  Gerald:    hehh That's right. I had to get it pushed, eheh eheh eheh

Both Lee's comment in line 4 and Gerald's in line 5 are negatively phrased comments that are used ironically to refer to the fact that Gerald has a brand new Mustang sports

car. As such, ironic comments with positive referents (i.e., ironic compliments) are also observed in naturalistic discourse.

Other studies have examined irony elicited by the researcher (Coates, 1991; Haiman, 1990; Pinch, 1998; Roy, 1981). In one of the first studies to record and analyze spontaneously produced irony, Roy (1981) elicited comments in two separate conversations by asking the participants to discuss the situation of a fictional academic couple trying to locate jobs in the same geographical area. Roy's descriptive analysis focused on the functions of irony in discourse, such as whether speakers use irony as a psychological strategy for conversational control or as a social device for group cohesiveness. Similarly Coates (1991) developed several conversational tasks designed to elicit irony, such as creating an awful meal for someone they hated or discussing dumb exam questions (see Pinch, 1998, for a similar approach to eliciting spontaneous irony with post-stroke individuals). Coates performed a systematic analysis that focused on the collaborative nature of irony, such as how the speaker and listener precisely coordinate the timing of an ironic remark.

While qualitative analyses of irony are valuable, it is difficult to use the results of these descriptive studies to answer questions about asymmetries in the production of positive and negative forms of irony. Although an examination of the discourse examples cited in the various descriptive analyses of irony production suggests that spontaneous irony production tends to favor the critical form, these data are less than definitive. For example, each of the discourse examples cited in Coates' (1991) analysis of spontaneous irony in face-to-face conversation has a positive surface form that conveys a negative intent (e.g., "Gourmet meal" to describe a disgusting meal). It

is probable, however, that the valence of this corpus was biased by the stimuli and tasks, which were all negative in nature (e.g., create an awful meal for someone you hate, what are the dumbest exam questions you have ever had, etc.). Irony elicited under these conditions would tend to be of a critical and derogatory form, while negative statements conveying a positive message would be unlikely to emerge. Similarly, Roy's (1981) task of discussing the difficult situation of two academics trying to find work together would be more likely to elicit negative forms of irony than positive. It is difficult, therefore, to determine whether the asymmetry in these corpora is an intrinsic feature of irony production or a function of the stimuli and tasks employed in these studies.

More recently, quantitative analyses of spontaneous irony have been conducted that speak more directly to the issue of the asymmetry (e.g., Dews, Winner & Niccolaides, as cited in Dews & Winner, 1997; Gibbs, 2000). Dews et al. estimated the frequency of ironic criticisms and ironic compliments in television shows designed for children. An average of 2.75 instances of irony per 30-min segment was observed, suggesting a surprisingly high frequency of verbal irony in discourse aimed at children. Of the total ironies identified, only 6% were judged as ironic praise, suggesting an asymmetry of affect similar to that observed in comprehension. Similarly, in a study of adult irony use, Gibbs (2000) examined 62 ten-minute excerpts of conversations among college age friends. As part of his analysis, Gibbs assessed the asymmetry across positive and negative versions of verbal irony and observed that 69% of counterfactual statements in this corpus presented positively phrased statements to indirectly convey a

negative message (i.e., ironic criticism), whereas only 15% presented negatively phrased statements to convey positive messages (i.e., ironic praise).

Although the above-described data suggest that ironic praise is less likely than ironic criticism in these various forms of production, it should be noted that the asymmetry observed by Dews et al. and Gibbs may simply reflect an asymmetry in the conversational contexts. That is, unlike studies of irony comprehension, in which the valence of contexts and utterance types are experimentally controlled, the possibility remains that more negative events were discussed in these open-ended contexts, giving rise to more critical than complimentary irony.

The question arises, then, whether an asymmetry in production is observed when the context provides conversants with an equal opportunity to make ironic remarks about either positive or negative events. The primary aim of the first experiment in the present line of research was to develop a set of procedures and methods that would elicit spontaneous verbal irony while permitting control of the valence of the conversational context.

To assess irony use when speakers were provided with equal opportunities to produce critical and complimentary forms of irony, this initial study compared the production of irony during dyadic discussions about beautiful and ugly fashion outfits selected from contemporary popular culture magazines. Fashion outfits were selected for two reasons. First, fashion is an interesting and engaging discussion topic for most university students, who tend to enjoy evaluating celebrity fashion (Hancock & Dunham, 2001b). Second, the fashion outfits permitted a systematic manipulation of positive and negative conversational context. Specifically, ugly outfits provided an

opportunity for speakers to produce positively phrased ironic utterances to convey a negative message (ironic criticisms, e.g., "Now that's really classy"), while the beautiful outfits provided an opportunity for negatively phrased ironic utterances to convey a positive message (ironic compliments, e.g., "Now that's really ugly"). As such, this procedure can be viewed as a production analogue to Gibbs' (1986b, Experiment 3) original investigation of the asymmetry in irony comprehension, in which participants were presented with negative and positive-biasing story contexts. The question in the present study was whether speakers would spontaneously produce more negatively intended ironic remarks about negative conversational stimuli (i.e., an ugly outfit) than positively intended ironic remarks about positive fashion stimuli (i.e., a beautiful outfit) when opportunities to do so were equated.

Methods

Participants. Twenty-two students were randomly paired to eleven same-sex dyads (4 male-male dyads, 7 female-female dyads). The average age of the participants was 21.7 years of age ($\underline{SD}$ = 6.6), and the members of each dyad were unacquainted. All participants received course credit for participation.

Materials. A total of 24 fashion outfits were selected from contemporary popular culture magazines (e.g., People, Us, etc.); twelve ugly fashion outfits from the "worst dressed" sections and twelve beautiful fashion outfits from the "best dressed" sections of these magazines. Each outfit was digitally scanned from the magazine, which produced an image that showed a celebrity's attire from head to foot. The

images were then set to approximately the same size (approximately 18cm x 5cm), printed on high quality paper and laminated (see Figure 1 for examples).

Pretest of Materials. A pilot study was initially conducted to identify which images were perceived as the most beautiful and most ugly outfits. Ten participants drawn from the same subject pool as the participants for the main experiment served as pretest participants. The participants were presented with a binder containing the 24 fashion images in a random order. Participants rated each outfit on a scale of one to seven, with one being "Very ugly" and seven being "Very beautiful." The ratings were compiled, and the six outfits with the lowest average rating (i.e., the most ugly) and the six outfits with the highest average rating (i.e., the most beautiful) were selected as stimuli for the experiment. The six ugly outfits were rated on average 1.97 ($\underline{SD}$ = .35) out of seven, and the beautiful outfits were rated on average 5.73 ($\underline{SD}$ = .17).

Procedure. Upon arrival at the laboratory, the experimenter placed the participants in two separate testing rooms, where the general procedure was explained. Participants were told that they would discuss 12 fashion items with another student. They were told that they could discuss each outfit for as little or as long as they liked and that they could discuss any aspect of the outfits in any way that they wished. Both participants were provided with binders containing 12 fashion items and were instructed to discuss the images in the order that they appeared in the binder (see Appendix A for the instructions provided to participants). Participants were informed that their discussion would take place in an Internet chat room, in which they would exchange text messages with their partner, and were provided with brief instructions on how to use the chat interface (Vchat, version 4). Basically, the participant typed their

Figure 1.    Black and white examples of beautiful and ugly fashion images



Beautiful Fashion Image          Ugly Fashion Image

message in a private composition window, and, when finished, hit the "enter" key to send the message to the public window where the message was visible to their partner. Message transmission was virtually instantaneous. Their experience with this format was assessed before the interaction with the Computer Usage Questionnaire (see Appendix B), and their typing speed was measured with a one-minute typing test (Ainsworth Typing Trainer v.3).

The text-based communicative setting was employed in this research program for several reasons. First, previous work indicates that more verbal irony is elicited during text-based interactions involving strangers than during face-to-face interactions (Hancock & Dunham, 2001b). Hancock and Dunham observed that unacquainted participants produced approximately five times more counterfactual irony in text-based interactions than when the interaction took place face-to-face. Second, the text-based setting allows the researcher to manipulate a number of factors not permitted in face-to-face interactions (Hancock & Dunham, 2001a). For example, the availability of communicative signals can be systematically varied (i.e., text vs. audio vs. video) to examine their impact on irony production. Social psychological factors, such as status and common ground, can also be experimentally controlled and manipulated. For instance, while gender, age, race, general appearance and approximate social economic status are immediately accessible during face-to-face interactions (Fiske & Talyor, 1991), these factors can be easily manipulated in the visually anonymous text-based setting to explore their impact on spontaneous verbal irony use. These factors were considered important in the development of the research program (see, for example,

Experiments 2 and 3). Finally, these computer-mediated interactions conveniently produce a complete transcript of the conversations for subsequent analysis.

After the interaction, participants completed several measures that assisted with the analysis of their conversations. Each participant rated the degree to which they found each of the fashion items ugly or beautiful on a Likert scale of one (very ugly) to seven (very beautiful). These ratings were used to identify each participant's beliefs regarding a given outfit. This information defined the actual positive or negative context in which a participant's ironic remarks could be coded. For example, given a participant's rating of 1 (very ugly) on a given image, their comment "I just love that dress!" can be interpreted confidently as ironic rather than literal. Participants also completed two other instruments unrelated to the present study. After participants finished the questionnaires they were debriefed.

The order in which participants discussed beautiful and ugly outfits was counterbalanced: half of the dyads discussed beautiful outfits first, while the other half discussed ugly outfits first. The images were randomly arranged within their outfit type (i.e., beautiful or ugly). Thus, the study was a mixed 2 x 2 repeated measures design, with fashion valence (ugly vs. beautiful) as the repeated measures factor and order (beautiful followed by ugly vs. ugly followed by beautiful) as the between subjects factor.

Coding. The conversations yielded transcripts organized into turns with each participant's remarks identified clearly. These transcripts were analyzed for: 1) positively phrased remarks used to convey a negative intent (i.e., ironic criticism, "I'm lovin that hat on britney" about an ugly hat) during discussion of ugly outfits, and 2)

negatively phrased remarks used to convey positive intent (i.e., ironic compliment,

"Ya, and the dress is probably second hand" about a beautiful gown) during discussion

of beautiful outfits (see Appendix C for the coding scheme).

Inter-rater Reliability. A second rater coded four of the 11 transcripts.

Comparisons between raters at the most detailed level of the coding scheme (i.e., type

of irony) yielded a kappa statistic of .80. According to Fleiss (1981), kappa estimates

greater than .75 can be considered excellent agreement (p. 218).


Results

Recall that at the end of the interaction, participants rated the fashion stimuli on

a 7-point Likert scale assessing their perception of each fashion outfit, from very ugly

to very beautiful. Only conversational turns for fashion outfits that both participants

appropriately perceived as ugly or beautiful were considered valid for inclusion in the

analysis. That is, both participants were required to provide a rating of less than 4 for a

negative fashion item and of greater than 4 for a positive item for the conversation

concerned with that item to be included in the analysis. Items for which dyads

disagreed (e.g., one participant viewed the item as beautiful, rating = 5, and the other

viewed the item as ugly, rating = 2) were discarded, as were items for which one of the

participants rated the item as neutral (i.e., 4). A total of 15 ugly items and a total of 18

beautiful items were dropped from the analysis.

An examination of the turns revealed that approximately the same number of

conversational turns were elicited for ugly items ($\underline{M}$ = 39.36, $\underline{SD}$ = 23.96) and beautiful

items ($\underline{M}$ = 47.64, $\underline{SD}$ = 25.93), $\underline{t}(10)$ = 1.19, $\underline{n.s.}$ However, to adjust for any possible

differences in volubility that might contribute to differences in irony production the dependent measure in the following analyses was the proportion of valid turns (i.e., turns discussing outfits that were appropriately perceived) produced by a dyad that were identified as ironic.

A mixed General Linear Model (GLM) revealed that the order that the dyads discussed the outfits did not account for a significant portion of the variance in irony production. The main effect of outfit valence was reliable, $F(1,9) = 6.75$, $p < .05$, and additive across treatment orders. There was a higher proportion of ironic criticisms in reference to the ugly outfits ($M = 5.4\%$, $SD = 6.3\%$, total instances = 16), than ironic compliments in reference to the beautiful outfits ($M = 0.2\%$, $SD = 0.6\%$, total instances = 1). Indeed, only one ironic compliment was produced by one dyad for valid beautiful outfits. In contrast, eight of the eleven dyads produced at least one ironic criticism.

Because the distributions of proportions tended to be positively skewed, they were subjected to a square root arcsine transformation (Fleiss, 1981). The analysis described above was repeated on the transformed data. The results were identical: the effect of order and the interaction were not significant, while the effect of irony type was, $F(1,19) = 13.73$, $p < .01$.

Ancillary Measures. Previous authors have suggested that males tend to produce more ironic language during conversations than females (e.g., Svebak, 1975; Tannen, 1984). A comparison between the four male-male dyads ($M = 2.3\%$, $SD = 2.3\%$) and seven female-female dyads ($M = 2.3\%$, $SD = 3.0\%$), however, revealed no difference in irony production, although the low $n$ reduced power to detect any differences across genders.

Additional analyses were also conducted to determine whether a participant's experience with this computer-mediated medium facilitated irony production. In terms of computer skills, all participants used computers on a daily basis. Only four of the twenty-two participants had not used some form of synchronous computer-mediated communication, such as Internet chat or instant messaging. Because irony is a collaborative activity (Coates, 1991), dyadic variables were calculated for (1) the dyads combined experience with the text-based setting and (2) the dyad's combined Internet chat experience by summing partners' relevant individual response items. There was no correlation between dyadic experience with the setting ($r = -.36$, n.s.) or chat experience ($r = -.03$, n.s.) and irony production, suggesting that their experience with this type of communicative setting did not influence levels of irony production.

Further analyses were conducted to determine whether a speaker's typing ability was related to the production of irony in this context. Each dyad's average typing speed was calculated by averaging the two participants' words per minute scores from the one-minute typing test. Dyadic typing speed did not correlate with irony production ($r = -.09$, n.s.). Considered together, these results suggest that despite the potential to affect irony production in the text-based communication environment, neither participants' experience with this form of communication nor their typing ability were related to irony use.

## Discussion

Previous quantitative research concerned with the asymmetry of affect in irony production is limited to two descriptive studies measured in a television medium (e.g.,

Dews et al., 1997, as cited in Dews & Winner, 1997) or from conversations between friends (Gibbs, 2000). Both of these studies indicated that ironic criticisms were more frequently observed than ironic compliments. The results from the present study confirm these observations. However, unlike previous research, in the present study equal opportunities for negative and positive forms of irony were made available to the conversationalists. Despite the opportunity to use both forms of irony, speakers were more likely to produce positively phrased ironic criticisms such as (20) to describe ugly fashion outfits (the dyad's average rating of the outfit was 3 on a scale of 1 "very ugly" to 7 "very beautiful")

[Transcript ACU-02]

(20)    I'm just lovin that hat on britney

than they were to produce negatively phrased ironic praise, such as the following example (the dyad's average rating of the outfit was 5.5)

[Transcript ACB-03]

(21)    Ya, and the dress is probably second hand

to describe beautiful outfits.

The asymmetry across the two types of irony when equal opportunities were made available is very convincing. Although eight of the eleven dyads produced at least one ironic criticism, only one of the dyads produced an ironic compliment. Furthermore, the proportion of conversational turns identified as ironic during the discussion of the ugly outfits was 5.4%, compared with only 0.2% during the beautiful outfits.

The observed asymmetry in production appears to parallel the asymmetry observed in experimental examinations of irony comprehension. The previous research in comprehension indicates that, relative to ironic compliments, ironic criticisms tend to be comprehended faster (Gibbs, 1986b) and understood as more ironic and sensible (Colston, 2000; Kreuz & Glucksberg, 1989; Pexman & Olineck, in press). According to the echoic models' social norm hypothesis, this asymmetry in comprehension reflects broader asymmetries in standard expectations and norms (i.e., the Pollyanna Hypothesis, people expect and desire positive outcomes). Listeners understand ironic criticisms more readily than ironic compliments because positively phrased statements such as

(23) That's a classy dress

implicitly echo or allude to our predominantly positive expectations, preferences and social norms, while negatively phrased ironic compliments such as

(24) That's a crappy dress

do not allude to these generally held positive expectations. The data from the present experiment suggest that the speakers were also producing irony in a manner predicted by the echoic models. Presumably, speakers chose the ironic form when discussing the ugly fashions in an effort to highlight the contrast between what they expected of the celebrity fashions (i.e., that celebrities will wear beautiful clothes) and what they encountered (i.e., celebrities wearing ugly clothes). Consider the following example from one of the conversations, in which A and B are discussing an ugly fashion outfit (the dyad's average rating of the outfit was 1.5):

[Transcript ACB-04]

(25a)  B: this is just bad...I can't think of anything rede[e]ming about it

(25b)  A: It doesn't get any better

(25c)  B: lol [laugh out loud] nope

Clearly, A does not intend to communicate that the outfit has reached a level of perfection with the remark "It doesn't get any better." According to the echoic account, A used this positively phrased utterance to echo or allude to what was implicitly expected or preferred (e.g., that celebrities should wear beautiful clothes) in an effort to highlight the fact that the speaker's expectations had been violated (Kreuz & Glucksberg, 1989; Kumon-Nakamura et al., 1995; Sperber & Wilson, 1986/1995).

Although these asymmetric production data are generally consistent with the echoic model's social norm hypothesis, recall that a strong test of this hypothesis requires a comparison of the effect of violated positive and <u>negative</u> expectations across both positive and negative forms of irony (Kreuz & Glucksberg, 1989). Specifically, in the context of production, the social norm hypothesis predicts that while speakers can generally use positively phrased ironies such as (25b) above to allude to positive standard expectations and norms (i.e., the Pollyanna Hypothesis), the production of negatively phrased ironic remarks should be facilitated only when the remark alludes to a specific violated <u>negative</u> expectation. That is, because negative expectations are not typical, the production of ironic compliments should require a specifically negative expectation (Kreuz & Glucksberg, 1989; Kumon-Nakamura et al., 1995), such as the expectation primed by a friend's prediction that some fashion item will look horrible. If this explicit negative expectation is subsequently violated (e.g., the item in fact looks gorgeous when tried on), then speakers should be more likely to produce ironic

compliments (e.g., "Oh yeah, that looks horrible") than if the violated negative expectation was not present. Thus, the availability of negative expectations should increase the production of ironic compliments and attenuate the asymmetry across positive and negative forms of irony observed in these data. A second experiment was designed to test this hypothesis.

## Experiment 2

## Exploring the role of specific expectations in the production asymmetry

The available irony production research, which has been limited primarily to descriptive analyses, has not systematically examined the role of expectations in irony production. For example, the question of whether speakers are more likely to produce irony after their expectations have been disconfirmed has not yet been addressed. This gap in our knowledge is perhaps due to the limitations associated with the descriptive approach. As Gibbs (2000) notes, it is difficult to assess the role of violated expectations in the production of irony with descriptive studies because, without interviewing the participants after ironic episodes about their actual beliefs, "it is almost impossible from the outside to know with any certainty what conversational participants mutually believe or know" (p. 24).

The objective of Experiment 2 was to move beyond the descriptive approach in an effort to investigate the role of expectations in the spontaneous production of irony by directly manipulating the expectations of speakers in contexts that compare the production of both ironic criticisms and compliments. Specifically, irony production after speakers' positive and negative expectations were either violated or confirmed was examined. As in Experiment 1, fashion stimuli were employed as stimuli to provide positive and negative conversational contexts. Unlike Experiment 1, participants read a putative quote by the celebrity before viewing the celebrity's fashion outfit. These quotes were either positive (e.g., "I looked absolutely stunning in this dress") or negative (e.g., "I looked absolutely awful in this dress"), and primed either

54

positive or negative expectations about that celebrity's outfit. After the interaction, a questionnaire assessed participants' actual beliefs about each outfit.

Thus, two factors were crossed in this examination of spontaneous irony production: (1) speakers' positive or negative expectations (as primed by the antecedent quote) and (2) the confirmation or failure of these expectations by a positive or negative event (i.e., the fashion outfits). In a sense, this experimental design can be viewed as the production analogue of Kreuz and Glucksberg's (1989) analysis of irony comprehension (i.e., the same factors were crossed in their textoid-based comprehension procedure). As such, the irony production predictions of the present experiment parallel the comprehension hypotheses outlined by Kreuz and Glucksberg. In particular, according to the echoic theories and the social norm hypothesis: (1) because implicit positive expectations and norms can generally be alluded to, more ironic criticisms should be produced overall (i.e., the asymmetry of affect), (2) because irony tends to echo or allude to disconfirmed expectations, more irony should be produced after an expectation has been violated than when it has been confirmed, and (3) specifically negative violated expectations (e.g., primed by negative predictions such as "I looked absolutely awful in this dress") should be more important for the spontaneous production of negatively phrased irony (i.e., ironic praise) than specifically positive violated expectations (e.g., primed by positive predictions such as "I looked absolutely stunning in this dress") for positively phrased irony (i.e., ironic criticisms). As such, an interaction was expected: specific violated expectations should facilitate the production of ironic compliments more than the production of ironic criticisms, attenuating to some extent the asymmetry of affect observed in Experiment 1.

Methods

Participants. Forty-eight students participated in this study. The mean age of participants was 21 years of age ($SD$ = 5.08). Participants were randomly assigned to twenty-four same-sex dyads (6 male-male dyads, 18 female-female dyads) comprised of unacquainted partners. All participants received course credit for participating.

Materials. The same six ugly and six beautiful fashion outfits employed in Experiment 1 were employed in this second study. Two quotes were created for each fashion outfit; one that indicated that the celebrity disliked her outfit (e.g., "I don't know what I was thinking when I decided to wear this dress, but it looked hideous on me") and another that indicated that the celebrity loved her outfit (e.g., "I love this designer, I look terrific in his dresses") (see Appendix D for the list of putative quotes). The negative quotes were used to prime a negative expectation about the upcoming outfit while the positive quotes were used to prime a positive expectation about the upcoming outfit.

Procedure. Upon arrival at the laboratory, the experimenter led the participants to separate testing rooms, where the general procedure was explained. Participants were told that they would discuss 12 fashion items with another student. Both participants were provided with binders containing 12 fashion items, each of which was preceded by a page containing a putative quote made by the celebrity wearing the outfit on the following page. Participants were instructed to read the quote first, turn the page and examine the image, and then discuss the fashion outfit with their partner. Participants were told that they could discuss each outfit for as little or as long as they

liked and that they could discuss any aspect of the outfits in any way that they wished, although they were instructed to discuss the images in the order that they appeared in the binder (see Appendix E for the instructions provided to participants).

The conversations occurred in the same computer-based communicative setting as Experiment 1, and participants received the same instructions regarding the use of the interface. Computer experience and typing speed were assessed before the interaction, as in Experiment 1. After the interaction, participants completed the same questionnaires described in Experiment 1, including one form that assessed the participants' beliefs about each outfit on a 7-point Likert scale, and two other instruments that were unrelated to this study. After participants finished the questionnaires they were debriefed.

Design. Quote-outfit combinations produced four expectation-context conditions: positive expectations confirmed by a positive context (i.e., beautiful quote followed by a beautiful outfit), positive expectations violated by a negative context (i.e., beautiful quote, ugly outfit), negative expectations confirmed by a negative context (i.e., ugly quote, ugly outfit), negative expectations violated by a positive context (i.e., ugly quote, beautiful outfit). Each expectation-context condition was represented by three different celebrities producing a total of 12 outfits for discussion in each conversation. Thus, each dyad discussed three outfits that confirmed expectations of a beautiful outfit, three outfits that violated expectations of a beautiful outfit, three outfits that confirmed expectations of an ugly outfit, and three outfits that violated expectations of an ugly outfit. The order in which ugly and beautiful outfits appeared and the order in which expectations were violated or fulfilled was counterbalanced

across eight conversation orders. It can be noted at this point that the order factor did not account for a significant amount of variance in irony production; consequently, this factor was excluded from the main analysis

The study, therefore, was a 2 (context valence: ugly vs. beautiful) x 2 (expectation status: violated or confirmed) repeated measures design.

<u>Coding and Inter-rater Reliability</u>. The coding procedure described in Experiment 1 was employed in this experiment. A second coder rated 30% (i.e., 8) of the transcripts. Comparisons between rates at the most detailed level of the coding scheme revealed satisfactory reliability between raters in identifying irony, <u>kappa</u> = .79.

<u>Results</u>

Recall that at the end of the interaction, participants rated the fashion stimuli on a 7-point Likert scale assessing their perception of each fashion outfit, from very ugly to very beautiful. The same procedure employed in Experiment 1 for including only conversational turns about fashion outfits that both participants perceived appropriately as ugly or beautiful was employed in this second experiment. Only conversational turns for fashion outfits that both participants appropriately perceived as ugly or beautiful were considered valid for inclusion in the analysis. That is, both participants were required to provide a rating of less than 4 for a negative fashion item and of greater than 4 for a positive item for the conversation concerned with that item to be included in the analysis. A total of 11 ugly fashions and 49 beautiful items out of a total of 288 items were dropped from the analysis. Dyads that failed to perceive all of the fashion items comprising an expectation condition were dropped from the analysis

(n = 4). That is, if a dyad rated each of the three beautiful outfits that followed an ugly quote as less than 4 (i.e., as ugly), then an empty cell was created and that dyad was excluded from the analysis.

An examination of the total number of turns revealed that dyads produced more turns when discussing ugly fashion items ($\underline{M}$ = 29.48, $\underline{SE}$ = 3.32) than beautiful items ($\underline{M}$ = 19.5, $\underline{SE}$ = 2.78), $\underline{F}$(1,37) = 22.48, $\underline{p}$ < .001. To adjust for this difference in volubility across outfit types, the dependent measure in the following analyses was the proportion of valid turns produced by a dyad that were identified as ironic according to the coding scheme. For each expectation condition, therefore, the total number of ironic turns for the valid fashion items comprising that condition was divided by the total number of turns produced by the dyad for those items.

If violated expectations increase the probability that a speaker will choose the ironic form, then a greater proportion of turns discussing outfits that violated the speakers' expectations should be ironic than outfits that fulfilled expectations. The irony proportion data were subjected to a 2 x 2 repeated measures GLM, with both context valence (ugly vs. beautiful) and expectation status (violated or confirmed) as within-subject factors. Results indicated that a low percentage of turns overall were ironic (1.6%), and that the violation or confirmation of expectations did not account for a significant amount of the variance in irony production, $\underline{F}$(1,19) < 1, $\underline{n.s.}$, nor did expectations interact with outfit type, $\underline{F}$(1,19) < 1, $\underline{n.s.}$ Consistent with the data from Experiment 1, however, an asymmetry was again observed across critical ($\underline{M}$ =3.23%, $\underline{SE}$ = .7%) and complimentary forms of irony ($\underline{M}$ = 0%, $\underline{SE}$ = 0%), $\underline{F}$(1,19) = 21.90,

$p < .001$ (see Table 2), which accounted for the majority of the variance in irony production. Indeed, the data revealed that no ironic compliments were produced in either expectation condition for beautiful outfits, while speakers produced a total of 17 ironic criticisms when their negative expectations were confirmed by an ugly outfit, and 21 ironic criticisms when their positive expectations were violated by an ugly outfit.

The proportion data were subjected to a square root-arcsine transformation (Fleiss, 1981), and the analysis described above was repeated on the transformed data. The results from this analysis were identical to that described above: the effect of expectation status and the interaction were not significant, while the effect of irony type was, $F(1,19) = 30.25$, $p < .001$.

Ancillary Measures. A comparison between the six male-male dyads ($M = 2.0\%$, $SD = 1.5\%$) and 18 female-female dyads ($M = 1.9\%$, $SD = 2.3\%$) again revealed no difference in irony production, although the unequal $n$ across gender severely reduced power to detect any differences across genders.

A series of analyses were conducted to determine whether a participant's experience with this computer-mediated medium facilitated irony production. In terms of computer skills, 25 of the 48 participants had used some form of synchronous computer-mediated communication, such as Internet chat or instant messaging. No correlation between irony production and dyadic synchronous setting experience was observed ($r = .27$, n.s.), nor was the correlation with dyadic chat experience significant ($r = .15$, n.s.), suggesting that chat experience did not influence levels of irony production.

Table 2. Means and (standard errors) for the percentages of turns coded as ironic as a function of ironic form and expectation status in Experiment 2

| Ironic Form | Speakers' Expectations | |
| --- | --- | --- |
| | Confirmed | Violated |
| Ironic Compliments | 0.0% (0.0) | 0.0% (0.0) |
| Ironic Criticisms | 3.2% (0.7) | 3.3% (1.1) |

Further analyses were conducted to determine whether a speaker's typing ability was related to the production of irony in this context. Dyadic typing speeds were calculated by averaging the two participants' words per minute scores from the one-minute typing test. Dyadic typing speed did not correlate with irony production ($r = .27$, n.s.). Considered together, these results are consistent with those observed in Experiment 1, which suggest that participant's experience with this form of communication and their typing ability was not related to irony use.

## Discussion

The results from Experiment 2 are quite straightforward. Speakers were far more likely to use a positively phrased statement to convey a negative evaluation of an ugly fashion outfit than vice versa. In fact, speakers in the study never used a positively intended ironic remark when discussing beautiful outfits, while 3.2% of the turns about ugly outfits consisted of negatively intended ironies. These data replicate the asymmetry of affect in production across irony's positive and negative forms reported in Experiment 1, and are consistent with observations from naturalistic discourse, which suggest that ironic criticisms are more frequently observed than ironic compliments (Dews et al., 1997, as cited in Dews & Winner, 1997; Gibbs, 2000).

As noted earlier, this asymmetry is broadly consistent with the echoic theory's social norm hypothesis, which states that positively phrased ironies (e.g., "That looks great" made in a negative context (e.g., a friend wearing an awful shirt) can always allude to implicit positive social norms, preferences and desires (e.g., people should

look nice). The objective of the present study, however, was to examine the role of explicit expectations in the production of positive and negative forms of irony. In particular, according to the echoic hypothesis, speakers should be more likely to produce irony when their expectations have been violated by ensuing events than when they have been confirmed. The data revealed, however, that irony production did not increase during discussions of outfits that violated expectations generated by antecedent quotes (e.g., "I looked gorgeous in this dress" followed by an ugly outfit). Furthermore, in contrast to the echoic account's (Kreuz & Glucksberg, 1989; Kumon-Nakamura et al., 1995) prediction that the availability of violated negative expectations should be more important in the production of negatively phrased ironies (i.e., ironic compliments) than for positively phrased ironies (i.e., ironic criticisms) and attenuate the asymmetry of affect, no negatively phrased ironies were produced, regardless of expectation condition.

This failure to observe an effect of specific violated expectations on irony production was surprising given the substantial amount of evidence that this factor contributes importantly to the listener's comprehension of irony. There are, however, several aspects of these data that suggest the current procedure may not be particularly sensitive to such effects. First, only 1.6% of turns in the present corpus were identified as ironic. This rate is considerably lower than the approximately 7% observed by Tannen (1984) in a conversation between friends, and 8% observed by Gibbs (2000) in his analysis of 62 conversations between friends. Furthermore, while no positively intended ironies were observed in the present study, Gibbs identified 15% in his corpus that used a negatively phrased statement to convey a positive intent. Clearly, the rate of

irony observed under the present conditions was substantially lower than that observed in previous work, suggesting that any differences across treatment conditions were perhaps constrained by a floor effect.

Note that an important difference between the present study and previous analyses is the relationship between the conversational participants. The present research examined conversations between strangers, while both Tannen (1984) and Gibbs (2000) examined irony use in conversations between friends. This may be an important difference, as the relationship between speakers and hearers appears to be an important determinant in irony production (e.g., Jorgenson, 1996; Kreuz, 1996). For example, in a study examining the functions of irony in speech, Jorgenson asked participants to recall instances of irony they had used in conversation and with whom they had shared the irony. Of the remarks reported, the majority was used in conversation with intimates (e.g., best friend, husband/boyfriend, etc.) while none were used with strangers. Furthermore, participants' ratings of appropriateness for the use of irony were related to the degree of intimacy in the relationship, with irony between closely acquainted people rated as more appropriate than between unacquainted conversants. In a similarly motivated study, Kreuz asked one set of participants to report their closeness to a variety of individuals (e.g., strangers, best friend, spouse, etc.) and a second set of participants to report their use of irony with these individuals. Consistent with Jorgenson's data, a strong positive correlation accounting for 42% of the variance was observed between the relationship closeness and irony use ratings. These correlational findings were experimentally tested in a textoid-based procedure (Kreuz, Kassler, Coppenrath, & Allen, 1999), in which participants rated ironic remarks

made between story characters that were either closely related (e.g., husband and wife) or distantly related (e.g., two strangers). As expected, participants rated ironic comments uttered between intimates as more conversationally appropriate than those uttered between non-intimates. Considered together, the questionnaire-based data from these studies suggest that speakers are much more likely to use irony with friends than with strangers.

Previous authors have suggested a number of differences between friends and strangers that may account for why speakers in close relationships use irony more frequently than speakers in distant relationships. For example, intimates may use irony to achieve face-saving objectives that are required in close but not distant social relationships (Jorgenson, 1996; Slugoski & Turnbull, 1988). Also, people in relationships based on groups (e.g., teammates) tend to use irony to enhance social bonds and build solidarity (Ducharme, 1994; Gerrig & Gibbs, 1988; Seckman & Couch, 1989). And, because people are more concerned with creating positive first impressions when interacting with strangers than with friends (Fiske & Taylor, 1991; Jones, 1990), strangers may be hesitant to use a form of language that can be perceived as impolite (Dews, Kaplan & Winner, 1995; Hancock & Dunham, 2001b; Jorgenson, 1996).

Kreuz and his colleagues (1996; Kreuz et al., 1999) have also suggested that common ground may also be an important factor in irony use between friends and strangers (see also Booth, 1974, Clark & Gerrig, 1984 and Kaufer, 1981). Common ground refers to the beliefs, attitudes, expectations and other information presupposed by participants to be shared mutual knowledge (Clark, 1996; Clark & Marshall, 1981;

Stalnaker, 1978), and, obviously, strangers share much less mutual knowledge than friends. Since a speaker uses an ironic remark to convey some meaning other than what the utterance is generally supposed to imply, the listener must be able to infer what exactly the speaker is attempting to convey. As Kreuz notes, in some situations the inference is trivial. If a speaker says "Lovely weather" in the context of a massive downpour, then it is highly probable that the listener will interpret the remark ironically, regardless of the degree of shared common ground. In many other cases, it is less clear what the speaker's intent is. For example, if a stranger said to you "I just hate jazz music," you might reasonably assume that he is speaking literally. In the absence of any knowledge of the stranger's beliefs, such a statement is certainly plausible and any other interpretation is probably unwarranted. On the other hand, imagine if your best friend, who you knew loved jazz music dearly, said the same comment. Your knowledge about your friend's beliefs would prevent a literal understanding of the comment and would suggest instead some ironic interpretation. Thus, Kreuz et al. (1999, p. 1687) conclude, "it seems reasonable to assume that speakers will be more likely to use irony when shared common ground is high."

If this is the case, then the low level of common ground shared by the unacquainted participants in Experiment 2 may have been one factor that inhibited overall rates of spontaneous irony production. Indeed, since the text-based communicative setting prevented the dyads from knowing even basic categories about their partners, such as gender, age and general appearance, the common ground shared by participants in Experiment 2 was particularly low.

In addition to possibly affecting overall rates of irony, common ground may also be a particularly important factor in the operation of expectations in the production of spontaneous irony. Recall that according to the echoic theories, irony functions by referring or alluding to a failed expectation or violated norm in an effort to highlight the contrast between what is and what should have been. Thus, in order for irony to accomplish this function, two elements of the situation must be part of the speaker and listener's shared common ground. First, the norm or expectation must be known to both the speaker and the listener (Kreuz & Glucksberg, 1989; Kumon-Nakamura et al., 1995), otherwise irony would not be perceived even when a speaker might intend it. When the alluded to expectation is not an implicit positive social norm or preference reflecting the Pollyanna Hypothesis (e.g., the general desire for good weather), the requirement that the speaker and listener share the specific negative expectation (e.g., that New York subways are usually dirty) is especially important. Second, the joint perception of the violation or failure of the shared expectation must also be part of the interlocutor's common ground. That is, both the speaker and listener must hold the belief that some expectation or norm that they share has been violated.

The importance of these two elements of common ground in the operation of irony is made clear in the following example taken from Clark and Gerrig (1984):

> Suppose it is common ground to Harry, Tom and Anne that none of them
> can abide the poetry of Ezra Pound. Now suppose that Harry and Tom
> have just been to a lecture on Pound that they agreed was unexpectedly
> fascinating. As they meet Anne coming out of the lecture, Harry says
> either of the following:
>> Harry to Tom: Tedious lecture, wasn't it?   (3)
>> Harry to Anne: Tedious lecture, wasn't it?   (4)
> With (3), Harry is being ironic to Tom, but not to Anne. Without knowing
> that they enjoyed the lecture, Anne cannot be a party to Harry's irony,

because as far as she can tell he is completely serious. Uttering (4) can only lead to confusion. Harry recognizes that Anne will take him seriously, based on their common ground, and so to utter (4) would be to deceive her. (p. 124)

The common ground constraints faced by the characters in this story are very similar to the ones faced by the participants in Experiment 2. First, in the context of discussing the fashion outfits, both participants in the dyad hold the same expectation of the upcoming fashion outfit (e.g., the quote "I looked awful in this outfit" primes a negative expectation), just as Harry, Tom and Anne all agree before the lecture that they dislike the poetry of Ezra Pound. However, for both the participants and the story characters, the degree to which the subsequent event (i.e., the outfit or the lecture) violated their shared expectation is not necessarily clear. In the case of the lecture story, because Harry and Tom have agreed that their negative expectations for the lecture have been violated, the negatively phrased "Tedious lecture, wasn't it?" can be used ironically between them, but because they have not established that their expectations have been violated with Anne, they cannot be certain that Anne will interpret their remark ironically. Similarly, the participants discussing the fashion outfits could not be sure that their partner, who they did not know and had never seen, shared the same belief that the expectation primed by the celebrity's quote (e.g., "I looked awful in this outfit") had been violated or confirmed by the celebrity's outfit (e.g., the celebrity's outfit is gorgeous). This is especially true given the constraints of the text-based communicative setting, which prevented certain elements of information that might be particularly relevant to assessing whether or not an outfit violated a partner's expectations, such as a partner's general appearance and clothing style, from becoming

part of their common ground. Given this uncertainty regarding the joint perception of the violation or failure of expectations, speakers under these conditions should be hesitant to use irony to highlight the contrast between their primed expectations and ensuing events. If this were the case in Experiment 2, then any effect of the expectation manipulation on the spontaneous production of irony would be inhibited.

A third experiment was therefore conducted that replicated the procedures employed in Experiment 2 with dyads comprised of friends. As noted earlier, friends tend to share much more common ground than strangers. In particular, friends are more likely to share mutual knowledge regarding each other's sensibilities in clothing and fashion apparel than complete strangers, especially given the visual anonymity of the text-based setting. This shared mutual knowledge should increase a speaker's confidence in whether their partner perceived an expectation as confirmed or violated, and should increase the likelihood that friends will use irony to call attention to any difference between what they expected of a fashion outfit and their perception of the actual outfit (Kreuz, 1996; Kreuz et al., 1999).

## Experiment 3

## Exploring the role of expectations in irony use between friends

The objective of this third experiment was to further explore the role of expectations in irony production under conditions presumed to increase spontaneous production levels in general, and to facilitate the effect of the expectation manipulation on irony production in particular. Friends have been observed to use more irony overall in their conversations than strangers for a number of reasons, outlined in the previous discussion (e.g., Dews, Kaplan & Winner, 1995; Ducharme, 1994; Gerrig & Gibbs, 1988; Hancock & Dunham, 2001b; Jorgenson, 1996; Kreuz, 1996; Kreuz et al., 1999; Seckman & Couch, 1989; Slugoski & Turnbull, 1988). Furthermore, friends tend to share higher levels of mutual knowledge and should be more likely to jointly perceive violations of shared expectations, an important requirement for the operation of expectations in irony use (Clark & Gerrig, 1984; Kreuz, 1996; Kumon-Nakamura et al., 1995).

This third experiment essentially replicates the design and procedure employed in Experiment 2 with friends instead of strangers participating as dyads. The hypotheses for the present experiment, therefore, are the same as those outlined for Experiment 2, and flow directly from the echoic models of irony and the social norm hypothesis. Specifically, (1) more ironic criticisms should be produced overall, (2) more irony should be produced after an expectation has been violated than when it has been confirmed, and (3) violated expectations should be more important for the spontaneous

production of ironic compliments than for ironic criticisms, which should attenuate the asymmetry of affect across positive and negative forms of irony.

Methods

Participants. Fifty students participated in this study for credit points or token remuneration, none of who had participated in any similar experiments. The mean age of participants was 19.8 years of age (SD = 2.7). Participants were paired with a friend, producing twenty-four same-sex dyads (5 male-male dyads, 19 female-female dyads); one dyad was dropped because the participant brought an opposite gender friend to the study. The median duration of the friendship was 12 months (min = 5 months, max = 216). Dyads consisted of four types of relationships: eight sets of classmates, seven sets of roommates, eight sets of close friends (i.e., friends beyond class) and one set of siblings.

Design and procedure. The design was identical to that of Experiment 2. Each dyad discussed quote-fashion combinations that produced four expectation-context conditions: positive expectations confirmed by a positive event (i.e., beautiful quote followed by a beautiful outfit), positive expectations violated by a negative event (i.e., beautiful quote, ugly outfit), negative expectations confirmed by a negative event (i.e., ugly quote, ugly outfit), negative expectations violated by a positive event (i.e., ugly quote, beautiful outfit). Each expectation-context condition was represented by three different celebrities, producing a total of 12 outfits that were discussed in eight counterbalanced conversational orders. The complete design was a 2 (context: ugly vs. beautiful fashion) x 2 (expectations status: violated vs. confirmed) mixed factorial

design, with conversational order as the only between-subject factor. Note that the order factor did not interact with any of the other factors and was not included in the main analysis.

The procedure employed in Experiment 2 was replicated as closely as possible. After the interaction, the participants completed the same questionnaires as in Experiment 2. In addition, to assess the partners' relationships, each participant completed the Quality Of Relationship Inventory (QRI; Pierce, Sarason & Sarason, 1991). This 39 item instrument taps three dimensions of social relationships: the perceived availability of social support derived from the relationship (e.g., "To what extent could you turn to this person for advice about problems?"), the extent to which the relationship is a source interpersonal conflict (e.g., "How often do you need to work hard to avoid conflict with this person?") and the depth of the relationship (e.g., "How much would you miss this person if you could not talk to each other for a month?") (see Appendix F). The depth subscale was of primary interest in the present study and was used to assess the level of intimacy in the friends' relationship. Cronbach alpha reliabilities for each of the subscales were satisfactory and consistent with previous assessments of this scale (Pierce, Sarason & Sarason, 1991): social support, .87; conflict, .86; and depth, .91. After participants finished the questionnaires they were debriefed.

Coding Inter-rater Reliability. The coding procedure described in Experiments 1 and 2 was employed in this experiment. A second coder rated 30% (i.e., 8) of the transcripts. Comparisons between raters at the most detailed level of the coding scheme revealed satisfactory reliability between raters in identifying irony, kappa = .82.

<u>Results</u>

As in Experiments 1 and 2, only conversational turns about fashion outfits that both participants perceived appropriately as ugly or beautiful were included in the analysis. A total of 11 ugly items and 47 beautiful items were dropped from the analysis. Dyads that failed to rate all three fashion items comprising an expectation condition appropriately (e.g., a dyad that rated all three beautiful outfits that followed a beautiful quote as ugly) were dropped from the analysis ($\underline{n} = 4$).

An examination of the total number of turns revealed that dyads produced more turns when discussing ugly fashion items ($\underline{M} = 36.7$, $\underline{SE} = 4.78$) than beautiful items ($\underline{M} = 23.5$, $\underline{SE} = 2.74$), $\underline{F}(1,37) = 8.57$, $\underline{p} < .001$. As in the previous experiments, differences in volubility across outfit types was adjusted for by analyzing the proportions of valid turns produced by a dyad that were identified as ironic.

The first question of interest was whether expectations played a role in the spontaneous production of positive and negative forms of irony in these conversations between friends. If violated expectations increase the probability that a speaker will choose the ironic form, then a greater proportion of turns discussing outfits that violated the speakers' expectations should be ironic than outfits that fulfilled their expectations. As predicted by the echoic theories and social norm hypothesis, the status of a speaker's expectations reliably influenced the production of irony, $\underline{F}(1,19) = 6.49$, $\underline{p} < .05$ (see Table 3). Speakers produced more irony discussing fashion outfits that

Table 3. Mean and (standard errors) for the percentage of turns coded as ironic as a

function of ironic form and expectation status in Experiment 3

| Ironic Form | Speakers' Expectations | |
|---|---|---|
| | Confirmed | Violated |
| Ironic Compliments | 0.0% (0.0) | 1.2% (0.5) |
| Ironic Criticisms | 3.8% (0.7) | 6.8% (1.5) |

violated their expectations ($\underline{M}$ = 4.0%, $\underline{SE}$ = 0.8%, total = 51) than when discussing fashion outfits that confirmed their expectations ($\underline{M}$ = 1.9%, $\underline{SE}$ = 0.4%, total = 27). The asymmetry across positive and negative forms of irony, however, persisted, $\underline{F}$(1,19) = 29.02, $\underline{p}$ < .001. Speakers produced far more positively phrased irony about ugly outfits ($\underline{M}$ = 5.3%, $\underline{SE}$ = .2%, total = 71) than negatively phrased irony about beautiful outfits ($\underline{M}$ = 0.6%, $\underline{SE}$ = .9%, total = 7), and this factor accounted for the majority of the variance in irony production ($\underline{\eta}^2$ = .60).

The social norm hypothesis also predicts that violated specific expectations are more important in the production of positively intended irony (i.e., ironic compliments) than for negatively intended irony (i.e., ironic criticism). The expected interaction, however, was not reliable, $\underline{F}$(1,19) = 1.49, $\underline{n.s.}$, indicating that the asymmetry of affect was not attenuated by the availability of negative expectations. Nonetheless, an examination of the data revealed that the modest number of ironic compliments were $\underline{only}$ produced after the speakers' expectations had been violated. That is, all seven ironic compliments were produced during discussions of beautiful outfits that were preceded by negative quotes (e.g., "I looked awful in this dress"), suggesting that although the interaction did not achieve significance, violated expectations may in fact play a uniquely important role in the production of ironic compliments.

As in the previous experiments, the proportion data were subjected to a square root-arcsine transformation (Fleiss, 1981), and the analysis described above was repeated on the transformed data. The results from this analysis were identical to that described above: the main effect of expectation status, $\underline{F}$(1,19) = 4.76, $\underline{p}$ < .05, and the

main effect of fashion valence, $\underline{F}(1,9) = 40.48$, $\underline{p} < .001$, were both significant, while the interaction was not.

Ancillary Measures. An examination of the depth of the relationship between the friends (i.e., the depth subscale of the Quality of Relationship Inventory, Pierce, Sarason, & Sarason, 1991) and the overall production of irony revealed a positive, marginally significant correlation ($\underline{r} = .35$, $\underline{p} = .1$), suggesting that more intimate friends produced more irony in their conversations.

A comparison between the five male-male dyads ($\underline{M} = 3.5\%$, $\underline{SD} = 1.5\%$) and the 19 female-female dyads ($\underline{M} = 2.8\%$, $\underline{SD} = 2.5\%$) again revealed no difference in irony production, although the unequal $\underline{n}$ across gender severely reduced power to detect any differences across genders.

A series of analyses were conducted to determine whether a participant's experience with this computer-mediated medium facilitated irony production. In terms of computer skills, 24 of the 48 participants had used some form of synchronous computer-mediated communication, such as Internet chat or instant messaging. A point bi-serial correlation between whether participants had experience with synchronous text-based communication settings and their irony production revealed that individual experience with the setting was not associated with irony production, ($\underline{r} = -.01$., n.s.) . Again, there was no correlation between the dyad's experience with the text-based environment and overall irony production (for dyadic synchronous setting experience, $\underline{r} = -.05$, n.s.; for dyadic chat experience, $\underline{r} = .09$, n.s.), suggesting that chat experience did not influence levels of irony production.

Further analyses were conducted to determine whether a speaker's typing ability was related to the production of irony in this context. As in the previous experiments, dyadic typing speed did not correlate with irony production ($r$ = -.23, n.s.). Considered together, these results are consistent with those observed in Experiment 1 and 2, which suggest that participant's experience with this form of communication and their typing ability was not related to irony use.

## Discussion

The primary question addressed in this third experiment was whether expectations play a role in the production of irony during conversations between friends. The results suggest that the status of a speaker's expectations was a reliable factor in the speaker's decision to choose the ironic form. Speakers spontaneously produced more irony when their expectations about a fashion outfit were violated than when their expectations were confirmed. Four percent of the turns discussing expectation-disconfirming fashion outfits were ironic, compared to only 1.9% of the turns discussing outfits that fulfilled expectations.

These production data parallel existing irony comprehension data, which suggest that listeners understand statements as ironic more readily when the speaker's expectations have been violated (e.g., Colston, 2000; Gerrig & Goldvarg, 2000; Gibbs, 1986b; Jorgenson et al., 1984; Kreuz & Glucksberg, 1989; Kumon-Nakamura et al., 1995). The data are also consistent with the central claim of the echoic theories suggesting that verbal irony is used to draw attention to a contrast between "what is" and "what should have been" by referring or alluding to expectations or norms that

have not come to fruition (Kreuz & Glucksberg, 1989; Kumon-Nakamura et al.,

1995; Sperber & Wilson, 1986/1995). According to the echoic theories, speakers

should be more likely to produce irony when their expectations have been violated. In

the present procedure, regardless of the valence of expectations primed by the

antecedent quotes, speakers produced more irony when the ensuing fashion outfit did

not match their expectations. Consider, for example, the following interaction, in

which the participants read a quote that primed positive expectations before

encountering an ugly fashion outfit consisting of a bright pink cowboy hat, an

unflattering floral print dress and cowboy boots (the dyad's average rating of the outfit

was 2.5 on a scale of 1 "very ugly" to 7 "very beautiful"):

> [Transcript ACFQA-01]
>
> Quote: "Everything came together perfectly with this outfit, from the hat
>
> to the colors to the accessories"
>
> (26a)  A: I think that Brittney was wrong when she said everything
>
> went together with her outfit
>
> (26b)  B: ya, awesome outfit
>
> (26c)  A: nice hat
>
> (26d)  B: yup...gotta love that hat
>
> (26e)  A: it certainly complements the whole outfit

In this example, both indirect and direct forms of echo or allusion are produced. In

(26a), A first establishes that she disagreed with the celebrity's comment. B agrees and

produces a positively phrased statement intended as an ironic criticism "ya, awesome

outfit," which presumably alludes to the general expectation that celebrities should

wear beautiful outfits. Similarly, the following two utterances (26c, 26d) are generally allusional ironic criticisms that refer to the celebrity's hat. In the final comment, however, A uses a more direct form of allusion "it certainly complements the whole outfit," which echoes the celebrity's comment that "Everything came together perfectly with this outfit..." and refers to the dyad's violated expectation that the various aspects of the outfit would work well together.

While the observed main effect of expectation status is consistent with the echoic account, the social norm hypothesis also predicts an interaction across expectation type and context valence (Kreuz & Glucksberg, 1989; Kumon-Nakamura et al., 1995). Recall that according to the social norm hypothesis, positively phrased ironic remarks (i.e., ironic criticisms) can in general allude to violated positive standard expectations and social norms (i.e., the Pollyanna Hypothesis) in negative contexts and therefore do not require specific violated expectations (e.g., a prediction that an outfit will be gorgeous when in fact it is ugly). In contrast, negatively phrased ironic remarks (i.e., ironic compliments) cannot typically refer to standard expectations or norms. As such, the availability of a specific <u>negative</u> expectation (e.g. a prediction that an outfit will be ugly) should be more important for the production of ironic compliments in positive contexts (e.g., "Yep, that's real ugly" upon encountering a gorgeous gown) than for ironic criticisms in negative contexts. The predicted interaction, however, was not significant, suggesting that the effect of the specific primed expectations was additive across positive and negative contexts.

Nonetheless, a closer examination of the transcripts revealed that ironic compliments were produced <u>only</u> when a beautiful outfit violated the speaker's

negative expectations. For example, consider the following ironic compliment

produced during a discussion of a beautiful outfit (the dyad's average rating of the

outfit was 5.5 on a scale of 1 "very ugly" to 7 "very beautiful") that was preceded by a

negative quote:

> [Transcript ACFQA-02]
>
> Quote: "I liked this outfit on the mannequin, but it looks absolutely
>
>    terrible on me"
>
> (27a)   A: she's a beautiful woman
>
> (27b)   B: I'm sure she bought it off a mannequin
>
> (27c)   A: ha haha ha
>
> (27d)   B: but you right she is pretty

In this example, the ironic comment "I'm sure she bought it off a mannequin" does not

refer to a general expectation or norm. Instead, B's statement directly echoes the

specific negative expectation generated by the antecedent quote by repeating what was

said, presumably to bring the erroneous quote into A's awareness and highlight the

contrast between the quote's suggestion that the outfit would be an ugly, off the rack

garment and the actual outfit, which was a beautiful and unique gown (Kreuz &

Glucksberg, 1989; Kumon-Nakamura et al., 1995; Sperber & Wilson, 1986/1995).

The fact that ironic compliments were produced only under conditions in which

a negative quote's prediction was violated suggests that, although the expected

interaction was not reliable, specific expectations may be uniquely important for ironic

compliments. If this were the case, then the speakers in the present procedure produced

irony in a manner generally consistent with the echoic account. Speakers produced

more irony after expectations were violated, and specific negative expectations were particularly important for the production of ironic compliments.

A comparison of the results across the present experiment and Experiment 2, however, suggest that the operation of these specific expectations in the production of irony was dependent upon certain socio-pragmatic factors. In particular, the effect of expectations in irony use appears to rely upon the relationship between speakers. Although violated expectations affected irony production as predicted by the echoic account during conversations between friends, the primed expectations failed to factor into irony use between the unacquainted participants in Experiment 2. There are several possible explanations for this pattern of results. First, as expected, friends produced reliably more irony overall ($\underline{M}$ = 3.0%, $\underline{SE}$ = .04%) than strangers ($\underline{M}$ = 1.6%, $\underline{SE}$ = .04%), $\underline{F}(1,38)$ = 4.96, $\underline{p}$ < .05. Seventeen friend-friend dyads produced a total of 78 counterfactual ironies, compared to only 38 ironies produced by 15 stranger-stranger dyads. As such, the increased overall rates of irony observed between friends may have reduced any floor effects that inhibited the expectation effect in the conversations between strangers in Experiment 2.

Note that these production data, which suggest that more irony emerged during conversations between friends than between strangers, confirm previous questionnaire-based data suggesting that irony is more likely to be used by intimates than by strangers (e.g., Jorgenson, 1996; Kreuz, 1996). Indeed, an examination of the depth of the relationship between the friends (Pierce, Sarason, & Sarason, 1991) and the overall production of irony revealed that more intimate friends tended to produce more irony in their conversations ($\underline{r}$ = .35). A number of factors have been suggested for why more

intimate partners might be more likely to use irony than strangers, including face-saving requirements (Jorgenson, 1996), social bonding (Gerrig & Gibbs, 1988; Seckman & Couch, 1989), interpersonal concerns (Dews, Kaplan & Winner, 1995; Hancock & Dunham, 2001b) and enhanced common ground (Kreuz, 1996). Several of these factors can be observed in the following example, in which two friends begin their conversation about an ugly outfit (the dyad's average rating of the outfit was 1.5 on a scale of 1 "very ugly" to 7 "very beautiful") with these remarks:

[Transcript ACFQB-03]

(28a)  A: this would look nice on you

(28b)  B: Yeah right

(28c)  B: You know how much I love tie died pants

It is unlikely that this interaction would occur between strangers, primarily because both the celebrity and the addressee are targets of A's ironic remark in (28a). Since the remark may be perceived as presumptuous and impolite, this type of ironic suggestion would carry certain interpersonal risks when used with a stranger, such as creating a negative social impression (Hancock & Dunham, 2001b). Indeed, a survey of the ironic utterances produced by strangers in Experiment 2 revealed the speaker's partner was never included as a target of an ironic comment. In contrast, 10.2% of ironic remarks produced by friends included both the celebrity and addressee as the target of the irony. In the context of two friends interacting, this type of ironic comment may function to demonstrate their shared common ground and to enhance their relational bond. Specifically, in the present example, by stating the counterfactual remark "this

would look good on you," A must assume that B shares A's negative evaluation of

the outfit, otherwise B may not understand the remark as ironically intended

(Kreuz, 1996). Similarly, A's comprehension of B's ironic response in (28c)

relies upon the two friends' shared mutual knowledge that B does not in fact

love tie-dyed pants. According to Gerrig and Gibbs (1988), using this type of

indirect language serves to highlight the mutual knowledge and values shared

by the two friends. Since mutual knowledge implies intimacy, highlighting it

should strengthen the social bond between the two friends more than if they had

conversed literally.

The increased mutual knowledge shared by friends over strangers is a second

potential explanation for why the expectation effect in irony production emerged only

in conversations between friends in Experiment 3 and not between strangers in

Experiment 2. According to the echoic theories, if irony is to be employed successfully,

then both the speaker and listener must (1) hold the failed expectation and (2) jointly

perceive the expectation as violated (Kumon-Nakamura et al., 1995; see also Clark &

Gerrig, 1984 and Kaufer, 1981). As noted earlier, the strangers interacting in this

visually anonymous text-based setting in Experiment 2 shared particularly low levels of

common ground regarding each other's preferences in clothing and fashion. This low

level of common ground may have prevented strangers from using irony when the

primed expectations were violated because unacquainted participants found it difficult

to assess whether their partner similarly perceived the expectation as disconfirmed.

Instead, these unacquainted participants restricted their use of irony to ironic criticisms

regarding outfits that obviously violated general positive expectations and social norms

that their partner was likely to share (e.g., that celebrities should wear beautiful clothes).

In contrast, friends, who share higher levels of common ground and were more likely to be aware of their partner's particular fashion preferences, produced irony more frequently during discussions of outfits that violated their primed expectations, presumably because the friends were more confident that their partner would also perceive the expectation as violated. Note also that only friends produced any ironic compliments. As discussed earlier, according to the echoic account, because ironic compliments do not allude to general expectations or social norms, the production of ironic compliments should rely more heavily upon shared negative expectations and the joint perception that a negative expectation has been violated. The production of ironic compliments during conversations between friends but not between strangers also seems to suggest that the greater common ground shared by friends was an important factor in the operation of expectations in irony production.

Although several aspects of the data imply that the greater common ground shared by friends may have facilitated the operation of expectations in irony production, the fact that relationships between friends and strangers differ on a number of other dimensions, such as face-saving requirements, impression management concerns, and social bonding, makes it difficult to draw any firm conclusions in the present experimental context (cf. Colston, 1997; Kreuz et al., 1999). Additional research is required to identify the specific relational differences between intimates and strangers that support the operation of expectations in irony production. Nonetheless, the present data suggest that some level of intimacy between interlocutors is required

for irony production to follow patterns predicted by the echoic models of irony (see also Kumon-Nakamura et al., 1995, p. 20).

Finally, although the violation or confirmation of expectations was an important factor in the production of irony in the present experiment, the majority of the variance was once again accounted for by the asymmetry across positive and negative forms of irony. Consistent with the data from the previous two experiments, and the limited descriptive data available (e.g., Dews et al., 1997, as cited in Dews & Winner, 1997; Gibbs, 2000), speakers were far more likely to produce ironic criticisms about negative fashion outfits than ironic compliments about positive fashion outfits, even when equal opportunities were made available to produce criticisms and compliments, and regardless of whether or not the speaker's expectations had been violated. Indeed, the asymmetry of affect is the most enduring feature of the data across the three experiments described in the present research.

The reliability of the asymmetry in these production data are consistent with previous comprehension research, which has demonstrated that ironic criticisms are understood more quickly and are perceived as more ironic and sensible than ironic compliments across a range of contexts (Colston, 2000; Gibbs, 1986b; Kreuz & Glucksberg, 1989; Kumon-Nakamura et al., 1995; Pexman & Olineck, in press). Indeed, as noted earlier, even when participants are provided with explicit positive and negative expectations (e.g., a negative or positive prediction), an asymmetry in comprehension across positive and negative forms of irony is observed (Kreuz & Glucksberg , 1989). Similarly, when Kumon-Nakamura et al. (1995, Experiment 2) examined positive and negative ironic remarks in the context of implicit negative

expectations (e.g., that New York subways are dirty), positively phrased ironic

criticisms (e.g., "New York subways sure are clean") continued to be perceived as more

ironic than ironic compliments, despite the availability of a negative expectation.

## Experiment 4

## Exploring contextual and cognitive factors in the asymmetry of affect

If asymmetries in expectations underlie the asymmetry in verbal irony, why does the asymmetry persist even when specific negative expectations are made available? According to the echoic account and the social norm hypothesis, the persistence of the asymmetry in situations in which a negative expectation is available simply reflects the strength and pervasiveness of implicitly held positive expectations and norms (Kumon-Nakamura et al., 1995). That is, the echoic account argues that ironic remarks can always allude to deeply held preferences and desires for positive outcomes and social norms describing positive behaviors (i.e., the Pollyanna Hypothesis), even under conditions in which a specific negative outcome is expected.

Although much of the theoretical and empirical work on the asymmetry of affect has focused on the echoic explanation and the role of expectations in the asymmetry, an examination of the irony literature reveals that a number of alternate mechanisms may also explain the asymmetry. In particular, these alternate mechanisms include verbal politeness norms and the cognitive constraints associated with processing ironic remarks. Consider first the issue of verbal politeness. As the Pollyanna Hypothesis suggests, people have a basic preference or predilection for events, outcomes, people etc. to be positive, and this bias tends to be manifested in the structure of language (Matlin & Stang, 1978). Most lexicons, for example, have more positive than negative adjectives, and more of these positive adjectives can be negated with a prefix (e.g., unhappy) than negative adjectives (e.g., unsad) (Boucher & Osgood,

87

1969; Zajonc, 1968). In the context of social interaction, the positivity bias is revealed in universal principles of politeness (Brown & Levinson, 1987), in which people are expected to behave and speak in a socially positive manner appropriate to the context. In general, speaking positively is considered more polite than speaking negatively (Brown & Levinson, 1987), and speakers tend to follow the maxim "If you don't have anything nice to say, don't say anything at all."

Speakers employ a variety of strategies to speak positively and achieve verbal politeness goals. For example, when forced to provide a negative evaluation, a speaker may be more likely to choose a more complicated negated positive (e.g., "not good") than the more direct negative term (e.g., "bad") to avoid being perceived as impolite (Colston, 1999). Similarly, some forms of irony may also represent useful strategies for achieving verbal politeness goals (Brown & Levinson, 1987; Leech, 1983). Positively phrased ironic criticisms, for example, allow the speaker to use a literally positive statement (e.g., "That's classy") to indirectly convey a negative evaluation about a negative event or outcome (e.g., an ugly fashion outfit). As such, ironic criticisms satisfy the speaker's verbal politeness goals by using positive terms in place of negative ones (Giora, 1995; Leech, 1983).

While ironic criticisms satisfy a speaker's desire to speak positively, the structure of ironic compliments suggests that they might actually work against a speaker's verbal politeness goals. Recall that ironic compliments are comprised of negatively phrased statements (e.g., "That's ugly") that are used to indirectly convey positive evaluations about positive situations (e.g., a beautiful fashion outfit). Thus, to produce ironic compliments, speakers are required to use negative phrases. Hence,

ironic compliments not only fail to satisfy the speaker's verbal politeness goals, they in fact contradict the norm or preference to speak positively. As such, from a verbal politeness perspective, when a speaker wishes to express a positive evaluation the speaker should be unlikely to choose the ironic form to do so. The satisfaction of verbal politeness objectives therefore appears to be asymmetric across positive and negative forms of irony. Ironic criticisms uniquely satisfy verbal politeness goals of speaking positively, while ironic compliments function contrary to these goals by requiring the speaker to use negative phrases. Consequently, speakers should be more likely to produce ironic criticisms in an effort to conform to verbal politeness norms than ironic compliments.

Although this hypothesis has not been tested directly, research conducted by Dews and Winner and their colleagues (e.g., Dews, Kaplan & Winner, 1995; Dews & Winner, 1995; 1999) on the social functions of verbal irony is consistent with this verbal politeness analysis. These theorists have suggested that an important social function of irony is to mute the intended meaning of the speaker. According to their tinge hypothesis of verbal irony, the literal surface meaning of ironic remarks is processed to some degree and "colors" the addressee's perception of the intended meaning (cf. Gibbs, 1986b). In the case of ironic criticisms, the positive evaluative tone of the surface meaning (e.g., "That's beautiful") positively colors the addressees perception of the speaker's meaning, making ironic criticisms less critical than more direct literal criticisms (e.g., "That's ugly"). In the case of ironic compliments, the negative evaluative tone of the surface meaning (e.g., "That's ugly") is said to

negatively color the perception of the speaker's meaning as less complimentary than its literal equivalent (e.g., "That's beautiful").

In one test of this hypothesis, participants read and heard short textoids that ended either with a literal or ironic criticism (Dews & Winner, 1995, Experiment 1), or with a literal or ironic compliment (Experiment 2). At the end of each scenario, participants were asked how critical or praising the speaker was. As predicted by the tinge hypothesis, participants rated ironic criticisms as less condemning than literal criticisms, and rated ironic compliments as less praising than literal compliments. Taken together, these data suggest that ironic criticisms satisfy verbal politeness goals by reducing the negative impact of criticism, while ironic compliments do not. Instead, ironic compliments, contrary to verbal politeness norms, reduce the positive impact of praise.

A subsequent study by Colston (1997), however, failed to support the tinge hypothesis. In a series of textoid-based experiments that compared literal versus ironic criticisms (ironic compliments were not studied), Colston asked participants to rate how condemning and how sarcastic the speaker had been. The results indicated that irony actually enhanced the condemnation of criticisms, rather than muted it, as suggested by the tinge hypothesis. According to Colston, irony enhances criticism by illuminating the contrast between what should have been and the current situation. As such, ironic criticisms may not satisfy verbal politeness goals in the manner described above.

Pexman and Olineck (in press) have recently argued that the discrepancy across these studies flows from the different procedures used by Dews and Winner and Colston, which may have tapped different dimensions of irony comprehension. In

particular, Pexman and Olineck suggested that Colston's procedures assessed speaker intent, which is characterized by the motivation of the speaker (i.e., to be sarcastic or mocking), while Dews and Winner had assessed social impressions, which refers to the impression that a statement creates for the addressee and bystanders (i.e., politeness). To address these separate dimensions of irony use, these authors compared responses to positive and negative metaphoric statements (e.g., "her love is a blossoming rose" vs. "her love is a withering rose") on a number of different dimensions in both literal and ironic-biasing contexts. As expected, the data concerned with speaker intent suggested that, consistent with Colston's observations, both ironic criticisms and compliments were rated as more mocking than their literal counterparts. However, the data concerned with social impressions indicated that, consistent with the tinge hypothesis, ironic criticisms were rated as <u>more</u> polite than literal criticisms, but ironic compliments were rated as <u>less</u> polite than literal compliments.

The observation that ironic criticisms were rated as more polite but ironic compliments were rated as less polite than their literal counterparts supports the verbal politeness analysis outlined above. Ironic criticisms provide the speaker with a strategy for accomplishing verbal politeness, while ironic compliments do not. Given this asymmetry, speakers should be more likely to use ironic criticisms to achieve their verbal politeness objectives than ironic compliments.

Note that the asymmetry predicted by verbal politeness is consistent with the asymmetry observed in previous irony comprehension research and with the present production data suggesting that speakers choose the ironic form much more frequently when providing negative evaluations than when providing positive evaluations. Note

also that the predicted asymmetry is in the same direction as the asymmetry predicted by the echoic account's social norm hypothesis. Indeed, both the verbal politeness explanation for the asymmetry of affect and the echoic models' explanation stem from contextual factors that may influence the speaker's decision to employ the ironic form. According to the echoic account, speakers are more likely to choose the ironic form when a situation or event has violated their expectations or social norms. The verbal politeness explanation suggests that speakers are more likely to use irony as a politeness strategy in contexts that require a negative evaluation (e.g., remarking on a friend's ugly dress), although a variety of other options are also available for achieving politeness goals (Brown & Levinson, 1987).

While both the echoic account and the verbal politeness explanation for the asymmetry of affect describe contextual factors that may influence a speaker's decision to employ the ironic form (i.e., violated expectations, situations requiring negative evaluations), a third explanation implicates cognitive factors in the asymmetry. For example, Giora (1995) has speculated that, in addition to achieving verbal politeness goals, one explanation for why ironies tend to be expressed in positive rather than negative utterances may lie "in the fact that negating an affirmative statement is easier than negating a negative one" (p. 241). According to Giora's Indirect Negation view, irony is a form of negation that does not use an explicit negation marker (e.g., "not") (see also Martin, 1992). Instead, irony implicates a meaning that is an indirectly negated version of the literal utterance. For example, the ironic interpretation of the phrase

    (29a)   "What a lovely dress"

when the dress is in fact ugly is a negated version of that phrase, such as

(29b)  "The dress is far from lovely."

Irony comprehension is assumed in this model to involve the processing of both the literal message (29a) and the implicated indirectly negated message (29b), and the difference between the literal and the implicated messages is computed to achieve irony's pragmatic effect (cf. Gibbs, 1986b; Dews & Winner, 1999). .

Giora (1995) suggests that indirect negation avoids some of the effects of direct negation, such as scalar interpretation. For example, the phrase "not hot" invokes an approximate value such as "warm" rather than a more distant value such as "cold." In contrast, indirect negation implicates a more distant value, as can be seen in the relation between (29a) and (29b). Nonetheless, in Giora's model, irony requires a negation of the literal message. An examination of the negation process reveals an important difference across the two forms of irony. Ironic criticisms require the negation of an affirmative statement, such as

(30)    - ["What a lovely dress" (+)]

Thus, ironic criticisms involve a single negation. In contrast, ironic compliments require the negation of a negative statement, such as

(31)    - ["What an ugly dress" (-)]

and therefore involve a double negation.

Substantial evidence from a wide variety of domains indicates that negation is a uniquely difficult cognitive process (for reviews, see Clark, 1974; Horn, 1989). In general, a negative sentence takes longer to process and is less accurately recalled and evaluated than the corresponding positive sentence. More importantly in the present

context, reaction times to verification tasks in which participants are required to provide true/false responses to propositions consistently indicate that false negatively phrased statements (e.g., A whale is not a mammal) take longer to process and verify than false positively phrased statements.(e.g., A whale is a fish), suggesting that more cognitive operations are required to compute and process false negatives than false positives (Clark, 1974).

In the context of Giora's (1995) model, ironic criticisms like (30) above are analogous to false positively phrased statements and ironic compliments like (31) are analogous to false negatively phrased statements. Hence, ironic compliments that involve negating a negative should be more difficult and take longer to process and understand than ironic criticisms, which involve negating a positive. This view is supported by several reading time studies, such as Gibbs' (1986b, Experiment 3) comparison of reading times for ironic criticisms and compliments, in which he observed that participants took longer to process negatively phrased ironies (i.e., ironic compliments) than positively phrased ironies (i.e., ironic criticisms) (see also Dews & Winner, 1999).

If one assumes that it is also more difficult to produce an indirectly negated, negatively phrased statement such as (31) than to produce an indirectly negated, positively phrased statement such as (30) (see Clark, 1974), then the increased cognitive load associated with ironic compliments should also apply to irony production. If this is the case, then, consistent with the data observed in the three experiments described in the present research, speakers should be less likely to produce

more cognitively demanding ironic compliments, which require double negation, than ironic criticisms, which require only a single negation.

A comparison across the three possible explanations for the asymmetry in irony use, the echoic account, verbal politeness, and cognitive constraints associated with negation, reveals that each explanation predicts an asymmetry in the same direction: ironic criticisms should be produced more frequently than ironic compliments. Note, however, that these explanations are not necessarily mutually exclusive. In fact, the three factors may be additive, which might account for why the asymmetry of affect is consistently observed in verbal irony. Suppose, for example, that a speaker encounters a negative event, such as an ugly fashion outfit. According to the echoic account, the speaker may choose an ironic criticism to draw attention to the fact that a standard positive expectation or social norm that people should wear beautiful clothes has been violated (Kreuz & Glucksberg, 1989; Kumon-Nakamura et al., 1995; Sperber & Wilson, 1986/1995). Similarly, in an effort to achieve verbal politeness goals, the speaker may use the ironic form to convey a negative evaluation about the ugly outfit with a positive statement (Brown & Levinson, 1987; Dews & Winner, 1995; Leech, 1983). Finally, the speaker should find the cognitive load of producing an ironic criticism, which requires only a single negation, relatively low (Giora, 1995). Taken together, each factor increases the likelihood that a speaker will produce verbal irony when discussing negative events. In contrast, suppose that a speaker encounters a positive event, such as a beautiful fashion outfit. According to the echoic account, because the positive event is unlikely to violate standard expectations or norms unless a specific negative expectation is available (e.g., a prediction that the outfit would be

ugly), the speaker should be unlikely to choose the ironic form. Similarly, from a verbal politeness perspective, the speaker is unlikely to produce an ironic compliment because the speaker can speak positively about the event with the literal form. Finally, because speaking ironically about a positive event requires double negation, which imposes an added load on the cognitive process, the speaker may find it relatively difficult to produce an ironic compliment about the situation. Taken together, each of these factors suggests that the speaker is unlikely, in general, to produce irony about a positive situation.

Although these explanations may be additive in the observed asymmetry of affect, it may be possible to assess the degree to which the various factors play a role in the asymmetry. Recall, for example, that the echoic and verbal politeness explanations describe contextual factors that may account for the asymmetry, such as situations that violate expectations and the politeness concerns that emerge from various social interactions. In contrast, the differences in cognitive constraints across positive and negative forms of irony operate regardless of these contextual factors. That is, according to the negation explanation, negating a negatively phrased statement (i.e., ironic compliments) should always require more cognitive resources than negating a positively phrased statement (i.e., ironic criticisms). Hence, if contextual factors, such as a speaker's expectations and politeness concerns, were controlled across positive and negative situations, any asymmetry in production should be attributable to the differential cognitive demands associated with positive and negative forms of irony production. If, on the other hand, symmetrical production was observed when contextual factors were controlled for, then the differential cognitive demands across

positive and negative forms of irony would be unlikely to account for the asymmetry observed in irony production. A fourth experiment, in which a novel procedure was developed to control relevant contextual factors, was designed to explore this hypothesis.

In this procedure, participants were explicitly instructed to comment on positive or negative fashion images either ironically or literally. Participants randomly assigned to the irony condition were instructed to ironically criticize negative outfits explicitly identified beforehand as ugly and to ironically compliment positive outfits explicitly identified beforehand as beautiful. By explicitly describing outfits as either beautiful or ugly prior to viewing, and by instructing participants to compliment beautiful outfits and criticize ugly outfits, this procedure controlled the participants' expectations regarding the outfits (i.e., prevented expectations from being violated). Furthermore, because both participants were directly instructed to discuss the outfits ironically, (i.e., the speaker's option to employ a politeness strategy was removed), verbal politeness concerns should not differentially influence the participants' production of irony across the beautiful and ugly fashion conditions. The procedure was essentially identical for participants randomly assigned to the literal condition, with the exception that they were instructed to literally criticize the negative outfits and to compliment the positive outfits.

Assuming this forced irony procedure was effective in controlling these contextual factors, then only cognitive constraints associated with negation should differ across positive and negative forms of irony. If these differential cognitive constraints play an important role in the persistent asymmetry observed in the previous

experiments, then, relative to the literal language condition, speakers assigned to the ironic language condition should (1) produce ironic criticisms more frequently than ironic compliments and (2) take longer to produce ironic compliments than ironic criticisms. On the other hand, if contextual factors such as violated expectations and verbal politeness norms drive the asymmetry of affect, then no differences in production should be observed across positive and negative forms of irony.

Methods

Participants. Sixty-six students participated in this study for credit points or token remuneration. The mean age of participants was 19.1 years of age ($\underline{SD}$ = 1.6). Participants were paired with a friend, producing 33 same-sex dyads (7 male-male dyads, 26 female-female dyads). One female-female dyad was dropped because of a problem with the materials. The median duration of the partners' relationships was 3 months ($\underline{min}$ = 0 months, $\underline{max}$ = 168) and consisted of 12 classmates, 12 close friends and 9 roommates.

Materials. The two outfits rated as the most ugly in the previous three experiments and the two rated as the most beautiful were selected for use in the present study. Because this experiment was conducted several months after the completion of the previous experiments, a pilot study was conducted to determine whether these images continued to be perceived as appropriately ugly or beautiful. Ten participants rated each outfit on a scale of one to seven, with one being "Very ugly" and seven being "Very beautiful." The ratings revealed that one of the beautiful images was no longer perceived as very beautiful ($\underline{M}$ = 5.1, $\underline{SD}$ = 1.2). Thus, eight additional outfits

were selected from more recent popular culture magazines and a second pilot study

was conducted to select a replacement image. Eight participants rated the outfits on the

same seven-point scale. The fashion image identified as the most beautiful ($M = 6.4$,

$SD = .7$) was selected for inclusion in the present study. As such, the materials for the

present procedure consisted of two ugly ($M = 1.5$, $SD = .1$) and two beautiful ($M = 6.6$,

$SD = .2$) fashion images.

Procedure. Upon arrival at the laboratory, the experimenter led each friend to a

separate testing room, where the general procedure was explained. Participants were

told that they would discuss several fashion images of celebrities with their partner.

Participants assigned to the irony condition were provided with the following set of

written instructions:

> Once you have completed these instructions, the experimenter
> will provide you with a binder that contains several images of fashion
> outfits. You will discuss these pictures with your partner, but your task
> will be to speak as ironically as possible about the outfits. Irony is often
> defined as saying one thing but meaning the contrary to what is said.
> For example, irony can be used to praise with criticism. Consider the
> following example:

> PRAISE WITH CRITICISM IRONY
> Mike pulls up in a fabulous new sports car. Amy says,
> "That's a real piece of crap car, Mike" to mean it's a great
> car.

> In this example, Amy says something negative (criticism) to convey a
> compliment. Irony can also be used to do the opposite, criticize with
> praise, as in the following:

> CRITICIZE WITH PRAISE IRONY
> Mike pulls up in a rusty old car. Amy says, "That's a real
> fine car, Mike" to mean it's an awful car.

> In this second example, Amy says something positive (praise) to
> convey a criticism. In the binder that the experimenter provides, you

will find a total of four images of fashion outfits. These outfits were taken
from the best and worst dressed pages of recent magazines. The first
two outfits were rated as the *most beautiful* by magazine editors and by
your fellow psychology students. The last two outfits were rated as the
*most ugly* by magazine editors and your peers.

Please use "praise with criticism" irony to discuss the first two
beautiful fashions, and "criticize with praise" irony to discuss the
following ugly fashions.

Once participants finished reading the instructions, the experimenter discussed

the instructions to ensure that the concepts of ironically "praising with criticism" and

"criticizing with praise" were correctly understood. When it was clear that the

participants understood both types of irony, the experimenter provided the participants

with binders that contained two title pages and four fashion images. The first page

identified the fashion images on the following two pages as either ugly or beautiful.

The fourth page identified the fashion images on the last two pages as either ugly or

beautiful, whichever had not been presented previously. At this point, the experimenter

reminded participants that they were to ironically criticize the outfits labeled as ugly

and ironically praise the outfits labeled as beautiful. The order in which the irony type

was described in the instructions matched the order in which the fashion images were

presented. Thus, if the participant was ironically criticizing ugly outfits first, then the

instructions described "criticizing with praise irony" first, and vice versa.

Participants assigned to the literal condition were provided with the following

set of instructions:

Once you have completed these instructions, the experimenter
will provide you with a binder that contains several images of fashion
outfits. You will discuss these pictures with your partner, and your task

will be to express your opinions about the outfits.  For example, provide compliments, such as:

PRAISE
Mike pulls up in a fabulous new sports car. Amy says "That's a fine car, Mike."

In this example, Amy compliments Mike's car.  Obviously, criticisms are an option too:

CRITICISM
Mike pulls up in a rusty old car. Amy says "That's an awful car, Mike".

In this second example, Amy criticizes Mike's car. In the binder that the experimenter provides, you will find a total of four images of fashion outfits.  These outfits were taken from the best and worst dressed pages of recent magazines.  The first two outfits were rated as the most beautiful by magazine editors and by your fellow psychology students. The last two outfits were rated as the most ugly by magazine editors and your peers.
Please use compliments to discuss the first two beautiful fashions, and criticisms to discuss the following ugly fashions.

Once the participant had completed reading the instructions, the experimenter discussed the instructions with the participant to ensure that the instructions were clear.  At this point, the experimenter provided the participants with their binder and reminded them that they were to criticize the ugly outfits and praise the beautiful ones.  The order in which the instructions described criticism and praise matched the order in which the outfits were presented.

The conversations occurred in the same computer-based communicative setting as the previous experiments, and participants received the same instructions regarding the use of the interface.  Computer experience and typing speed were assessed before the interaction, as in the previous studies. After the interaction, participants completed

the same questionnaires described in Experiment 3, including the Quality of Relationship Inventory (Pierce, Sarason & Sarason, 1991), and two other instruments that were unrelated to this study. After participants finished the questionnaires they were debriefed.

Design. The design of the study was a 2 x 2 x 2 mixed factorial, with context type (ugly vs. beautiful fashion) as the repeated measure and language type (ironic vs. literal language) and order (ugly images first vs. beautiful images first) as between subject factors.

Coding. The conversations yielded transcripts organized into time-stamped turns with each participant's remarks identified clearly. Only turns that were relevant to the discussion of the fashion images were included in the present analysis (e.g., greetings and off-topic turns were excluded). Turns were broken down into propositions. A proposition was defined as a distinct idea that could be distinguished from other ideas by its content (i.e., a different topic) or by its function (e.g., a description, an assertion, a question, etc.). Propositions concerned with coordinating the conversation (e.g., "Ready for the next one?") or were off-topic (i.e., not about the fashion images) were not included in the analysis. Each proposition about one of the outfits was analyzed to determine whether the surface or literal meaning of the proposition was positive (e.g., "I love it"), negative (e.g., "I hate it"), neutral (e.g., "I think she's wearing sandals") or other. The other category consisted of propositions for which the coder could not determine the speaker's evaluative intent (e.g., "That suit looks just like kitty") (see Appendix G for the full coding scheme). For each transcript,

the total number of propositions was tallied, as well as the number of propositions

representing positive, negative and neutral evaluations.

Inter-rater Reliability. A second coder rated 8 of the transcripts, 2 from each

condition (i.e., 25% of the conversations). Comparisons between raters on evaluations

of the propositions (i.e., positive, negative, neutral, and other) yielded a satisfactory

kappa statistic of .83.


Results

The primary question of interest in the context of the cognitive-constraints

hypothesis is whether, as predicted, speakers produced fewer ironic compliments than

ironic criticisms. First, it is of interest to examine this question in terms of the absolute

frequency of ironic compliments and criticisms produced in each condition. According

to the participants' instructions, ironic compliments were propositions that expressed

negative evaluations about beautiful outfits (e.g., "I hate it"), while ironic criticisms

were positive evaluations of ugly outfits (e.g., "I love it"). In the literal language

condition, literal compliments were propositions that provided positive evaluations

about beautiful outfits (e.g., "I love it"), while literal criticisms were negative

evaluations of ugly outfits (e.g., "I hate it"). The means and standard errors of the

absolute frequency of these evaluations per dyad as a function of context and language

instruction set are presented in Table 4. As outlined in the introduction, if the

additional cognitive constraints associated with producing ironic compliments play a

role in the asymmetry of affect observed in irony production, then fewer ironic

compliments about beautiful fashions should be generated in this forced irony

procedure. Contrary to the cognitive-constraints hypothesis, the relevant simple effects test comparing the absolute frequency of ironic criticisms and compliments revealed no difference, $t(15) = -.48$, n.s.

Note also, that the total number of propositions produced during the session (i.e., positive, negative and neutral propositions) were not equivalent across positive and negative contexts, $F(1,28) = 6.46$, $p < .05$. Speakers produced more propositions overall when discussing ugly fashions ($M = 41.0$, SE = 3.10) than when discussing beautiful fashions ($M = 36.16$, SE = 3.05). To adjust for this difference in volubility, a second analysis was conducted to compare the proportion of ironic compliments and criticisms. These proportions are also presented in Table 4. The proportion in each cell represents the absolute frequency for that treatment condition (i.e., the number of ironic compliments and criticisms, literal compliments and criticisms) divided by the total number of propositions produced in that condition (i.e., positive, negative and neutral). Simple effects tests comparing the proportion of compliments and criticisms produced in the irony condition revealed that the rate of ironic compliments describing beautiful outfits was in fact greater than the rate of ironic criticisms describing ugly outfits, $t(15) = 2.10$, $p < .05$, suggesting, contrary to the cognitive-constraints hypothesis, that ironic compliments may have been easier to produce than ironic criticisms.

Although both the absolute frequency and proportional data are incompatible with the cognitive-constraints hypothesis, it is somewhat surprising to observe that the proportion of ironic compliments produced was actually higher than the proportion of ironic criticisms in this procedure. This observation will be addressed in more detail in the discussion.

Table 4.   Means and (standard errors) for the absolute frequency and proportion of

evaluations per dyad as a function of context and language type

| | Beautiful Fashion Context (compliments) | | Ugly Fashion Context (criticisms) | |
|---|---|---|---|---|
| | Frequency | Proportion | Frequency | Proportion |
| Ironic | 28.5 (3.65) | .75 (.03) | 30.4 (2.45) | .70 (.04) |
| Literal | 26.6 (3.72) | .78 (.03) | 26.0 (3.75) | .75 (.03) |

Note: in beautiful fashion contexts, evaluations include negative statements in the irony condition (i.e., ironic compliments) and positive statements in the literal condition (i.e., literal compliments); in ugly fashion contexts, evaluations include positive statements in the irony condition (i.e., ironic criticisms) and negative statements in the literal condition (i.e., literal criticisms). The proportions in each cell represent the absolute frequency for that treatment condition divided by the total number of propositions produced in the treatment condition.

The data from the literal conditions are also of some interest in the present context. Simple effects tests comparing literal compliments and criticisms revealed no difference in their absolute frequency, $t(15) = .17$, n.s., or in their relative proportions, $t(15) = .78$, n.s., suggesting that speakers in the literal language condition produced as many positive statements as they did negative statements. These data are important in demonstrating that there was no basic difference in the tendency to simply employ either positive or negative wording when constructing a proposition.

Turn-based Analyses. The average time required to produce a turn in each of the four treatment conditions was also determined by calculating the interval between the completion of the preceding turn and the termination of the subsequent turn. The average number of words per turn was also calculated for each of the treatment conditions. Table 5 presents the average duration of turns and the average number of words per turn in each of the four treatment conditions. The averages in each cell are based respectively only on those turns in which at least one ironic compliment, one ironic criticism, one literal compliment or one literal criticism was identified.

Of primary interest in the context of the cognitive-constraints hypothesis is whether, as predicted, ironic compliment turns required more time to complete than ironic criticism turns. Simple effects tests comparing criticisms and compliments in the ironic condition indicated, again contrary to the cognitive-constraints hypothesis, there was no difference in the time it took to produce ironic compliments and ironic criticisms, $t(15) = .19$, n.s. Note also in Table 5 that there was no significant difference in the average number of words that were produced in turns containing an ironic compliment or ironic criticism, $t(15) = -.17$, n.s.

A second question of interest in Table 5 concerns the data from the literal language conditions. In particular, did ironic turns take longer than literal turns? A 2 (ugly vs. beautiful fashions) x 2 (ironic vs. literal language condition) mixed GLM, with context as the repeated measure and language type as the between subjects factor, was conducted on the average turn duration to examine this possibility. Consistent with the simple effects described above, the main effect of context was not reliable, $F(1,28) < 1$, suggesting that there was no difference in turn duration between compliments and criticisms. A main effect of language condition, however, was observed, $F(1,28) = 5.68$, $p < .05$. Ironic turns required significantly longer to produce on average ($M = 16.68$ secs, $SE = 1.25$) than literal turns ($M = 12.48$, secs, $SE = 1.22$). The effect of language condition was additive across the beautiful and ugly conditions.

The same analysis was also conducted on the number of words produced per turn. These results paralleled the time results and revealed that not only did turns take longer to produce in the ironic language condition, they also contained more words on average ($M = 8.87$, $SE = .38$) than turns in the literal language condition ($M = 7.21$, $SE = .36$), $F(1,28) = 9.40$, $p < .01$. No difference was observed in the number of words produced in complimentary and critical turns, $F(1,28) = 2.34$, n.s., and the interaction between context and language condition was also not reliable, $F(1,28) = 1.53$, n.s.

Another question that arises from these two analyses is whether the difference in turn duration across the language conditions is best explained by the additional words produced in the ironic conditions, or whether the processing time per word was

Table 5.  Means and (standard errors) of the time and words per turn as a function

of context and language type.

| | Beautiful Fashion Context (Compliments) | | Ugly Fashion Context (Criticisms) | |
|---|---|---|---|---|
| | Seconds / Turn | Words / Turn | Seconds / Turn | Words / Turn |
| Ironic | 16.79 (1.38) | 8.82 (.41) | 16.54 (1.45) | 8.91 (.51) |
| Literal | 12.54 (1.35) | 6.77 (.32) | 12.41 (1.15) | 7.64 (.45) |

Note: The averages in each cell are based only on those turns in which at least one ironic compliment, one ironic criticism, one literal compliment or one literal criticism, respectively, was identified.

longer in the ironic conditions. To address this question, the factorial analysis was repeated on the average turn durations when the average number of words per turn was entered as a covariate. This analysis revealed that, with the number of words produced statistically equated across conditions, ironic turns took no longer to produce (adjusted $\underline{M}$ = 14.88) than literal ones (adjusted $\underline{M}$ = 14.26), $\underline{F}(1,28) < 1$.

Ancillary Measures. An examination of the depth of the relationship between the friends (i.e., the depth subscale of the Quality of Relationship Inventory, Pierce, Sarason, & Sarason, 1991) revealed that the friendships did not differ on this scale across the two language conditions, $\underline{t}(28) = .48$, n.s. Also, the quality of the relationship did not correlate with the production of evaluations about ugly outfits ($\underline{r}$ = -18) or beautiful outfits ($\underline{r}$ = -.05), suggesting that the depth of the partners' relationship as assessed by this measure was not associated with production in this procedure.

As in the experiments described above, no effect of gender was observed in the present data, although once again the unequal $\underline{n}$ across gender greatly reduced power to detect any differences.

In terms of computer skills, 52 of the 64 participants had used some form of synchronous computer-mediated communication, such as Internet chat or instant messaging. Experience with synchronous text-based communication settings did not differ across language conditions, $\underline{t}(30) = .63$, n.s., and this type of experience did not correlate with production measures for ugly ($\underline{r}$ = .03, n.s.) or beautiful outfits ($\underline{r}$ = .15, n.s.).

Finally, analyses were conducted to determine whether a speaker's typing ability was related to the production of evaluations. First, typing speed did not

correlate with production (for ugly outfits, $r$ = .2, n.s.; for beautiful outfits, $r$ = -.05, n.s.). Second, as might be expected, the correlation between typing speed and average duration per turn was negative and approached significance ($r$ = -.32, $p$ = .08), indicating that faster typists produced turns more quickly than slower typists. Note, however, that the dyad's combined typing speeds did not differ across language conditions, $t(30)$ = -.89, n.s., and thus could not account for the increased time required to produce ironic remarks relative to literal remarks. Finally, typing speed did not correlate with the average number of words produced per turn ($r$ = -.01, n.s.).

Discussion

The primary question addressed by the present study was whether an asymmetry in irony production would be observed when contextual factors that may influence the decision to employ the ironic form, such as the speaker's expectations and verbal politeness goals, were controlled. According to the cognitive-constraints explanation, if negating negatives is more cognitively demanding than negating affirmatives (Clark, 1974), speakers should find ironic compliments, which involve double negation, more difficult to produce than ironic criticisms, which involve only a single negation. As such, speakers assigned to the ironic language condition were predicted to produce fewer ironic compliments than ironic criticisms and to take longer to produce ironic compliments than ironic criticisms.

Several sources of converging evidence suggest that with relevant contextual factors controlled, ironic compliments were no more difficult to produce than ironic criticisms. First, the absolute frequency of ironic compliments and criticisms was

equivalent, suggesting that, in absolute terms, speakers were able to generate as many ironic compliments when instructed to do so as ironic criticisms. Second, the proportion of ironic compliments produced was actually greater than the proportion of ironic criticisms, suggesting that when given the opportunity to produce a remark, the probability that the speaker would produce an ironic compliment describing a beautiful outfit was in fact higher than the probability that the speaker would produce an ironic criticism describing an ugly outfit.

Although both of these measures are incompatible with the cognitive-constraints hypothesis, the advantage enjoyed by ironic compliments on the proportional measure was not expected. A more detailed examination of the propositions suggests that the answer may lie in the nature of the errors produced in each condition (i.e., the inappropriate statements made in a given treatment condition). Recall that participants in the irony condition were instructed to produce negative statements when discussing the beautiful outfits (i.e., ironic compliments) and positive statements when discussing the ugly outfits (i.e., ironic criticisms). Errors therefore consisted of the opposite type of statements: positive utterances about beautiful outfits and negative utterances about the ugly outfits in the irony condition, and negative utterances about beautiful outfits and positive utterances about ugly outfits in the literal language condition.

A post hoc coding of these errors revealed that they tended to fall into one of two categories. The first type of error consisted of statements that revealed the participant's actual beliefs about a given fashion image. For example, one speaker in the ironic condition remarked, "I just gotta say, I love the diamonds" before proceeding to discuss the outfit ironically with negative statements. Speakers in the literal

condition also produced this type of remark (e.g., "I actually like the dress" about an ugly outfit). Because these types of errors reflected the speaker's actual opinion or evaluation of the image, they were classified as true-belief errors. The second type of error consisted of non-literal statements that were not oppositional. These statements were primarily jocular comments intended to be humorous, such as "she must be performing for the visually impaired" while describing an outfit that included a pink hat, or "I think that's a trophy" while describing a gold jumpsuit. This type of error also occasionally consisted of hyperbolic utterances (e.g., "it must be hard to keep your head straight with earings that big") and understatements (e.g., "its just a touch too bright" about a bright gold outfit). Because these types of utterances were humorously intended but did not conform to the oppositional ironic compliment or criticism structure described in the original coding scheme, they were classified as jocular errors.

A 2 (context) x 2 (language condition) analysis of the true-belief errors revealed no main effects or interactions, suggesting that the production of true-belief errors was relatively equivalent across the four treatment conditions. An analysis of the jocular errors, however, revealed a significant main effect of context, $F(1,19) = 35.27$, $p < .001$, and a reliable interaction, $F(1,19) = 25.11$, $p < .001$. As can be seen in Table 6, significantly more jocular errors were produced in the ironic criticism condition ($M = 3.94$) than any other condition, and this difference may have selectively reduced the proportion measure of ironic criticisms. Recall that the proportions represented the ratio of oppositional ironies to the total number of propositions, and that the total number of propositions included the oppositional ironies plus the errors and neutral statements in

that condition. As such, the increased errors in this cell would have reduced the proportion of ironic criticisms relative to the other conditions.

The question arises as to why speakers produced more jocular errors during ironic discussions of ugly fashions than in any other condition. One possible reason may be that the speakers believed that their jocular statements were ironic. Indeed, although the present research has focused on oppositional irony, a number of authors have recently described jocularity, hyperbole and understatement as forms of verbal irony (e.g., Colston, 1997, Gibbs, 2000). If it were the case that the participants also considered these types of statements as ironic, despite the instructions that defined irony as oppositional, then the oppositional coding scheme may have underestimated the proportion of irony production in the ironic criticism condition.

Given this possibility, a post hoc analysis of the proportions was conducted with jocular errors included as ironic utterances. When these additional remarks were included, the proportion of ironic compliments describing beautiful outfits ($\underline{M}$ = .76, $\underline{SE}$ = .02) was equivalent to the proportion of ironic criticisms describing ugly outfits ($\underline{M}$ = .77, $\underline{SE}$ = .03), $\underline{t}(15)$ = -.29, n.s., suggesting that when non-counterfactual jocular comments are included, ironic compliments were neither harder or easier to produce than ironic criticisms in this forced irony procedure.

Consider next the turn-based measures of production. As described above, according to the cognitive-constraints hypothesis, if ironic compliments are more cognitively demanding than ironic criticisms, then ironic compliments should take

Table 6.    Means and (standard errors) of true-belief and jocular errors as a

function of context and language type.

| | Beautiful Fashion Context (Compliments) | | Ugly Fashion Context (Criticisms) | |
|---|---|---|---|---|
| | True-Belief Errors | Jocular Errors | True-Belief Errors | Jocular Errors |
| Ironic | .81 (.34) | .25 (.14) | 1.25 (.45) | 3.94 (.64) |
| Literal | 1.63 (.41) | .06 (.06) | 1.06 (.40) | .38 (.18) |

longer on average to produce. A comparison of the average times to produce turns including an ironic compliment or criticism revealed that ironic compliments took no longer to produce than ironic criticisms. Similarly, because the negation of negative propositions tends to be more linguistically complex (Horn, 1989), one might expect ironic compliments to contain more words than ironic criticisms. Once again, however, no difference was observed across positive and negative forms of irony.

Considered together, both the production frequency and the turn-based data indicate that ironic compliments were as easy to produce as ironic criticisms when relevant contextual factors were controlled. As such, it is unlikely that the differential cognitive constraints assumed to operate when producing positive and negative forms of irony played a significant role in the asymmetry of spontaneous irony production in Experiments 1 through 3. Some caution is required, however, in accepting this conclusion. The measures of irony production in the present study may simply be too crude to detect the effects of negation across the two forms, and procedures with greater temporal resolution may be required to more fully address this issue. Nonetheless, these data imply that the asymmetry of affect observed in the experiments described above are not easily explained by these cognitive constraints.

As described earlier, at least two contextual explanations for verbal irony's asymmetry have been identified in the literature: speaker expectations and verbal politeness goals. More specifically, the echoic account's social norm hypothesis, which has received the most empirical attention in the context of the asymmetry in verbal irony, argues that the asymmetry stems from our bias to expect and desire positive outcomes and to hold positive social norms (i.e., the Pollyanna Hypothesis). Because

speakers choose the ironic form to highlight the contrast between expectations and ensuing events, speakers are more likely to use an ironic criticism to allude to positive expectations that have been violated by negative situations than vice versa (Kreuz & Glucksberg, 1989; Kumon-Nakamura et al., 1995; Sperber & Wilson, 1986/1995). Similarly, an analysis of the functions of irony from a verbal politeness perspective reveals that speakers should be more likely to use ironic criticisms to achieve their politeness goals, such as avoiding being negative, than ironic compliments, which require the speaker to use negative phrases and tend to be perceived as less polite (Brown & Levinson, 1987; Dews, Kaplan & Winner, 1995; Dews & Winner, 1995; Leech, 1983; Pexman & Olineck, in press).

It is important to determine whether these factors were indeed controlled in the present procedure. First, in regard to the assumption that speakers' expectations were controlled, an examination of the ratings that the participants provided after their conversations revealed that neither the beautiful or ugly outfits violated the participants' expectations. Outfits identified beforehand to the participants as ugly were rated as ugly ($\underline{M} = 1.78$, $\underline{SE} = .10$, with 1 = "very ugly" and 7 = "very beautiful") and those identified beforehand as beautiful were rated as beautiful ($\underline{M} = 6.11$, $\underline{SE} = .09$). Second, in regard to assumptions about the speakers' politeness goals, if participants were concerned with verbal politeness then one would expect speakers in the literal language condition to say less negative things about ugly outfits than positive things about beautiful outfits. However, the data from the literal language condition indicate that the production of compliments and criticisms was in fact equivalent, suggesting that speakers were as willing to make positive statements about beautiful outfits as they

were to make negative statements about ugly outfits. Although these data support the assumption that the explicit instructions to criticize or compliment various stimuli controlled verbal politeness goals, a measure independent of the production data, such as post-interaction items assessing participants' politeness concerns, would perhaps have been useful in validating this assumption and should be incorporated into future research. Nonetheless, it appears that participants complied with the experimenter's instructions to criticize the ugly fashions and compliment the beautiful fashions.

Considered together, these data suggest that speaker expectations and verbal politeness objectives were not factors in the production of irony in the present procedure. The fact that the asymmetry disappeared when these factors were controlled points to the possibility that contextual factors may play a fundamental role in the asymmetry. Additional research will be required to assess the degree to which these two factors contribute to the asymmetry, perhaps by independently manipulating speakers' expectations and verbal politeness goals within the same experimental context.

Finally, although no differences were observed across positive and negative forms of irony in the present study, a number of interesting differences did emerge between the ironic and literal language conditions. Ironic evaluations took significantly longer on average to produce than literal evaluations and contained reliably more words. When the average number of words per turn was statistically equated across the two language conditions, however, the time effect disappeared, suggesting that the increased time required to produce ironic evaluations is most parsimoniously explained

by the fact that speakers used more words when producing ironic remarks than literal remarks.

It might also be noted that the tendency for ironic evaluations to contain more words on average than literal evaluations in the present procedure is consistent with previous comprehension research indicating that irony tends to be marked by additional verbal cues. Kreuz (1996), for example, has suggested that ironic remarks often include adverbs and adjectives that intensify an utterance's evaluative intent, as can be seen in these examples taken from Kreuz (p.26):

(29)   "What an absolutely gorgeous day!"

(30)   "The service here is really outstanding!"

(31)   "Henry asked me a positively brilliant question today!"

Evident in these examples is a possible underlying formula for ironic remarks, described by Kreuz as:

(32)   [adverb] + [extreme adjective] = irony

These hyperbolic adverbs and adjectives appear to serve as cues to the listener that the utterance is intended ironically. Literal remarks are less likely to contain these extra markers. For example, if the statements above were intended literally, they would probably not include adverbs and employ more moderate adjectives (e.g., "what a nice day," "the service here is good," "Henry asked me an interesting question," etc.).

In one test of these verbal markers in the comprehension of irony, Kreuz and Roberts (1995) employed the textoid approach to compare the perception of veridical and counterfactual remarks that either contained hyperbolic adverbs and adjectives (e.g., "I'll never be able to repay you for your help!") or did not (e.g., "Thanks for

helping me out!"). As expected, participants rated remarks that contained hyperbolic cues as more ironic than remarks that did not contain these cues (see also Colston & O'Brien, 2000).

Further support for the notion that irony tends to be signaled by verbal markers comes from research comparing irony production across face-to-face and text-based conversations (Hancock & Dunham, 2001b). In this study, 20.6% of ironic statements produced in the face-to-face condition and 9.4% of ironic turns produced in the text-based condition contained hyperbolic adverbs and adjectives, suggesting that ironic remarks tend to include extra verbal markers such as adverbs and adjectives.

Given these data that suggest ironic remarks tend to include additional verbal markers, the transcripts from the present study were re-examined to determine whether the increased number of words observed in the ironic turns could be attributed to these types of intensifying verbal markers. The number of hyperbolic adverbs (e.g., really, so, totally, etc.) and adjectives (e.g., awesome, fantastic, classic, frightening, wrong, evil, etc.) was tallied and the average number of adverbs and adjectives per turn containing an ironic or literal proposition was calculated. The data revealed that, consistent with the above-described data, ironic turns contained marginally more adverbs ($\underline{M}$ = .34; $\underline{SE}$ = .033) than literal turns ($\underline{M}$ = .26; $\underline{SE}$ = .029), $\underline{t}(15)$ = 1.73, $\underline{p}$ = .09, and significantly more adjectives (for ironic turns, $\underline{M}$ = .48, $\underline{SE}$ = .030; for literal turns, $\underline{M}$ = .33, $\underline{SE}$ = .028), $\underline{t}(15)$ = 3.78, $\underline{p}$ < .001, suggesting that ironic turns were more likely to contain intensifying verbal markers than literal turns.

According to Kreuz (1996), listeners use these verbal markers as cues to the speaker's ironic intent. As described above, utterances containing hyperbolic cues tend

to be <u>understood</u> as more ironic than utterances that do not (Colston & O'Brien,

2000; Kreuz & Roberts, 1995).  The increased use of these markers by speakers in the

present procedure suggests that the speakers were aware, at some level, that these cues

are important for the signaling of ironic intent.

These data also suggest that the process by which speakers produced their ironic

remarks may have differed somewhat from the process of producing literal remarks. In

particular, the formulation of an ironic remark may have required the accessing of

relevant verbal markers, such as intensifying adverbs and adjectives, that were not

involved in the formulation of literal remarks.  To date, little is known about the

<u>process</u> of irony production and how it may differ from the production of more direct

forms of language. This issue is addressed in more detail in the General Discussion.

## General Discussion

Previous research on verbal irony, which has focused almost exclusively on comprehension processes, has demonstrated that positively phrased ironic criticisms (e.g., "That dress is just lovely" in the context of an ugly outfit) are more readily understood than negatively phrased ironic compliments (e.g., "That dress is just ugly" in the context of a beautiful outfit) (Colston, 2000; Gibbs, 1986b; Hancock et al., 2000; Kreuz & Glucksberg, 1989; Kumon-Nakamura et al., 1995; Pexman & Olineck, in press). The primary objective of the present program of research was to develop new procedures to examine this asymmetry of affect, and the factors that may underlie it, in the context of irony production.

The first experiment in the present research developed a set of methods designed to elicit spontaneous verbal irony while permitting control of the valence of the conversational context, and examined whether the asymmetry of affect would emerge when equal opportunities for the production of positive and negative evaluations were provided. Consistent with the sparse irony production data available (e.g., Dews et al., 1997, as cited in Dews & Winner, 1997; Gibbs, 2000), the results from Experiment 1 suggested that despite equal opportunities to use both forms of irony, speakers were much more likely to spontaneously produce ironic criticisms describing ugly fashions than ironic compliments describing beautiful fashions. Indeed, this pattern of production was observed in each of the experiments examining spontaneous irony use, suggesting that the asymmetry of affect is a robust phenomenon in the context of irony production.

The explanation for the asymmetry that has received the most attention in the current literature and garnered the most empirical support is the echoic account of verbal irony, which includes Sperber and Wilson's (1981, 1986/1995; Sperber, 1984) echoic mention/interpretation theory, Kreuz and Glucksberg's (1989) echoic reminder theory and most recently Kumon-Nakamura et al.'s (1995) allusional pretense theory. As described earlier, according to the general echoic account, ironic utterances are assumed to echo or allude to expectations, desires or social norms that have not come to fruition, which allows the speaker to draw attention to the contrast between what was expected and what has actually transpired. The asymmetry is assumed to emerge from our general bias to expect and prefer positive outcomes and to hold social norms that describe positive forms of behavior, a bias referred to as the Pollyanna Hypothesis (Matlin & Stang, 1978). Because our expectations and norms tend to be positive, ironists are more likely to allude to these commonly held positive expectations that have been violated by ensuing events than to less frequently held negative expectations. This general argument has been called the social norm hypothesis in reference to its focus on broader asymmetries in standard expectations and norms (Gibbs, 1986b).

The larger number of ironic criticisms relative to compliments observed in the first experiment is consistent with this hypothesis. Although the ugly and beautiful fashion images provided an equal number of opportunities for positive and negative evaluations, only the ugly fashions violated the general expectation that people, especially famous celebrities, should wear beautiful outfits. The beautiful fashion images, in contrast, simply confirmed this expectation. As such, according to the

echoic account's social norm hypothesis, more ironic criticisms should be produced that allude to the general expectation that people should wear beautiful clothes.

While the asymmetric production data in Experiment 1 are consistent with this hypothesis, a more rigorous test of the social norm hypothesis requires a comparison of violated positive and <u>negative</u> expectations across both forms of irony (Kreuz & Glucksberg, 1989). The social norm hypothesis predicts that while speakers can typically refer to standard positive expectations with positively phrased ironic criticisms, the production of negatively phrased ironic compliments should only be facilitated when a negative expectation is available, such as a negative prediction (e.g., "This shirt will look horrible"). If a negative expectation is disconfirmed by ensuing events (e.g., the shirt looks great), then speakers should be more likely to produce ironic compliments (e.g., "That's one horrible shirt") than if the negative expectation had been confirmed or was not available.

Experiments 2 and 3 tested this hypothesis and compared spontaneous irony production after speakers' positive and negative expectations (primed by antecedent quotes) were either fulfilled or violated by ensuing negative or positive events (i.e., fashion images). The results from these two experiments support several conclusions regarding the echoic models and the production of irony. First, although Experiment 2 replicated the asymmetry observed in the first experiment, the manipulation of speaker expectations failed to influence irony production. Contrary to the echoic account, spontaneous irony rates did not increase after the speakers' primed expectations were violated, and regardless of expectation status, ironic compliments were never produced.

Given that there are several reasons to suspect that the expectation manipulation may be more effective in the context of conversations between friends than between strangers (i.e., the strangers in Experiment 2 produced low overall rates of irony and shared particularly low levels of common ground), the procedure was repeated with friends in Experiment 3. As expected, the friends in Experiment 3 produced more irony overall than the strangers in Experiment 2, and the rate of irony production between friends was positively correlated with the depth of their relationship, suggesting that irony use increases as levels of intimacy increase. These observations are consistent with previous questionnaire-based data, which indicates that irony tends to be perceived as more appropriate when it is used with intimates (Kreuz et al., 1999), and that participants recall using irony more frequently with people with whom they share a close relationship (Jorgenson, 1996; Kreuz, 1996). The present data, however, are the first to demonstrate that acquainted speakers actually produce more irony in conversations than unacquainted participants.

Second, the pattern of results from Experiment 3 suggests that the friends produced irony in a manner predicted by the echoic account of verbal irony. Consistent with the central claim of the echoic account, speakers spontaneously produced more verbal irony after their expectations were violated, presumably in an effort to highlight the contrast between what they expected of the fashion outfit and the actual image of the fashion outfit. The data also support the echoic account's social norm hypothesis, which holds that specific negative expectations should play an especially important role in the production of ironic compliments. Although the expected interaction between context and expectation was not reliable, the observation that ironic compliments were

produced only after a negative quote's prediction (e.g., "I looked horrible in this outfit") was violated by the ensuing image (e.g., the outfit was gorgeous) suggests that the availability of specific expectations was particularly important for the production of positive forms of irony. These data provide some of the first evidence that the echoic account of irony describes not only conditions that influence the comprehension of verbal irony, but also the conditions that facilitate its production.

The fact that expectations played a role in irony production during conversations with the friends in Experiment 3 but not with the strangers in Experiment 2, however, implies that some level of intimacy between speakers may be an important precondition for irony production to follow patterns predicted by the echoic models of irony (Kreuz & Glucksberg, 1989; Kumon-Nakamura et al., 1995; Sperber & Wilson, 1986/1995). This assumption is consistent with Kumon-Nakamura et al.'s (1995) argument that some degree of shared common ground is an important prerequisite for the operation of expectations in irony. In order for expectations to influence the speaker's decision to employ the ironic form, the speaker must first believe that the listener shares a given expectation before the speaker can allude to that expectation ironically. Otherwise, the speaker cannot be sure that the listener will detect the ironic intent of the utterance (see also Kreuz, 1996). The speaker must also believe that the listener has similarly perceived the violation or failure of the expectation. Because friends are more likely than strangers to share these elements of common ground, friends should produce more irony overall, and their use of irony should be more affected by the manipulation of expectations in the present procedures.

While the present data are consistent with this analysis and suggest that common ground is a key difference between friends and strangers in the operation of verbal irony, it is also important to note that intimates and non-intimates differ on a number of additional dimensions relevant to the use of irony. As discussed earlier, friends may have very different face-saving objectives than strangers (Brown & Levinson, 1987; Jorgenson, 1996; Slugoski & Turnbull, 1988). For example, strangers may be particularly concerned with creating a positive first impression and therefore avoid riskier forms of communication (Fiske & Taylor, 1991; Hancock & Dunham, 2001b). Friends are also much more likely to use irony to enhance social bonds and build solidarity (Ducharme, 1994; Gerrig & Gibbs, 1988; Seckman & Couch, 1989). Given that friends and strangers differ in several important ways, it may prove difficult to isolate the role of common ground across these two levels of intimacy (cf., Colston, 1997; Kreuz et al., 1999).

As noted earlier, however, the unique characteristics of the computer-mediated communication setting employed in the present research, which provides the researcher with the ability to manipulate a number of factors not permitted in face-to-face interactions, may be particularly useful in assessing the role of common ground in irony production. For example, consider a comparison of text-based conversations between two strangers that have access to visual information about their partner, such as a picture revealing their partner's age, gender, race and general appearance, with a conversations between strangers who do not have access to this kind of information. Comparing the use of irony in these two conversations, which would control other

relational variables (i.e., both conversations are between strangers), should help to tease out the influence of this type of information on irony production.

The results of Experiment 2 and 3 also revealed that the asymmetry of affect not only persisted when both positive and negative expectations were made available, but it also accounted for the majority of the variance in the two studies. If, according to the echoic account, broader asymmetries in expectations underlie the asymmetry of affect observed in irony, then why did the asymmetry persist when specific positive and negative expectations were violated in the present procedures? One possibility is that the default general expectation that celebrities should wear beautiful clothes simply overwhelmed the explicit expectations primed by the quotes. If this was the case, then it may be important to examine the asymmetry in irony production under conditions in which default general expectations are negative (e.g., the generally negative expectations associated with visiting the dentist). However, research that has examined this question in the context of comprehension indicates that even when general negative expectations are available (e.g., that New York subways are dirty), the asymmetry of affect persists (Kumon-Nakamura et al., 1995), suggesting that ironic criticisms are more readily understood than ironic compliments regardless of the valence of the general expectation.

Given the persistence and robustness of the asymmetry of affect across the first three studies of spontaneous irony, a fourth experiment examined whether additional factors may also play a role in the asymmetry. In particular, this experiment was designed to determine whether the differential cognitive constraints associated with the two forms of irony may account for why ironic criticisms are more frequently produced

than ironic compliments. According to the Indirect Negation Model of Irony (Giora, 1995), which assumes that ironic remarks involve a negation of the literal message, the asymmetry across ironic forms may be due in part to the fact that ironic compliments require double negation while ironic criticisms require only a single negation. Because double negation requires greater cognitive resources (Clark, 1974), ironic compliments may be more difficult to produce than their critical counterparts.

A novel procedure in which participants were essentially forced to converse ironically was developed to control contextual factors that may influence the speaker's decision to employ the ironic form, such as speaker expectations and verbal politeness objectives. If cognitive constraints underlie the asymmetry of affect, then ironic compliments should continue to be produced less frequently than ironic criticisms under these conditions. Several lines of converging evidence revealed, however, that when contextual factors were controlled the robust asymmetry typically observed across positive and negative forms of irony disappeared. First, ironic compliments were produced as frequently as ironic criticisms, both in terms of their absolute frequency as well as in their proportion of production. Second, turns containing an ironic compliment took no longer to generate and had the same number of words as turns containing ironic criticisms. Third, both positive and negative forms of irony took more time for participants to produce and included more words than literal statements.

Taken together, these data have several potentially important implications. First, because ironic compliments were produced as easily as ironic criticisms in this procedure it is unlikely that the cognitive constraints associated with negating negatives in ironic compliments can account for the asymmetry observed in the previous

experiments, as implied by the Indirect Negation Model (Giora, 1995). Second, the symmetrical production of ironic compliments and criticisms also questions the assumption that negative or derogatory evaluations are simply an intrinsic property of verbal irony, as assumed by the Standard Pragmatic Model (Grice, 1975, 1978; Searle, 1979) and the Pretense Model of Irony (Clark & Gerrig, 1984). Speakers were equally able to produce ironic utterances conveying positive and negative intent.

The fact that the robust asymmetry observed in the first three studies disappeared when contextual factors were controlled also implies that these factors were presumably very influential in the observed asymmetry. The two primary contextual factors identified in the literature as possibly influencing the speaker's decision to employ verbal irony are 1) the speaker's expectations, as described by the echoic account of irony and 2) the verbal politeness objectives that emerge from various social interactions. While the echoic explanation of the asymmetry (i.e., the social norm hypothesis) has received substantial attention and support in previous research, the role of verbal politeness in the context of the asymmetry of affect has yet to be systematically examined. Recall that, in general, verbal politeness requires people to speak positively whenever possible and to avoid explicitly negative remarks (e.g., Brown & Levinson, 1987; Colston, 1999; Matlin & Stang, 1978). Because ironic criticisms allow speakers to use positive phrases to convey negative evaluations, speakers may use ironic criticisms to facilitate verbal politeness goals (Brown & Levinson, 1987; Giora, 1995; Leech, 1983). In contrast, because ironic compliments require speakers to use negative phrases about positive events, ironic compliments function contrary to general verbal politeness goals and they tend to be perceived as

less polite than their literal counterparts (Dews & Winner, 1995; Pexman & Olineck, in press).

The different levels of verbal politeness accomplished by ironic criticisms and compliments can be observed in the following examples of spontaneous irony production. Consider first this example of an ironic criticism, taken from Experiment 2, in which A and B were discussing an ugly outfit (the dyad's average rating of the outfit was 1.0 on a scale of 1 "very ugly" to 7 "very beautiful")

    [Transcript ACQC-02]

    Quote:   "I don't know what I was thinking when I decided to wear this

               dress, but it looks hideous on me."

    (32a)   A:  pretty nasty

    (32b)   B:  the workout clothes with the puffy skirt attached to the

                   back....very nice

    (32c)   A:  I hate the huge thing coming out from the back

    (32d)   B:  haha I know

Compare the use of A's rather direct negative evaluations of the outfit in (32a) and (32c) with B's indirect ironic criticism in (32b). By using an ironic form of criticism in (32b), B manages to convey her negative evaluation of the outfit while avoiding the use of negative words or phrases, an important verbal politeness goal, in general, for speakers (Brown & Levinson, 1987).

In contrast, consider the following example of an ironic compliment taken from Experiment 3 (recall that strangers in Experiment 2 did not produce ironic

compliments) during a discussion of a beautiful outfit (the dyad's average rating of

the outfit was 5.5)

> [Transcript ACFQB-03]
>
> Quote:   "I let my designer talk me into this dress, it looks really awful."
>
> (33a)   B:  Why would she wear it if she hated it?
>
> (33b)   A:  I don't know maybe she couldn't afford anything else
>
> (33c)   B:  Lauhgter
>
> (33d)   B:  I know spelled it wrong!
>
> (33e)   A:  I really like this I guess it just goes to show what good taste I
>
> have

Although A's ironic compliment in (33b) evokes humor, as evidenced by B's response

in (33c), the utterance contradicts the verbal politeness goal of speaking positively, and

A appears to be aware of this.  Even though it is clear that B understands A's ironic

intent in (33b), A uses her subsequent turn to clarify her actual opinion of the outfit

with a positively phrased literal compliment (33e) that satisfies the norm of speaking

positively when possible.

Given that ironic criticisms appear to facilitate verbal politeness goals while

ironic compliments do not, the observation that the asymmetry of affect disappeared

when verbal politeness concerns were controlled in Experiment 4 suggests that the

robust asymmetry observed in spontaneous irony production may reflect not only

broader asymmetries in general expectations and norms, but also the asymmetry in the

degree to which positive and negative forms of irony achieve a speaker's politeness

objectives. As such, an important question for future research will be to identify the degree to which verbal politeness is a factor influencing the asymmetry of affect.

The results from Experiment 4 also suggest that, in general, speakers produce ironic turns differently than they produce literal turns. Ironic turns take longer to complete and contain approximately 1.7 words more, on average, than literal turns, suggesting that the syntactic structure of ironic utterances may be modified relative to literal utterances. An analysis of the ironic utterances in the present study was consistent with Kreuz's (1996) suggestion that the underlying structure of an ironic utterance may include modifiers, such as [adverb] + [extreme adjective], that are not as frequently included in literal remarks.

These differences in the structure of ironic and literal comments in the present research are also of particular interest given the long-standing debate concerned with the processes involved in comprehending literal and figurative remarks, such as metaphor and verbal irony (Blasko & Connine, 1993; Dews & Winner, 1999; Gibbs, 1986a, 1986b, 1994; Giora, 1995; Giora, Fein, & Schwartz, 1998; Glucksberg, 2001; Ortony, Schallert, Reynolds, & Antos, 1978; Schwoebel et al., 2000; Sperber & Wilson, 1986/1995). The central question in this debate, at least within the context of verbal irony, is whether the literal or surface meaning of an ironic remark is obligatorily processed in addition to the ironic message, or whether the ironic meaning is accessed directly.

Recall, for example, that the standard pragmatic view of irony (Grice, 1975; Searle, 1979) proposed multiple stages of processing for ironic remarks: the literal meaning of the message must first be processed, then tested against the context, and if

the literal meaning fails to make sense, the listener seeks an alternative nonliteral meaning. According to the standard pragmatic view, because the processing of literal remarks only requires one stage of processing, ironic remarks should take longer to understand than literal remarks. In contrast, the distinction between literal and non-literal meanings was rejected by the echoic model of irony, which argued that irony involves reminding the listener of some violated expectation or norm in order to express an attitude toward the echoed expectation (Sperber & Wilson, 1981, 1986/1995). In this view, determining whether the literal meaning is consistent with the context is irrelevant (Gibbs, 1986b). If this is the case, then ironic remarks should take no longer to process than literal remarks. When Gibbs initially tested this hypothesis, he found that reading times for ironic and literal comments were equivalent, suggesting that the literal meaning does not need to be processed in order to derive the ironic intent (see also Gibbs, 1983, 1986b, 1994; Gibbs & O'Brien, 1991).

More recent models of verbal irony, however, have challenged this claim. The tinge hypothesis, for example, argues that the literal meaning of an ironic remark is obligatorily processed and functions to mute the evaluative tone of the intended, nonliteral meaning (Dews & Winner, 1995, 1999). Similarly, as described earlier, the indirect negation model hypothesizes that both the literal and ironic messages of an utterance are processed so that the difference between them can be computed (Giora, 1995). Recent tests of these two models, as well as a re-analysis of Gibbs (1986b) data (Giora, 1995), have consistently indicated that ironic remarks tend to require more time to process than their appropriate literal controls (Dews & Winner, 1995, 1999; Giora & Fein, 1999; Giora et al., 1998; Schwoebel et al., 2000).

The role of literal meaning in the <u>production</u> of ironic remarks, however, has not yet received much theoretical consideration. For example, do speakers conceptualize a literal evaluation or communicative intention (e.g., to communicate that a given dress is ugly) before formulating an ironic message (e.g., "Classy dress"), as might be suggested by a production version of the multiple meaning models of irony, such as the tinge hypothesis or the indirect negation model? Or, as might be suggested by a production version of the echoic model of verbal irony, are ironic messages formulated without accessing a literal meaning?

Another possibility is that the process of generating irony is fundamentally different from the process of comprehending it. Listeners, for example, are faced with the task of trying to resolve an incoming stream of words, while a speaker begins the process of producing irony not with words but with an evaluative intent that is to be communicated. As such, these questions raise the more basic issue of the general relationship between production and comprehension processes, which may be one of close identification (Yin, Abrams, MacKay, & Wulf, 1993) or substantial dissociation (Bock, 1995).

Although the data from the present study are clearly insufficient to address all of these questions, the observation that ironic evaluations required more adverbs and adjectives than literal evaluations points to the possibility that the formulation of ironic utterances may involve additional processes, such as the accessing of relevant verbal markers, that are not involved in the production of literal remarks.

The fact that so little is known about the process of irony production highlights one of the fundamental issues that this program of research was designed to address,

namely that the process of <u>understanding</u> irony has been much more thoroughly investigated than the process of <u>producing</u> irony (Gibbs, 2000; Giora, 1998; Kreuz, 2000). A second and perhaps related weakness in the existing irony literature has been the reliance on textoid methodologies, which are best suited to determining how ironic utterances are understood but not produced. The present research addresses these issues and describes several new methods designed to elicit irony production within naturalistic but experimentally controlled conversations. Although these methods must be extended to different domains (i.e., other than fashion stimuli) and complemented by additional approaches, such as analyzing irony in naturally occurring discourse (e.g., Gibbs, 2000), these experiments represent an initial step in a systematic approach to the production of irony and address several basic questions about the factors that may influence the decision to produce irony. The present data demonstrate that a speaker is more likely to employ the ironic form when: 1) the context or situation is negative, 2) the speaker's specific expectations (e.g., primed by a prediction or engendered by the context) have been violated, especially in the case of ironic compliments, and 3) the speaker is acquainted with their conversational partner. The ultimate goal of this line of research will be to generate a speaker-based model of irony that not only identifies the conditions in which a speaker is most likely to use the ironic form, but also identifies the processes by which ironic remarks are generated.

# Appendix A

## Participant Instructions – Experiment 1

During this experiment, you will use a computer network to converse with an anonymous partner. Please read the following instructions. Once you have completed reading the instructions, inform the Experimenter by typing "ready" on the computer. The Experimenter will tell you and your partner when to begin your discussion.

It is important that you do not reveal personal information to your partner, such as your name, gender or age.

You will find beside the computer a booklet containing 12 pictures of various celebrity fashions that have been taken from recent magazine issues. Please discuss and comment on each outfit with your partner. Notice that each photograph has the name of the person wearing the outfit on the top left of the page – this should help you coordinate with your partner about whom you are discussing. You should discuss the items in the order they appear. Take your time and spend a few minutes commenting on each outfit.

Good luck.

Computer Usage Questionnaire

Participant # _____           .           Date: _____

This questionnaire is intended to get demographic information about you and to assess your computer experience. Please CIRCLE the most appropriate choice.

1. Are you male or female?

       Male              Female

2. How old are you?


       _____

3. Is English your first Language?

       Yes              No (First language: _____ )

4. How often do you use a computer?

       1      2      3      4      ·5           [1 = Never, 5 = Everyday]

5. What do you use computers for (circle as many as are appropriate)?

       Email        Newsgroups/        Chat        Instant Messaging
                    Bulletin Boards                (e.g., ICQ)

6. How often (if ever) do you use a CHAT program (communicate through the internet by online text)?

       1      2      3      4      5           [1 = Never, 5 = Everyday]


----------------------------[To be completed by Experimenter]----------------------------


wpm: _____           acc: _____%

<u>Appendix C</u>

<u>Coding Scheme for Irony</u>

Apply the following steps to each turn in the transcript.

**Step 1 – Determine whether the dyad perceived the outfit appropriately.**

- For ugly outfits, both participants must rate the outfit less than 4.
- For beautiful outfits, both participants must rate the outfit more than 4.

- If the dyad misperceived the outfit (rated a beautiful outfit as ugly or vice versa), then proceed to the turns about the next outfit.

- If they perceived the outfit appropriately, proceed to step 2.

⇩

**Step 2 – Determine whether the turn is potentially ironic.**

Does the utterance have only one or several possible meanings? The following example has only one interpretation.

EX1:
In the context of an outfit that the participants perceived as ugly

"I do not like that dress at all."

Interpretation – that the speaker does not like the dress.

- If the utterance has only one possible interpretation (i.e., literal), then go to the next utterance and return to Step 1.

If an utterance has several possible meanings, then it is a possible candidate as an ironic statement. Consider the following examples:

EX2:
In the context of an outfit that the participants perceived as ugly

"She is looking oh so stunning in her mini-shorts"

Given that the participants perceived the outfit as ugly, it is likely that the speaker meant something other than what was said.

138

EX3:
In the context of an outfit that the participants perceived as beautiful

"I bet she picked that up at KMART"

Again, given that the participants believe the outfit is beautiful, it is unlikely that the speaker actually believes that the celebrity bought the fashion at a cheap general store.

Note that in text-based communications, cues such as quotations, caps, ellipsis (...), exaggerated language (e.g., extreme adjectives and adverbs) and asides (*laughs*) can be useful in identifying potentially ironic statements.

It is also important to err on the side of identifying a statement as ironic when making this decision. At the next stage, the utterance can again be evaluated for its ironic properties.

- If it appears that the utterance may have multiple interpretations or intentions, then proceed to the next step.

⇩

## Step 3 – Determine whether the statement is oppositional.

Once an utterance has been identified as potentially ironic, you must determine whether the utterance is oppositional in nature. That is, the ironic statements that we are interested in tend to have a meaning or intent that is the opposite to what is typically associated with the use of the words or the utterance. This type of "oppositeness" is most obvious in counterfactual statements, such as the following statement describing an outfit that the speaker has rated as ugly.

EX4:  I just love that outfit

The speaker is using a positive phrase (love the outfit) to convey a negative intent (hate the outfit). Speakers can also use counterfactual negative phrases to express a positive meaning or message, as in this example below in which the speaker has rated the outfit as beautiful

EX5:  I just hate that outfit.

Note, however, that ironic statements quite often do not have a simple opposite or counterfactual meaning. Consider this example after someone has failed to hold open the door for a friend.

EX6:   Thanks a lot

There is no real counterfactual version of "Thanks a lot." Instead, the speaker is using this positive phrase in this particular situation to criticize the friend for not holding the door. The important point to note with oppositional irony is that the speaker uses a statement that normally has a one type of connotation (either positive or negative) in an effort to convey some kind of opposite message or effect.

Many statements can be non-literal and perhaps feel ironic, but are not oppositional. Consider the following types of statements, which are examples of non-literal statements.

### Non-oppositional utterances

Jocularity         when a speaker teases or mocks a target in a humorous way, often by making a suggestion or comment that is blatantly impossible or untrue and is intended to be funny. Consider this joking statement

EX7:      I think she forgot some of her dress at home.

Obviously a celebrity knowing he or she will be photographed would not accidentally leave part of a dress home

Note that this utterance is not oppositional, and as such would not be considered ironic in our coding system.

Hyperbole         the statement exaggerates the reality of the situation, as in this example

EX8:      That dress is so big she could be hiding the free world in there

Again, although this is non-literal, it is not oppositional, and as such would not be considered ironic here. Note also that ironic statements are often exaggerated, but they must also be oppositional in nature.

Understatement    the speaker states far less than is obviously the case, as in this example about a very bright shirt

EX9:      Yeah, that neon shirt is a tad bright

Once again, although this statement contrasts with the situation, it is not oppositional and would not be coded as oppositional irony.

- If the utterance is similar to one of these types and/or is <u>non-oppositional,</u> then proceed to the next turn.

- If the utterance is <u>oppositional,</u> then proceed to the next step.

⇓

## Step 4. Classify the oppositional statement

For each utterance that has been identified as oppositional, classify it as either

<u>1. Ironic criticism</u>

When examining utterances that describe a fashion outfit that the dyad has rated as ugly, positive utterances used to convey a negative intent or to be critical should be coded as an <u>ironic criticism.</u> Ironic statements that have this structure (positive surface meaning, negative speaker intent) should be underlined and marked OPP -. For example:

> EX10: <u>That is one classy dress</u> · **OPP –**

<u>2. Ironic compliment</u>

When examining utterances that describe a fashion outfit that the dyad has rated as beautiful, negative utterances used to convey a positive intent or to be complimentary should be coded as an <u>ironic compliment.</u> Ironic statements that have this structure (negative surface meaning, positive speaker intent) should be underlined and marked OPP +. For example:

> EX11: <u>Oh yeah, that's real ugly.</u> **OPP +**

- Once the utterance has been classified as either an ironic compliment or criticism, proceed to the next turn.

## Appendix D

## List of Celebrity Quotes

### Beautiful Quotes

"I love this designer, I look terrific in his dresses."

"This dress is one of my favorites because of its flattering and simplistic beauty."

"This dress is so beautiful, so radiant and so stylish."

"This outfit is fabulous – it's wonderfully beautiful and sexy."

"I fell in love with this dress as soon as I saw it – it's very feminine and sexy."

"Everything came together perfectly with this outfit, from the hat to the colors to the accessories."

### Ugly Quotes

"I let my designer talk me into wearing this dress, it looks really awful."

"I don't know what I was thinking when I decided to wear this, it looks hideous on me."

"I liked this outfit on the mannequin, but it looks absolutely terrible on me."

"When I look at this dress all I see is ugly, bad and more ugly."

"I barely squeezed into this ugly, tasteless dress."

"This outfit is wretched – I hated wearing it, it's so incredibly unattractive."

## Appendix E

### Participant Instructions – Experiment 2

During this experiment, you will use a computer network to converse with an anonymous partner. Please read the following instructions. Once you have completed reading the instructions, inform the Experimenter by typing "ready" on the computer. The Experimenter will tell you and your partner when to begin your discussion.

It is important that you do not reveal personal information to your partner, such as your name, gender or age.

You will find beside the computer a booklet containing 12 pictures of various celebrity fashions that have been taken from recent magazine issues. Before each photograph is a quote from the celebrity that indicates what they thought of their outfit. Read the quote first and then go onto the photograph. Please discuss and comment on each outfit with your partner. Notice that each photograph has the name of the person wearing the outfit on the top left of the page – this should help you coordinate with your partner about whom you are discussing. You should discuss the items in the order they appear. Take your time and spend a few minutes commenting on each outfit.

Good luck.

## Appendix F

### Quality of Relationship Scale

Please read the following questions and answer them as honestly and accurately as possible about your relationship with your partner.

| | Not at all | A little | Quite a bit | Very much |
|---|---|---|---|---|
| To what extent could you turn to this person for advice about problems? | | | | |
| How often do you need to work hard to avoid conflict with this person? | | | | |
| To what extent could you count on this person for help with a problem? | | | | |
| How upset does this person sometimes make you feel? | | | | |
| To what extent can you count on this person to give you honest feedback, even if you might not what to hear it? | | | | |
| How much does this person make you feel guilty? | | | | |
| How much do you have to "give in" in this relationship? | | | | |
| To what extent can you count on this person to help you if a family member very close to you died? | | | | |
| How much does this person want you to change? | | | | |
| How positive a role does this person play in your life? | | | | |
| How significant is this relationship in your life? | | | | |
| How close will your relationship be with this person in 10 years? | | | | |
| How much would you miss this person if you could not talk to each other for a month? | | | | |
| How critical of you is this person? | | | | |

| | Not at all | A little | Quite a bit | Very much |
|---|---|---|---|---|
| If you wanted to go out and do something this evening, how confident are you that this person would be willing to do something with you? | | | | |
| How responsible do you feel for this person's well being? | | | | |
| How much do you depend on this person? | | | | |
| To what extent can you count on this person to listen to you when you are very angry at someone else? | | | | |
| How much would you like this person to change? | | | | |
| How angry does this person make you feel? | | | | |
| How much do you argue with this person? | | | | |
| To what extent can you really count on this person to distract you from your worries when you feel under stress? | | | | |
| How often does this person make you feel angry? | | | | |
| How often does this person try to control or influence your life? | | | | |
| How much more do you give than you get from this relationship? | | | | |

Forced Irony Coding Scheme


## 1. SELECTING TURNS FOR ANALYSIS

Mark the following turns for exclusion from the irony analysis:

A. Initial Greetings
   – comments between participants that begin their interaction but do not
     discuss the outfits

   EX "hey lisa, how's it going"

- Note that if part of the turn contains outfit-related propositions, go to CODING
  TURNS – PARSING

  EX "hey lisa, that's a pretty ugly dress aniston is wearing, eh"

B. Off-Topic discussion
   – comments that may be related to the person wearing the outfit, but are not
     related to her overall appearance or outfit in the photo

   EX "If I had kids I would encourage them to live a life like hers"
   – comments that are not related to the person wearing the outfit in any way

   EX "You hungry? I'm starved"

- Mark these comments as **OT** and do not include in irony analysis.

C. Coordinating talk
   – in general this is talk that is designed by the participants to coordinate
     their discussion by making it clear who they are discussing or by
     repairing any interaction problems they've encountered.

     i. Transitions through the outfits

   - these are comments that participants use to move from one image to the
     next

   EX "Ready for the next one?"

   EX "Have you looked at the next one yet?"

- note that the turn may include other talk that is focused on the outfits – in this case see CODING SELECTED TURNS

- Mark these comments as **CT** for transition

> ii. Meta-communicative signals
>> - utterances during the discussion of the outfits that are designed to help the participants coordinate whom they are discussing.
>>
>>> EX "Are you talking about Jen or lucy?"
>>
>> - any utterance designed to correct or repair previous misspellings or other typing errors
>>
>>> EX "That's just a stnning dress"
>>> "Oops, I meant stunning" -> do not include

- Mark these utterances as **CT** and do not include in irony analysis

> D. Completion talk
>> - this is discussion that involves the participants exiting from the discussion. Do not include turns that propose or question finishing, or that state that the participants are finished their interaction.
>>
>>> EX "Are we done?"
>>
>>> EX "Let's call it quits"
>>
>>> EX "done"

- Mark these turns as **FIN** for finished and do not include in analysis

## 2. PARSING SELECTED TURNS INTO PROPOSITIONS

Turns that have been selected for inclusion in the irony analysis may consist of one or more propositions or idea units.

EX " That color is horrible on her! She is such an ugly nasty woman!"

Turns that contain more than one proposition must be divided into separate propositions. A proposition is a distinct argument in an utterance that is separated from other arguments or ideas by its content (i.e., different topic) or by its function (e.g., a description, an assertion, a question, etc.). In the above example, two propositions can be identified: 1) that color is horrible on her! and 2) she is such an ugly nasty woman! Propositions do not have to be separated by distinct punctuation (rules of punctuation are not closely followed in CMC), but quite often they are. Below are further examples of multiple-proposition turns ( // represents divider between propositions):

EX " That color is horrible on her! // She is such an ugly nasty woman!"

EX "She has way too much jewelry on"
"Definitely! // And she's being so revealing."

- 'Definitely' is an agreement with the previous utterance, while 'And she's being so revealing' is an assertion.

EX "oh baby, baby this is a nice dress // I so want it"

"it's a wonderful dress though. // Those huge pink flowers really make britney look spectacular.

- in these examples, the dress is the subject of both propositions in the utterance, but the speaker makes two distinct assertions that are not simply synonymous.

EX "We have to go today and get one of these outfits!!"
"I know // and its so great...the way u have to suck in to get it done up the front and so you can't breath // I want this pant suit //...we definitely have to go get one after this is done."

EX "I like how she mixes baby blue and a red watch // she paid nothing for // the dress she found in the garbage"

- This turn is complicated because it contains three propositions, two of which share 'red watch.' Nonetheless, three separate arguments can be discerned.

- Divide propositions within a turn with a //

## 3. MARKING SELECTED PROPOSITIONS

Positive Evaluation

- if the comment describes a positive evaluation of the outfit or person in the image
- if this is within the ironic coding condition, then although the intended meaning is negative, the surface form should be positive

"Oh yeah, I just love that dress" - positive evaluation

- Mark these propositions as ⊕

Negative Evaluation

- if the comment describes a negative evaluation of the outfit or person in the image
- if this is within the ironic coding condition, then although the intended meaning is positive, the surface form should be negative

- Mark these propositions as ⊖

Neutral Evaluation

- if the comment describes the outfit or appearance, but there is no clear evaluative function
- for example "I can't tell if those shoes are red."

Mark these propositions as ⓝ

Other Evaluation

- if it is impossible to determine the evaluative content of the utterance, then

- Mark these propositions as Ⓞ for other

<u>References</u>

Atkinson, J.M., & Heritage, J. (Eds.) (1984). <u>Structures of Social Action: Studies in Conversation Analysis</u>. Cambridge: Cambridge University Press.

Austin (1962). <u>How to do things with words</u>. Oxford University Press.

Blasko, D.G., & Connine, C.M. (1993). Effects of familiarity and aptness on metaphor processing. <u>Journal of Experimental Psychology: Learning, Memory, & Cognition, 19,</u> 295-308.

Bock, K. (1995). Sentence production: from mind to mouth. In J.L. Miller & P.D. Eimas (Eds.), <u>Speech, language, and communication. Handbook of perception and cognition</u> (Vol 11, pp. 181-216). San Diego, CA, US: Academic Press.

Booth, W.C. (1974). <u>A Rhetoric of Irony</u>. Chicago: University of Chicago Press.

Boucher, J., & Osgood, C.E. (1969). The pollyanna hypothesis. <u>Journal of Verbal Learning & Verbal Behavior, 8,</u> 1-8.

Brown, P., & Levinson, S.C. (1987). <u>Politeness: Some Universals in Language Usage.</u> Cambridge, MA: Cambridge University Press.

Clark, H.H. (1974). Semantics and comprehension. In T. Sebok (Ed.), <u>Current trends in linguistics</u> (Vol 12, pp. 1291-1328). The Hague: Mouton.

Clark, H.H. (1994). Discourse in production. In M.A. Gernsbacher (Ed.), <u>Handbook of psycholinguistics</u> (pp. 985-1021). San Diego, CA, US: Academic Press, Inc.

Clark, H.H. (1996). <u>Using Language</u>. Cambridge, MA: Cambridge University Press.

Clark, H.H. (1997). Dogmas of understanding. <u>Discourse Processes, 23,</u> 567-598.

Clark, H.H., & Carlson, T.B. (1982). Hearers and speech acts. <u>Language, 58,</u> 332-373.

Clark, H.H., & Gerrig, R.J. (1984). On the pretense theory of irony. <u>Journal of Experimental Psychology: General, 113,</u> 121-126.

Clark, H.H., & Marshall, C.R. (1981). Definite reference and mutual knowledge. In A.K. Joshi, B.L. Webber, and I.A. Sag (Eds.), <u>Elements of discourse understanding</u> (pp. 10-63). Cambridge, MA: Cambridge University Press.

Clift, R. (1999). Irony in conversation. <u>Language in Society, 28,</u> 523-553.

Coates, L.J. (1991). A collaborative theory of inversion: Irony in dialogue. Unpublished master's thesis, University of Victoria, Victoria, B.C., Canada.

Colston , H.L. (1997). 'I've never seen anything like it': overstatement, understatement, and irony. Metaphor & Symbol. 12, 43-58.

Colston, H.L. (1999). "Not good" is "bad" but "not bad" is not "good": An analysis of three accounts of negation asymmetry. Discourse Processes. 28, 237-256.

Colston, H.L. (2000). On necessary conditions for verbal irony comprehension. Pragmatics & Cognition. 8, 277-324.

Colston, H.L., & O'Brien, J. (2000b). Contrast of kind versus contrast of magnitude: The pragmatic accomplishments of irony and hyperbole. Discourse Processes. 30, 179-199.

Dane, J.A. (1991). The Critical Mythology of Irony. Athens, GA: University of Georgia Press.

Dews, S., & Winner, E. (1995). Muting the meaning: a social function of irony. Metaphor & Symbolic Activity. 10, 3-19.

Dews, S., & Winner, E. (1997). Attributing meaning to deliberately false utterances: The case of irony. In C. Madell & A. McCave (Eds.), The problem of meaning: Behavioral and cognitive perspectives (pp.377-414). Amsterdam: North-Holland/Elsevier Science.

Dews, S., & Winner, E. (1999). Obligatory processing of literal and nonliteral meanings in verbal irony. Journal of Pragmatics. 31, 1579-1599.

Dews, S., Kaplan, J., & Winner, E. (1995). Why not say it directly? The social functions of irony. Discourse Processes. 19, 347-367.

Drew, P. (1987). Po-faced receipts of teases. Linguistics. 25, 219-253.

Ducharme, L.J. (1994). Sarcasm and international politics. Symbolic Interaction. 17, 51-62.

Fiske, S.T. & Taylor, S.E. (1991). Social Cognition (2nd Ed.). New York: Mcgraw-Hill Book Company.

Fleiss, J.L. (1981). Statistical methods for rates and proportions (2nd Ed.). New York: John Wiley & Sons.

Gerrig, R.J. & Gibbs, R.W. (1988). Beyond the lexicon: creativity in language

production. Metaphor & Symbolic Activity, 3, 1-19.

Gerrig, R.J., & Goldvarg, Y. (2000). Additive effects in the perception of sarcasm: Situational disparity and echoic mention. Metaphor & Symbol, 15, 197-208.

Gibbs, R.W. (1983). Do people always process the literal meanings of indirect requests? Journal of Experimental Psychology: Learning, Memory, and Cognition, 9, 524-533.

Gibbs, R.W. (1986a). Comprehension and memory for nonliteral utterances: the problem sarcastic indirect requests. Acta Psychologica, 62, 41-57.

Gibbs, R.W. (1986b). On the psycholinguistics of sarcasm. Journal of Experimental Psychology: General, 115, 3-15.

Gibbs, R.W. Jr. (1994). The poetics of mind: figurative thought, language, and understanding. New York: Cambridge University Press.

Gibbs, R.W. Jr. (2000). Irony in talk among friends. Metaphor & Symbol, 15, 5-27.

Gibbs, R.W., & O'Brien, J. (1991). Psychological aspects of irony understanding. Journal of Pragmatics, 16, 523-530.

Giora, R. (1995). On irony and negation. Discourse Processes, 19, 239-264.

Giora, R. (1998). Irony. In J. Verschueren, J, Ostman, J. Blommaert, & C Bulcaen (Eds.) Handbook of Pragmatics. Amsterdam: John Benjamins Publishing Company.

Giora, R. & Fein, O. (1999). Irony: context and salience. Metaphor & Symbol, 14, 241-257.

Giora, R., Fein, O., & Schwartz, T. (1998). Irony: graded salience and indirect negation. Metaphor & Symbol, 13, 83-101.

Glucksberg, S. (2001). Understanding Figurative Language: From Metaphors to Idioms. London: Oxford University Press.

Graesser, A.C., Swamer, S.S., & Hu, X. (1997). Quantitative discourse psychology. Discourse Processes, 23, 229-263.

Grice, H.P. (1975). Logic and conversation. In P. Cole & J.L. Morgan (Eds.), Syntax and Semantics: Speech Acts (pp. 41-58). New York: Academic Press.

Grice, H.P. (1978). Further notes on logic and conversation. In P. Cole (Ed.), Syntax

and Semantics: Pragmatics (pp. 113-128). New York: Academic Press.

Grice, H.P. (1989). Studies in the way of words. Cambridge, MA: Harvard University Press.

Haiman, J. (1990). Sarcasm as theater. Cognitive Linguistics. 1 181-205.

Haiman, J. (1998). Talk is Cheap: Sarcasm. Alienation. and the Evolution of Language. New York: Oxford University Press.

Hancock, J.T., & Dunham, P.J. (2001a). Language use in computer-mediated communication: The role of coordination devices. Discourse Processes. 31, 91-110.

Hancock, J.T., & Dunham, P.J. (2001b). Verbal irony in face-to-face and computer-mediated conversations. Poster presented at the 42nd Psychonomics Society Annual Meeting, Orlando, Florida.

Hancock, J.T., Purdy, K., & Dunham, P.J. (2000). Children's comprehension of critical and complimentary forms of verbal irony. Journal of Cognition and Development.1. 227-248.

Horn, L.R. (1989). A Natural History of Negation. Chicago: University of Chicago Press.

Jones, E.E. (1990). Interpersonal Perception. New York: W.H. Freeman.

Jorgenson, J. (1996). The functions of sarcastic irony in speech. Journal of Pragmatics. 26. 613-634.

Jorgenson, J., Miller, G.A. &, Sperber, D. (1984). Test of the mention theory of irony. Journal of Experimental Psychology: General. 113. 112-120.

Katz, A.N., & Pexman, P.M. (1997). Interpreting figurative statements: speaker occupation can change metaphor to irony. Metaphor & Symbol. 12. 19-41.

Kaufer, D.S. (1981). Ironic evaluations. Communication Monographs. 48. 25-38.

Keenan, T.R., & Quigley, K. (1999). Do young children use echoic information in their comprehension of sarcastic speech? A test of echoic mention theory. British Journal of Developmental Psychology. 17. 83-96.

Kreuz R.J., Kassler, M.A., Coppenrath, L., & Allen, B.M. (1999). Tag questions and common ground effects in the perception of verbal irony. Journal of Pragmatics. 31. 1685-1700.

Kreuz, R. (1996). The use of verbal irony: Cues and constraints. In J.S. Mio & A.N. Katz (Eds.), Metaphor: Implications and Applications (pp. 23-38). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Kreuz, R. (2000). The production and processing of verbal irony. Metaphor & Symbol, 15, 99-107.

Kreuz, R.J., & Glucksberg, S. (1989). How to be sarcastic: The echoic reminder theory of verbal irony. Journal of Experimental Psychology: General, 118, 374-386.

Kreuz, R.J., & Roberts, R.M. (1995). Two cues for verbal irony: Hyperbole and the ironic tone of voice. Metaphor & Symbolic Activity, 10, 21-31.

Kreuz, R.J., Long, D.J., & Church, M.B. (1991). On being ironic: pragmatic and mnemonic implications. Metaphor & Symbolic Activity, 6, 149-162.

Kumon-Nakamura, S., Glucksberg, S., & Brown, M. (1995). How about another piece of pie: The allusional pretense theory of discourse irony. Journal of Experimental Psychology: General, 124, 3-21.

Lee & Katz (1998). The differential role of ridicule in sarcasm and irony. Metaphor & Symbol, 13, 1-15.

Leech, G.N. (1983). Principles of Pragmatics. London: Longman.

Levelt, W.J. (1994). The skill of speaking. In P. Bertelson & P. Eelen (Eds.), Handbook of Psycholinguistics (pp. 945-984). San Diego, CA, US: Academic Press, Inc.

Littman, D.C., & Mey, J.L. (1991). The nature of irony: toward a computational mode of irony. Journal of Pragmatics, 15, 131-151.

Martin R. (1992). Irony and universe of belief. Lingua, 87, 77-90.

Matlin & Stang (1978). The Pollyanna principle: Selectivity in language, memory and thought. Cambridge, MA: Schenkman.

Mayhew, D., Keenan, J., & MacWhinney, B.(1977). Pragmatics in memory: A study of natural conversion. Journal of Verbal Learning and Verbal Behavior, 16, 549-560.

Meucke, D.C. (1969). The Compass of Irony. London: Methuen & Co. Ltd.

Myers, A.R. (1977). Toward a definition of irony. In R.W. Fasold & R.W. Shuy (Eds.) Studies in language variation: semantics syntax, phonology, pragmatics, social

situations, ethnographic approaches (pp. 171-183). Washington, D.C.: Georgetown University Press.

Ortony, Schallert, Reynolds, & Antos (1978). Interpreting metaphors and idioms: Some effects of context on comprehension. Journal of Verbal Learning & Verbal Behavior, 17, 465-477.

Pexman & Olineck (in press). Does sarcasm always sting? Investigating the impact of ironic insults and ironic compliments. Discourse Processes.

Pierce, G.R., Sarason, I.G., & Sarason, B.R. (1991). General and relationship-based perceptions of social support: Are two constructs better than one? Journal of Personality and Social Psychology, 61, 1-28-1039.

Pinch (1998). Spontaneous irony production in post-stroke individuals. Dissertation Abstracts International: Section B: The Sciences & Engineering, 58, 5136.

Roy, A.M. (1981). The function of irony in discourse. Text, 4, 407-423.

Sacks, H. (1984 a). Notes on methodology. In Atkinson & Heritage (Eds.), Structures of Social Action: Studies in Conversation Analysis (pp. 21-7). Cambridge, MA: Cambridge University Press.

Schwoebel, J., Dews, S., Winner, E., & Srinivas, K. (2000). Obligatory processing of the literal meaning of ironic utterances: further evidence. Metaphor & Symbol, 15, 47-61.

Schober, M.F. (1998). Different kinds of conversational perspective-taking. In S. Fussell (Ed.) Social and Cognitive Approaches to Interpersonal Communication (pp. 145-174).

Schober, M.F., & Clark, H.H. (1989). Understanding by addressees and overhearers. Cognitive Psychology, 21, 211-232.

Searle, J.R. (1979). Speech Acts. An Essay in the Philosophy of Language. Cambridge, MA: Cambridge University Press.

Seckman, M.A., & Couch, C.J. (1989). Jocularity, sarcasm, and relationships. An empirical study. Journal of Contemporary Ethnography, 18, 327-344.

Slugoski, B.R., & Turnbull, W. (1988). Cruel to be kind and kind to be cruel: sarcasm, banter and social relations. Journal of Language & Social Psychology, 7, 101-121.

Sperber, D. (1984). Verbal irony: pretense or echoic mention? Journal of Experimental

Psychology: General. 113. 130-136.

Sperber, D., & Wilson, D. (1981). Irony and the use-mention distinction. In P. Cole (Ed.), Radical Pragmatics (pp. 295-318). New York: Academic Press.

Sperber, D., & Wilson, D. (1986/1995). Relevance: Communication and cognition (2nd ed.). Cambridge MA: Blackwell.

Stalnaker, R.C. (1978). Assertion. In P. Cole (Ed.), Syntax and semantics 9: Pragmatics (pp. 315-332). New York: Academic Press.

Svebak, S. (1975). Styles of humor and social-images. Scandinavian Journal of Psychology. 16, 79-84.

Tannen, D.F. (1984). Irony and joking. In H.W. Dechert & M. Raupach (Eds.), Conversational Style (pp. 130-143). Hillsdale, NJ: Lawrence Erlbaum Associates, Inc.

Toplak, M., & Katz, A.N. (2000). On the uses of sarcastic irony. Journal of Pragmatics. 32. 1467-1488.

Yin, C., Abrams, L., MacKay, G., & Wulf, G. (1993). Relations between word perception and production: New theory and data on the verbal transformation effect. Journal of Memory and Language. 32. 624-646.

Zajonc, R.B. (1968). Attitudinal effects of mere exposure. Journal of Personality and Social Psychology. Monograph Supplement. 9, 1-27.