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# Lexical Representation of Fact and Opinion[1]

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*This research investigated the lexical properties underlying comprehension that a word represents fact or opinion. In Experiment 1 subjects reliably identified words as either fact or opinion. Bivariate correlations and multiple regression showed that fact/opinion judgments were predicted primarily by ratings of the ease of verifiability of a word's referent and secondarily by the word's literalness, but not by several other lexical attributes: abstractness-concreteness, vagueness-preciseness, and evaluation. Experiment 2 extended the results of the first experiment to an implicit fact/opinion judgment, i.e., the identification of headlines as originating from a newspaper's front page (presumably based primarily upon fact) or from the editorial page (presumably based upon opinion). The headline judgments, also made reliably by subjects, were predicted by the same variables found significant in the first experiment, i.e., by verifiability and literalness, but not by the other lexical properties. Thus, the results of both experiments indicate that the identification of a word as representing fact or opinion is rooted in a word's verifiability and literalness.*

Among its several uses, language may be used to refer to the world (Ogden & Richards, 1923; Lyons, 1977). Because referential statements may serve as an impetus to action (e.g., "the house is on fire," "he is a murderer"), people indicate in statements their certainty that the reference can be substantiated. This may be done explicitly (e.g., "it is a fact that she is a thief" "it is my opinion that she is a thief") or implicitly (e.g., "she is a thief," "she is a bandit"). In recent years considerable attention has been paid to how certain words indicate the likelihood that an assertion of reference is correct (Austin, 1962; Bach & Harnish, 1979; Searle, 1969). Performative verbs (Clark & Clark, 1977, p. 26) convey

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explicitly the confidence (e.g., *guarantee, claim, believe, conjecture, doubt*) that the speaker may have in an utterance. However, almost no work has examined how words implicitly convey the likelihood of substantiating referential claims. The present research had the purpose of elucidating some of the lexical properties by which words implicitly convey the credibility of referential assertions.

Differences in the credibility of referential assertions hinge on the distinction between fact and opinion (Fearnside & Hothes, 1959; Quine & Ullian, 1970). Expressions of fact are demonstrable, while expressions of opinion are not. When applied to words, fact words refer to objects, events, or entities that may be demonstrated (e.g., *parent, felon*), while opinion words convey that the view of an object, event, or entity may be found to be limited to the speaker (e.g., *bum, creep*).

The distinction between fact and opinion words is widely known. Philosophers distinguish between descriptive words that are capable of describing and evaluative words that are able to express our values (Wilson, 1967; Ashby, 1967). In the applied realm, advertising specialists take care to distinguish what language in advertisements stands for fact and what language stands for opinion (Schauer, 1978); indeed, Federal Trade Commission rulings require advertisements to make clear whether claims do or do not have a factual basis. In the law, the fact/opinion distinction has been found to be especially important, concerning judicial decisions generally (Moore, 1981) and libel cases particularly (Sack, 1980). As the United States Supreme Court ruled in *Gertz v. Robert Welch, Inc.* in 1974, it is not only necessary that a statement be defamatory to be libelous but it also must be factually false (Kaplan, 1981). Offensive language that represents only opinion cannot be libelous since opinion is incapable of being proved true or false. To apply these principles, judges have become accustomed to identifying certain words as crucial to deciding whether a passage is libelous. If these key words are evaluated as representing fact, then the passage is potentially libelous (with the court's final decision depending not only on the factual nature of a passage but also on intent, defamatory nature of words, and other factors). If the key words are evaluated as representing opinion only, then the passage is immune from being proved libelous. The courts make determinations about fact and opinion words with awareness that context may render a fact word opinion or an opinion word factual, and that whatever the context, a court's judgment should agree with what the ordinary man or woman regards as fact or opinion.

Although the theoretical precedent for the fact/opinion distinction in philosophy is long-standing, going back to Aristotle (c. 300 B.C./1952), no work has attempted to link philosophic theory about the distinction to

behavior. Similarly, although the fact/opinion distinction is of practical value to the field of advertising, no advertising research has attempted to find out why certain claims are regarded as fact and others as opinion. Finally, although the courts routinely identify words as fact or opinion, either generally or in certain contexts, legal scholars have yet to agree on what is the semantic basis of these fact/opinion judgments (Hill, 1976; Kaplan, 1981; Sack, 1980; Schauer, 1978). Of course, discovery of the bases of semantic judgments is an enterprise that philosophy, advertising, and the law are not normally involved with; such a task is, however, the forte of psycholinguistics (e.g., Herrmann, 1978; Paivo, 1968; Rubin, 1980). Thus, theoretical understanding of how fact and opinion are expressed in language, and practical understanding of fact and opinion words may be identified for legal purposes, may be achieved best by psycholinguistic research.

Inspection of the psycholinguistic literature, however, reveals that no research has been done on the fact/opinion distinction. Consequently, the basis of classifying words as fact or opinion requires investigation. While psycholinguistic research has not been done on the fact/opinion distinction, the literature in and outside of psychology suggests properties that might figure in the process of determining whether a word stands for fact or for opinion. Specifically, six lexical properties (verifiability, literalness, abstract-concreteness, vagueness-preciseness, evaluation, and frequency of usage) might be expected to influence the judgment that a word represents fact or opinion. The reason for hypothesizing that each of these properties might affect the fact/opinion identification process are given below.

Of all these variables, verifiability was hypothesized to be the most important to fact/opinion judgments (Kaplan, 1981; Ashby, 1967). In order that a statement be regarded as potentially factual, the statement and the words it contains must be capable of being verified; i.e., the truth of the statement may be checked. Conversely, a statement whose wording is predominantly opinion cannot be verified, and thus cannot be shown to be factual. Literalness (Moore, 1981) was also hypothesized to be strongly related to judgments that a word represented fact or opinion because words whose probable interpretations are nonliteral thwart determination that they represent a fact.

Other variables might be expected to influence fact/opinion judgments, either in addition to or instead of verifiability and literalness. Since a check on whether a word represents fact or opinion requires information regarding potential referents of the word, fact/opinion identification may rely on a word's abstractness or concreteness (Taylor, 1976; Paivio, 1968) since a fact word is presumably concrete while an

opinion word is not. Similarly, fact/opinion identification may involve assessing the vagueness of words (Beardsley, 1975; Christie, 1964; Stevenson, 1963) since fact words are precise and opinion words are vague (Moore, 1981). Finally, the evaluation of words as positive or negative (Osgood, Suci, & Tannenbaum, 1957) might facilitate identification of fact and opinion words if subjects react to the emotional nature of words when judging their fact/opinion basis. (No predictions were made for the effect of printed frequency on fact/opinion judgments; nevertheless, frequency was included in the study to control for any possible effect of familiarity on some aspect of fact/opinion judgments.)

The present research investigated the semantic bases of fact/opinion judgments in two experiments. In the first experiment, ratings were obtained for fact/opinion judgments and the six lexical properties, whereupon the relationship between fact/opinion judgments and the lexical properties was analyzed by correlations and multiple regression. The second experiment attempted to validate the findings from the first experiment in the manner described below.

## EXPERIMENT 1

### Method

#### *Subject*

A total of 180 undergraduates, in six groups of 30, participated in the experiment for pay of $2 each.

#### *Materials*

Six separate questionnaires were designed. Each questionnaire presented the same list of 89 words, selected to be familiar to the respondents. (The 89 words are shown in Table I.) Across the list, fact and opinion words were represented approximately equally often.

**Table I.** Sample Words and Ratings[a]

| | F/O[b] | II | V | C | P | E | L | WF |
|---|---|---|---|---|---|---|---|---|
| 1. Traitor | 10 | 11 | 4.47 | 3.27 | 2.60 | 6.27 | 2.47 | 02 |
| 2. Punk | 01 | 05 | 3.50 | 3.50 | 3.60 | 5.27 | 5.47 | 02 |
| 3. Felon | 23 | 32 | 5.50 | 2.93 | 3.33 | 5.97 | 1.60 | 01 |
| 4. Dealer | 23 | 24 | 5.37 | 2.83 | 3.93 | 5.07 | 3.87 | 25 |
| 5. Veteran | 26 | 27 | 3.93 | 2.53 | 2.70 | 2.87 | 3.03 | 27 |
| 6. Amateur | 13 | 15 | 5.10 | 3.03 | 3.47 | 4.47 | 3.13 | 25 |
| 7. Bandit | 12 | 11 | 4.57 | 2.87 | 3.57 | 4.97 | 3.50 | 03 |
| 8. Killer | 24 | 28 | 5.80 | 2.17 | 2.00 | 6.60 | 4.87 | 21 |

**Table I.** Continued

| | F/O[b] | II | V | C | P | E | L | WF |
|---|---|---|---|---|---|---|---|---|
| 9. Gangster | 09 | 12 | 4.83 | 2.63 | 2.87 | 5.40 | 2.43 | 02 |
| 10. Thief | 21 | 24 | 5.53 | 2.50 | 2.17 | 6.27 | 3.40 | 08 |
| 11. Hippie | 02 | 06 | 3.73 | 3.20 | 3.53 | 4.57 | 3.77 | 00 |
| 12. Kidnapper | 28 | 31 | 5.80 | 2.47 | 2.07 | 5.70 | 2.33 | 02 |
| 13. Brawler | 14 | 08 | 4.50 | 3.57 | 3.20 | 5.37 | 2.77 | 00 |
| 14. Beggar | 17 | 20 | 5.33 | 2.73 | 2.57 | 5.47 | 4.00 | 02 |
| 15. Quack | 02 | 03 | 3.93 | 4.43 | 4.47 | 5.37 | 5.73 | 09 |
| 16. Tramp | 02 | 05 | 3.77 | 3.63 | 4.27 | 6.00 | 5.37 | 01 |
| 17. Defendant | 25 | 29 | 6.17 | 3.30 | 3.07 | 3.63 | 1.87 | 06 |
| 18. Prowler | 18 | 25 | 5.10 | 2.97 | 3.23 | 5.40 | 2.67 | 01 |
| 19. Juvenile | 19 | 28 | 6.13 | 3.13 | 3.10 | 5.00 | 3.20 | 18 |
| 20. Contestant | 27 | 29 | 6.37 | 3.07 | 3.30 | 3.37 | 1.43 | 05 |
| 21. Romeo | 03 | 02 | 4.47 | 3.17 | 3.30 | 3.40 | 5.43 | 03 |
| 22. Drunk | 13 | 09 | 5.10 | 2.80 | 3.43 | 5.37 | 3.60 | 37 |
| 23. Stud | 04 | 05 | 3.87 | 3.70 | 4.10 | 5.00 | 6.07 | 07 |
| 24. Director | 26 | 28 | 5.80 | 3.27 | 3.27 | 2.63 | 2.07 | 101 |
| 25. Hijacker | 27 | 33 | 6.30 | 2.73 | 2.13 | 5.73 | 2.03 | 02 |
| 26. Racist | 07 | 06 | 4.77 | 3.90 | 3.40 | 6.20 | 2.47 | 01 |
| 27. Teacher | 27 | 30 | 6.33 | 2.60 | 2.83 | 2.57 | 2.60 | 80 |
| 28. Senile | 09 | 07 | 4.43 | 4.87 | 4.73 | 5.07 | 3.67 | 02 |
| 29. Reporter | 28 | 30 | 6.40 | 2.33 | 3.13 | 3.17 | 1.97 | 20 |
| 30. Harlot | 06 | 07 | 4.27 | 3.37 | 3.77 | 5.70 | 3.07 | 00 |
| 31. Creep | 02 | 06 | 2.83 | 4.23 | 4.83 | 5.50 | 5.43 | 10 |
| 32. Candidate | 28 | 31 | 6.33 | 2.90 | 3.30 | 3.37 | 2.10 | 34 |
| 33. Parent | 28 | 26 | 6.63 | 1.60 | 2.13 | 2.87 | 1.90 | 15 |
| 34. Manager | 28 | 29 | 6.17 | 5.73 | 3.23 | 3.17 | 2.20 | 88 |
| 35. Victim | 20 | 27 | 5.33 | 2.90 | 3.53 | 4.37 | 2.63 | 27 |
| 36. Hoodlum | 04 | 10 | 3.90 | 3.90 | 3.90 | 5.40 | 3.43 | 03 |
| 37. Dramatist | 22 | 22 | 4.57 | 3.90 | 3.83 | 3.77 | 2.30 | 02 |
| 38. Martyr | 09 | 06 | 3.93 | 4.83 | 3.37 | 4.27 | 4.80 | 08 |
| 39. Student | 28 | 30 | 6.07 | 2.27 | 2.77 | 2.83 | 2.27 | 131 |
| 40. Leader | 10 | 25 | 5.00 | 3.33 | 3.87 | 1.67 | 2.53 | 74 |
| 41. Officer | 30 | 31 | 6.07 | 2.93 | 3.47 | 2.77 | 2.37 | 101 |
| 42. Official | 27 | 31 | 5.33 | 3.57 | 4.30 | 5.73 | 2.73 | 75 |
| 43. Lady | 15 | 13 | 4.87 | 3.47 | 2.77 | 2.53 | 4.10 | 80 |
| 44. Conductor | 27 | 29 | 5.93 | 3.00 | 2.80 | 3.07 | 2.20 | 25 |
| 45. Member | 26 | 27 | 5.30 | 4.40 | 4.50 | 3.00 | 2.67 | 137 |
| 46. Advisor | 23 | 27 | 5.20 | 3.93 | 3.70 | 1.83 | 2.16 | 01 |
| 47. Spectator | 22 | 30 | 5.40 | 3.00 | 3.43 | 3.53 | 2.23 | 09 |
| 48. Audience | 26 | 27 | 5.90 | 3.93 | 3.87 | 3.40 | 2.23 | 115 |
| 49. Clerk | 30 | 29 | 5.93 | 2.87 | 3.67 | 3.73 | 2.00 | 34 |
| 50. Stickler | 03 | 05 | 3.57 | 4.90 | 4.77 | 4.77 | 3.50 | 02 |
| 51. Crook | 06 | 08 | 4.27 | 3.40 | 3.77 | 6.03 | 4.93 | 03 |
| 52. Bigshot | 00 | 05 | 3.40 | 3.97 | 4.47 | 5.47 | 5.03 | 00 |
| 53. Owner | 29 | 29 | 6.07 | 3.20 | 3.40 | 3.10 | 2.07 | 33 |
| 54. Dictator | 19 | 19 | 5.77 | 2.60 | 2.27 | 5.93 | 3.57 | 07 |
| 55. Writer | 25 | 27 | 5.83 | 3.20 | 3.27 | 2.23 | 2.13 | 73 |

**Table I.** Continued

| | F/O[b] | H | V | C | P | E | L | WF |
|---|---|---|---|---|---|---|---|---|
| 56. Miser | 04 | 03 | 4.40 | 3.57 | 3.00 | 5.30 | 3.97 | 00 |
| 57. Executor | 26 | 22 | 5.93 | 2.93 | 2.60 | 5.30 | 3.10 | 02 |
| 58. Guard | 26 | 31 | 6.10 | 2.37 | 2.67 | 3.77 | 2.80 | 19 |
| 59. Plagiarizer | 18 | 09 | 5.07 | 3.83 | 2.60 | 5.90 | 2.00 | 00 |
| 60. Hangman | 26 | 12 | 5.80 | 2.67 | 2.67 | 6.00 | 3.87 | 01 |
| 61. Saint | 10 | 08 | 2.97 | 5.20 | 3.47 | 2.17 | 5.27 | 16 |
| 62. Bookie | 25 | 13 | 5.47 | 3.03 | 2.80 | 4.50 | 3.33 | 03 |
| 63. Suspect | 18 | 32 | 5.10 | 3.90 | 3.53 | 5.13 | 2.57 | 30 |
| 64. Smuggler | 25 | 27 | 5.03 | 2.97 | 3.20 | 5.67 | 2.73 | 01 |
| 65. Accomplice | 21 | 31 | 4.70 | 3.87 | 3.73 | 5.57 | 2.90 | 02 |
| 66. Convict | 28 | 31 | 6.40 | 2.60 | 2.40 | 6.03 | 2.07 | 06 |
| 67. Heretic | 09 | 30 | 3.90 | 4.37 | 3.77 | 5.53 | 3.27 | 01 |
| 68. Adulterer | 19 | 05 | 5.23 | 3.47 | 3.27 | 5.67 | 2.20 | 02 |
| 69. Swindler | 09 | 12 | 4.40 | 3.80 | 3.77 | 5.83 | 3.47 | 01 |
| 70. Blackmailer | 18 | 18 | 5.20 | 3.33 | 2.93 | 6.20 | 3.30 | 02 |
| 71. Jerk | 02 | 06 | 2.83 | 4.53 | 5.27 | 5.97 | 5.83 | 02 |
| 72. Delinquent | 09 | 18 | 4.07 | 3.87 | 4.30 | 5.67 | 4.33 | 06 |
| 73. Partner | 25 | 28 | 5.40 | 3.67 | 3.43 | 2.93 | 2.47 | 32 |
| 74. Investigator | 28 | 32 | 5.90 | 3.23 | 2.67 | 2.97 | 1.90 | 04 |
| 75. Pimp | 14 | 14 | 5.57 | 2.83 | 2.47 | 6.27 | 3.23 | 03 |
| 76. Offspring | 28 | 27 | 6.63 | 3.13 | 2.73 | 3.20 | 2.17 | 07 |
| 77. Bum | 02 | 06 | 3.87 | 3.60 | 4.90 | 5.33 | 4.93 | 07 |
| 78. Arsonist | 28 | 32 | 5.70 | 3.07 | 2.07 | 6.17 | 1.97 | 00 |
| 79. Liar | 13 | 07 | 4.63 | 3.70 | 2.63 | 6.13 | 3.10 | 03 |
| 80. Bigot | 05 | 03 | 4.40 | 3.73 | 3.43 | 6.30 | 2.77 | 01 |
| 81. Bureaucrat | 21 | 20 | 5.23 | 4.10 | 4.07 | 4.30 | 2.70 | 01 |
| 82. Driver | 29 | 29 | 6.43 | 2.67 | 3.50 | 3.40 | 2.90 | 49 |
| 83. Radical | 04 | 16 | 4.00 | 4.30 | 4.63 | 3.87 | 4.73 | 30 |
| 84. Burglar | 27 | 28 | 5.80 | 2.90 | 2.67 | 5.83 | 2.40 | 01 |
| 85. Agent | 25 | 31 | 4.83 | 3.97 | 4.43 | 3.57 | 3.37 | 44 |
| 86. Assailant | 24 | 29 | 5.57 | 3.47 | 3.27 | 5.90 | 2.07 | 02 |
| 87. Groupie | 02 | 05 | 3.93 | 4.43 | 4.97 | 5.03 | 3.43 | 00 |
| 88. Machine | 27 | 18 | 5.97 | 2.40 | 3.60 | 4.90 | 3.97 | 103 |
| 89. Murderer | 23 | 26 | 5.77 | 2.50 | 1.97 | 6.80 | 3.20 | 19 |

[a]Word ratings were based on a 7-point scale for all independent measures. A rating of 1 indicated that the word was "highly concrete" on the abstractness/concreteness dimension, "highly precise" on the vagueness/preciseness dimension, "extremely positive" on the effectiveness dimension, not "easily verifiable" on the verifiability dimnsion, and "always used literally" on the literalness dimension. The fact/opinion measure was based on classifications of 30 subjects. Fact classifications ranged from 0 to 30, with 30 indicating high fact and 0 indicating high opinion. The front page headline measure was based on classifications of 34 subjects. Front page headline classifications ranged from 0 to 34, with 34 indicating a high number of front page headlines (fact) and 0 indicating a high number of editorials (opinion).

[b]Dimensions: F/O = fact/opinion, H = headlines, V = verifiability, A/C = abstractness/concreteness, V/P = vagueness/preciseness, E = effectiveness, L = literalness, WF = word frequency.

The first questionnaire asked subjects to distinguish fact words from opinion words. The other five questionnaires asked subjects to rate the words on the following dimensions: abstractness/concreteness, vagueness/preciseness, evaluation, verifiability, and literalness.

*Procedure*

Each subject was asked to fill out one of the six questionnaires. Examples were provided with the instructions. One questionnaire asked subjects to classify each word listed as either a fact word or an opinion word. At the beginning, fact and opinion words were defined and examples were provided. Subjects were asked to check one of two possible columns, an *F* column if the word was a fact word (scored as a 1) and an *O* column if the word was an opinion word (scored as a 0).

The other five questionnaires asked subjects to rate the same list of words. Each questionnaire asked for ratings about a different measure on a 7-point scale. On the verifiability questionnaire, a rating of 1 indicated that a word was not easily verifiable, 4 indicated that a word was somewhat verifiable, and 7 indicated that a word was easily verifiable. A verifiable word was described as one whose reference could be readily checked and agreed upon. On the literalness questionnaire, a rating of 1 indicated that a word was always used literally, 4 indicated that a word was used literally about half the time, while a rating of 7 indicated that a word was commonly used nonliterally. Frequency of word usage was drawn from the Kucera and Francis (1967) norms. For the abstractness/concreteness questionnaire, a rating of 1 indicated a highly concrete word, a 4 was a neutral rating, and a rating of 7 indicated that the word was highly abstract. On the vagueness/preciseness questionnaire, a rating of 1 indicated that a word was highly precise, 4 was a neutral rating, and a rating of 7 indicated that the word was highly vague. On the evaluation questionnaire, a rating of 1 indicated that the word elicited an extremely positive response, while a rating of 7 indicated an extremely negative response (a rating of 4 indicated a neutral response). The mean rating per property for each of the 89 words is presented in Table I.

## Results

*Reliabilities*

Split-half reliabilities were computed over the 89 pairs between the halves of the subject sample that rated a particular property. The

reliabilities for the six questionnaires are presented on the diagonal of the matrix presented in Table II. The means and standard deviations of the predictor measures are shown in Table III.

### *Word Ratings*

Inspection of the fact/opinion ratings (Table I) revealed clear and coherent discrimination among the words. Examples of words that were classified by most of the subjects (out of a total possible of 30) as being factual include *officer* (30), *clerk* (30), *owner* (29), *reporter* (28), *student* (28), *parent* (28), *manager* (28), *candidate* (28), and *convict* (28). Examples of words that were rarely classified by subjects as being fact words include *punk* (01), *groupie* (02), *bum* (02), *hippie* (02), *tramp* (02), *creep* (02), *romeo* (03), and *stickler* (03).

### *Correlation and Regression Analyses*

The intercorrelations among all of the measures of Experiment 1 (as well as the Headlines measure, of Experiment 2, which is explained below) are presented in the off-diagonal cells of Table II. To facilitate inspection of the table, the correlations have been reflected so that high verifiability, literalness, concreteness, preciseness, and positive evaluation correspond to a high rating (7). Inspection of the table shows that

**Table II.** Intercorrelations of Fact/Opinion Judgments and Lexical Properties[a]

| | F/O | H | V | L | C | P | E | FQ |
|---|---|---|---|---|---|---|---|---|
| Fact/opinion (F/O) | .867 | .857 | .876 | .716 | .494 | .545 | .355 | .397 |
| Headlines (H) | | .889 | .744 | .672 | .403 | .398 | .360 | .372 |
| Verifiability (V) | | | .786 | .718 | .612 | .631 | .268 | .342 |
| Literalness (L) | | | | .787 | .322 | .434 | .274 | .196 |
| Concreteness (C) | | | | | .697 | .671 | −.033 | .037 |
| Preciseness (P) | | | | | | .615 | −.063 | −.069 |
| Evaluation (E) | | | | | | | .964 | .552 |
| Frequency (FQ) | | | | | | | | |

[a]All correlations in this table that equal or exceed .207 are significant at $p < .05$. The correlations off the diagonal reflect rating scales, with the high end of the scale (value of 7) assigned to fact judgments, front page judgments, high verifiability, high literalness, high abstractness, high vagueness, and positive evaluation. The correlations on the diagonals are the reliabilities of the ratings based on the split-half method (FQ reliability is not provided in the table since this measure was not based on ratings; for information on FQ reliability see Kucera & Francis, 1967).

**Table III.** Means and Standard Deviations for the Independent and Dependent Judgments

| Variables | *Mean* | *SD* |
|---|---|---|
| Fact/opinion | 17.65 | 9.60 |
| Headlines | 15.53 | 10.38 |
| Verifiability | 5.09 | .94 |
| Literalness | 3.83[a] | 1.12 |
| Abstractness/concreteness | 3.64[a] | .73 |
| Vagueness/preciseness | 3.62[a] | .75 |
| Effectiveness | 2.33[a] | 1.32 |
| Frequency | 21.35 | 32.87 |

[a]Means are based on reflected values of the rating scales.

fact/opinion ratings were correlated most strongly with verifiability ($r$ = .876) and literalness ($r$ = .716). As expected, high ratings for factualness corresponded to high ratings for verifiability and for literalness. Further inspection of the table reveals that other properties correlated with fact/opinion ratings, and that some of the independent variables correlated with each other (e.g., verifiability, abstractness/concreteness, vagueness/preciseness, and literalness).

Since the intercorrelations of the independent measures preclude an unequivocal interpretation of the basis of fact/opinion judgments, multiple regression analyses were performed to determine which variable(s) had an effect when the influences of the other variables were statistically controlled. The multiple regressions were computed from the correlations in Table II according to both the forward stepwise procedure and the simultaneous method. The forward stepwise procedure entailed the computation of a multiple $R$ for the independent variable having the largest Pearson $r$ with the dependent variable. The variable making the next largest increase in $R$ was then added, followed by the next largest, and so on, until all six independent variables had been entered.

The left-hand column of Table IV gives the multiple $R$ values as each property was introduced. The superscript $a$ on an $R$ value indicates that this term was significantly larger than the preceding $R$. The stepwise regression revealed that fact/opinion classifications were predicted best by a combination of verifiability and literalness. The next column presents the standardized Beta coefficients for each variable in a simultaneous regression including all of the variables. Inspection of the Beta coefficients shows that the simultaneous analysis agreed with the step-

**Table IV.** Multiple Regression Analyses of the Fact/Opinion Judgments and of Headline Judgments as a Funciton of Six Lexical Properties[c]

| | Fact/opinion judgment | | | Headline judgement | | |
|---|---|---|---|---|---|---|
| Step | Variable entered | Stepwise multiple *R* | Standardized Beta coefficients from simultaneous solution | Variable entered | Stepwise multiple *R* | Standardized Beta coefficients from simultaneous solution |
| 1 | V | .876 | .655[b] | V | .744 | .483[b] |
| 2 | L | .885[a] | .175[b] | L | .770[a] | .288[b] |
| 3 | FQ | .892[a] | .100 | E | .783 | .102 |
| 4 | E | .894 | .080 | FQ | .787 | .089 |
| 5 | P | .895 | .080 | C | .787 | −.051 |
| 6 | C | .896 | .180 | P | .788 | −.051 |

[a]Significant increment in multiple $R$ ($p < .05$).
[b]Significant standardized Beta coefficients.
[c]Regression equations for the two criterion measures:

F/O = +6.66V + 1.49L + .029FQ + .585E − 1.021 P + .231 C + 36.7

H = +5.29V + 2.66L + .798E + .028FQ −.712C + .721P + 29.9

The signs of Beta weights in these coefficients are for reflections of the variables as described in the text.

wise analysis regarding which variables contribute significantly to fact opinion judgments (indicated by a superscript *b* on the Beta coefficient). (The regression functions are shown in footnote *c* at the bottom of Table IV.) Taken together, the two analyses show that both verifiability and literalness contribute to fact/opinion judgments such that verifiability made a larger contribution than literalness.

## Discussion

The results showed that the subjects made fact/opinion judgments reliably, with the strongest predictors of fact/opinion judgments being verifiability, followed by word literalness. The weakest correlation with fact/opinion judgments was evaluation. While fact words were evaluated

as more positive than opinion words, fact/opinion judgments were apparently due to verifiability and literalness. The relatively lower correlation of evaluation with fact/opinion ratings may seem puzzling since the examples of fact words and opinion words appear to differ on evaluative meaning. The explanation of this puzzle is that, while fact/opinion status and evaluation were associated at the extremes of these two variables, there were fact words (as shown in Table I) that were rated as markedly negative (e.g., *kidnapper*) and opinion words that were rated as markedly positive (e.g., *leader*). The substantial dispersion of data in the correlation between fact/opinion status and evaluation rating is consistent with theory about the fact/opinion distinction that holds emotive meaning to be orthogonal to fact/opinion status. However, the size of the correlation in the present study suggests that fact/opinion status and evaluative meaning may be correlated in the language generally. The basis of this relationship is unclear (one possible basis is that people tend to express themselves with opinion terms when referring to topics of negative affect); further research on this relationship is clearly warranted.

While the results of Experiment 1 are consistent with the literature on fact/opinion words, their generality might be questioned. The intent of the present research was to elucidate the lexical properties that convey whether a word is rooted in fact or opinion. Since Experiment 1's criterial measure was obtained by asking subjects to directly classify words as representing fact or opinion, the results may not apply to situations in which a person is not consciously seeking the fact/opinion status of words.

In order to assess the generality of Experiment 1's results, Experiment 2 examined judgments involving a nonexplicit fact/opinion discrimination, e.g., when subjects classify the stimulus words with a distinction that relies on the fact/opinion distinction indirectly. If essentially the same results were obtained with an indirect fact/opinion classification standard, then the results of Experiment 1 would be shown to be reliable and to have wider application.

One distinction that relies on the fact/opinion status of words in an indirect fashion has to do with newspaper headlines. In particular, the front page of a newspaper is conventionally factual, whereas the editorial section is conventionally opinionated. Consequently, Experiment 2 tested the replicability and generality of Experiment 1 by asking subjects to judge whether or not the stimulus words of Experiment 1 would be found in headlines on the front page or on the editorial page.

## EXPERIMENT 2

### Method

*Subject*

Thirty-four undergraduates at Hamilton College participated in the study for pay of $2 each.

*Materials and Procedure*

A headlines questionnaire presented the 89 words used in Experiment 1. Each word was put in sentence form: "Smith is a ———." Alongside each sentence were two columns, one marked "front page" and the other marked "editorial." Subjects were asked to check the column that best fit the headline (scored as 1 if "front page" was marked and 0 if "editorial" was marked).

*Reliabilities*

The split-half reliability of the headlines questionnaires, computed between halves of the sample, was .889. The means and standard deviations of this questionaire are shown in Table III.

### Results

*Word Ratings*

Among the words that were rated as most likely to appear on the front page (the number in parenthesis indicates a classification of "front page" out of a possible total of 34) were *hijacker* (33), *suspect* (32), *arsonist* (32), *kidnapper* (31), *candidate* (31), *officer* (31), *guard* (31), and *convict* (31). Among the words that were least likely to be classified as on the "front page," i.e., as on the "editorial" page, were *punk* (05), *groupie* (05), *quack* (03), *tramp* (05), *romeo* (02), *stickler* (05), *bigshot* (05), *adulterer* (05), *miser* (03), and *stud* (05).

*Correlation and Regression Analyses*

Inspection of Table II reveals that headline judgments were correlated strongly with fact/opinion judgments ($r = .857$). The pattern of

correlations between editorial responses and the other measures was very similar to the results obtained with fact/opinion ratings. Multiple regression analyses showed that headline judgments were best predicted by verifiability and literalness. Inspection of the Beta Coefficients shows that the simultaneous analysis was consistent with the stepwise analysis.

## Discussion

The headline ratings in Experiment 2 were consistent with the fact/opinion ratings made in Experiment 1, indicating that headline judgments had much in common with fact/opinion judgments. These results demonstrate that fact/opinion judgments do not require explicit instructions. However, it should be noted that more research is needed to assess the generality of the present results since both of the present experiments dealt with one list of words that were not selected randomly.

The results of both experiments also indicate that the process of identifying whether a word represents fact or opinion is based primarily on verifiability, and secondarily on word literalness. The relative size of verifiability's contribution to fact/opinion judgments was larger than that for literalness in both experiments (as indicated by the Beta coefficients in the simultaneous solution), although literalness had a relatively larger impact on the headline judgments than on the fact/opinion judgments. The difference across experiments in the relative contribution of these two variables suggests that literalness is less important to fact/opinion judgments than to headline judgments. Literalness might well be expected to play a greater role in headline judgments that draw not only on fact/opinion knowledge but also on knowledge about style in headlines. Nevertheless, more work is needed before the impact of literalness on fact/opinion judgments is fully understood.

The present results are consistent with previous conclusions that verification is the basis of discerning fact from opinion (Wilson, 1967). The defining characteristic of a fact is in its potential to be verified. Fact can be proven, observed, and related to the world. Of course, only statements can be verified (Ashby, 1967); words alone do not refer and are not verifiable without sentential context. Thus, the present findings should be interpreted as only suggestive that fact and opinion is detected in referential assertions.

The results of this research should not be generalized to all decisions involving fact and opinion. For example, they do not address how people decide whether language is defamatory or whether language is libelous. To be defamatory, language must be negative. To be libelous, language

must (among other things; Sack, 1980) be both factual and substantially negative. Had subjects in the present studies identified words as defamatory and nondefamatory or as libelous and nonlibelous, the multiple regressions would presumably have come out differently (with evaluation as the strongest predictor of judgments).

Nevertheless, the present research indicates that people can distinguish between fact and opinion words, making it plausible that communication generally involves distinguishing between these two kinds of words. Lexical representation is, of course, only one of the variables that presumably affect the communication processes conveying fact and opinion. Other variables might enter into the identification of the fact/opinion status of words: Fact/opinion identification might also be affected by a person's attentiveness during reception of language, the authority of the speaker, the kind of sentential context in which fact or opinion words are embedded (Baldinger, 1980; Fearnside & Hothes, 1959; Wilson, 1967). With additional research, it should become possible to delineate more fully the ways by which fact and opinion are expressed and comprehended.

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