

# Psychometric Properties of the Reidenbach-Robin (1990) Multidimensional Ethics Scale (MES)

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Psychometric properties of the 8- and 30-item versions of the Multidimensional Ethics Scale were examined. Factor analyses failed to support the hypothesized 3- and 5-factor structures, revealing a general factor; item response theory analyses using Samejima's (1969) model suggested developing a short-form based on a different subset of items.

Ethical judgment is included as a major element in many decision making models (e.g. Ferrell, Gresham, & Fraedrich, 1989; Hunt & Vitell, 1986; Jones, 1991; Rest, 1986; Street, Douglas, Geiger, & Martinko, 2001); in light of the ethical failings involving individuals in high organizational positions that have received notoriety recently, it clearly remains a topic of importance for both researchers and practitioners. Unfortunately, many of the methods available to *operationalize* ethical perceptions remain troublesome, especially ones involving single-item scales (e.g., Davis, Johnson, & Ohmer, 1998; Frey, 2000a, 2000b; Morris & McDonald, 1995; Tsalikis, Seaton, & Shepherd, 2001).

Reidenbach and Robin (1988, 1990) developed a multi-item inventory designed to tap five domains relevant to ethical decisions: (a) *Deontology* is concerned with one's duty to follow ethical rules; (b) *Utilitarianism* involves acting in a manner that will provide the greatest good for the greatest number; (c) *Relativism* is based on the idea that no universal ethical rules exist; (d) *Egoism* is concerned with promoting an individual's long-term self-interests; and (e) *Justice* is based on the Aristotelian notion that equals should be treated equally. A 30-item pool (denoted here as the MES-30) was developed to assess these five domains; based on exploratory factor analyses of it, an 8-item short form (denoted MES-8) was also produced. Their factor analysis of the MES-8 yielded a three-factor structure (*Moral Equity*, *Relativism*, and *Contractualism*).

## Psychometric Research on the MES

Numerous studies have subsequently examined the psychometric properties of the MES (e.g., Clark & Dawson, 1996; Cohen, Pant, & Sharp, 2001; Davis, Andersen, & Curtis (2001), Cruz, Shafer, & Strawser, 2000; Ellis & Griffith, 2001;

Flory, Phillips, Reidenbach, & Robin, 1992; Henthorne & LaTour, 1995; Humphreys, Robin, Reidenbach, & Moak, 1993; Jones, 1991; LaFleur, Reidenbach, Robin, & Forrest, 1996; LaTour & Henthorne, 1994; Loo, 2004; Razzaque & Hwee, 2002; Reidenbach, Robin, & Dawson, 1991; Robin, King, & Reidenbach, 1996; Robin, Reidenbach, & Babin, 1997; Simpson, Brown, & Widing, 1998; Snipes, LaTour, & Bliss, 1999; Tansey, Hyman, & Brown, 1992). Many involved performing EFA on the MES-8, with several reporting 3-factor solutions consistent with the Reidenbach and Robin results (e.g., Clark & Dawson, 1996; Cohen et al., 2001; Cruz et al., 2000; Ellis & Griffith, 2001; Flory et al., 1992; Humphreys et al., 1993; LaFleur et al., 1996; Loo, 2004; Robin et al., 1996; Robin et al., 1997; Simpson et al., 1998). For example, Robin et al. (1997) examined ratings of 10 different groups using 18 scenarios, concluding that "with few exceptions, these statistics support the over-all fit of the ethics model across the varied situational contexts considered here" (p. 571). However, a 2-factor view of the MES-8 that combines the *Moral Equity* and *Relativism* scales has emerged in some studies (e.g., Henthorne & LaTour, 1995; LaTour & Henthorne, 1994; Razzaque & Hwee, 2002; Reidenbach et al., 1991; Snipes et al., 1999; Tansey et al., 1992), and others have reported results suggesting a 1-factor model (e.g., Tansey et al. (1994).

Regarding the MES-30, less consistent results have been obtained. In a female sample, Tsalikis and Ortiz-Buonafina (1990) found five factors in three scenarios and six factors in a fourth; for males, five emerged for two scenarios and six emerged for the others. Hansen (1992) reported solutions from 5-8 factors, and a 4-factor solution from a subset of the MES-30. Cohen et al. (1993) developed a 20-item subset; after removing items that loaded on more than one factor, analysis the remaining 15 using PC/varimax and the eigenvalues > 1.0 rule for retaining factors yielded solutions that differed appreciably across

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scenario. Cohen et al. concluded that Reidenbach and Robin's items "may well provide the basis of multidimensional scales, but a scale must be constructed and validated for each application studied" (p. 25). Similar results that varied across scenario were reported by Davis et al. (2001) and Kujala (2001).

Unfortunately, numerous concerns can be identified with respect to the above studies. First, Reidenbach and Robin (1988, 1990) designed the MES to be capable of measuring ethical judgments across a range of scenarios. However, during its development and in many subsequent factor analyses, relatively few scenarios were examined, and the factor structure was examined using a *within-scenario* approach (i.e., conducting a separate factor analysis for each scenario). When one's goal involves identifying the general dimensions underlying ethical judgments, such a strategy may well be problematic; arguably, one should instead seek to maximize variability across scenarios in the ratings (particularly, with respect to the situational attributes that influence ethical judgments). For the same reason that one would not attempt to identify the general dimensions of personality by factoring only ratings made of people who are highly introverted, neurotic, disagreeable, conscientious, and open to experience, factoring the MES on a scenario-by-scenario basis is unlikely to identify stable and comprehensive dimensions.

Second, the factor analytic methods that were used have been repeatedly criticized (e.g., see Fabrigar, Wegener, MacCallum, & Strahan, 1999; Ford, MacCallum, & Tait, 1986; Lee & Comrey, 1979; Linn, 1968; Tucker, Koopman, & Linn, 1969). For example, many studies used the principal components model, which assumes that *no measurement errors* or other construct-irrelevant sources of variance exist; such an assumption is quite tenuous for ratings collected using a 1-7 bipolar scale. Many studies relied on the eigenvalues > 1.0 rule to determine the number of factors; this rule has repeatedly been shown to lead to erroneous results. Orthogonal rotations were the norm; unfortunately, if the true latent dimensions are non-orthogonal, such methods may do a poor job recovering that structure (even if the correct number of factors is retained). Thus, although it is possible that the dimensionality of the MES varies across situations, the lack of consistency seen in past studies may simply be illusory, reflecting the use of arbitrary decision rules (particularly eigenvalues > 1.0) that Monte Carlo studies have long shown to be potentially misleading (e.g., Fabrigar et al., 1999; Tucker et al., 1969).

### The Present Study

Given these limitations, we concluded that additional psychometric research on the MES is essential. First, given that past research offers a firm foundation for specifying competing dimensional hypotheses (e.g., for MES-8, 1-, 2-, and 3-factor; for MES-30, 1- and 5-factor), we used *confirmatory* factor analysis (CFA) methods to examine the dimensionality of the MES. Based on past EFA results, we hypothesized that CFA would show good model-fit for the 3-factor model of the MES-8, and the 5-factor view of the MES-30. However, if a 1-factor model can provide levels of model-fit that rival the alternative models, such a finding would directly question the MES's success regarding a primary objective (i.e., providing a *multidimensional* view of ethical perceptions). Likewise, even if the 3- or 5-factor

models fit better than the 1-factor model, if levels of factor correlation become excessive in the higher-dimensional models, such a finding would question the MES's success in meeting its primary goal.

Second, we wanted to increase the amount of true cross-scenario variance. This was accomplished by (a) using a larger number of scenarios (18) than has typically been seen in past studies, (b) attempting to vary the types of ethical decisions depicted via developing scenarios varying in *moral intensity* (see Jones, 1991), and (c) conducting factor analyses at the cross-scenario level. However, the question of whether scenario-specific MES variance exists remains an important one. That is, with the notable exception of Cohen et al. (1993), most researchers have tended to view the MES's goal as being to define a common profile of underlying ethical constructs whose dimensional structure is consistent across situations. In an attempt to determine the degree to which the dimensional structure of the MES is scenario-influenced, we compared the fit of CFA models incorporating only scenario-based factors (i.e., one factor per scenario on which all MES items load) against models that fit only "trait" (MES dimension) factors, and models with both. From the perspective of the MES's developers, one would hope to find that scenario factors do not provide better model-fit than MES factors; however, in light of past research on method-variance (e.g., Harvey, Billings, & Nilan, 1985), we hypothesized that even if good fit for the MES models is obtained, scenario-based factors would further improve fit.

Finally, we wanted to examine the performance of the item-analysis methods used to produce the MES-8. Specifically, to what extent did these methods produce in a short-form that strikes a good balance between including the most discriminating items versus representing all of the constructs in the full pool? Based on our review of the item analysis procedures used in past studies as well as our first hypothesis above, we hypothesized that significant differences would be seen between the MES-8 pool versus a short-form developed using item-response theory (IRT) methods. Because the MES uses 7-point ordered-category scales, we used Samejima's (1969) graded-response IRT model to calibrate the MES-30; items were selected for a short-form version based on both their IRT discrimination (*a*) parameters, as well as their a priori category in the Reidenbach and Robin taxonomy. However, even if the pools formed via PC- versus IRT-based methods are similar, it is still important to use IRT to assess the degree of measurement precision provided by the MES. That is, although many studies (e.g., Loo, 2004) have examined the MES using classical test theory (CTT) reliability estimates, scales typically do not provide consistent measurement precision across the full range of scores (e.g., see Embretson & Reise, 2000; Harvey & Murry, 1994). Thus, we were interested in examining test information functions for the MES to assess both the amount of precision, and consistency of precision across the scale.

## Method

### *Participants and Instruments*

For the MES-8, a sample of  $N = 328$  undergraduates at a large southeastern university participated; for MES-30, a second sample of  $N = 260$  undergraduates participated. In both, extra

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credit toward psychology classes was awarded. The scenarios used in the study are presented in Table 1; Table 2 summarizes the MES items. A bipolar format was used to present each MES item, with seven rating points provided between the poles. Data collection for MES-8 used a paper-and-pencil format; a web-based survey was used in the MES-30 sample, with unanchored radio buttons to record responses. In the MES-30, an additional item was included to collect a global judgment (item 15); hence, MES-30 items are numbered from 0-14 and 15-30. Item responses were scaled such that a '1' represented a low ethical rating, with '7' representing high; in the MES-30 pool, items 1, 2, 9, and 24 were reverse-scored in order to achieve that scaling.

### Procedure

Participants were asked to read scenarios describing business situations with ethical overtones; eighteen scenarios were developed by adapting ones from earlier studies and writing new ones (see Table 1). Three versions of each scenario (control, low, and high moral intensity; see Jones, 1991) were written; in the MES-8 sample, participants were randomly assigned to the control, low, or high intensity condition and saw the 18 scenarios appropriate for their condition in the order shown in Table 1. For MES-30, to reduce the length of the rating task participants were presented with low and high versions of 6 randomly selected scenarios (ordering of each pair was randomized); raters could not progress to the next scenario until they provided non-missing responses for all items. For both samples, in addition to the MES, 13 items measuring perceived moral intensity were also rated as a check on the intensity manipulation.

### Analyses

*MES-8.* CFAs were performed via SAS/PROC CALIS with maximum-likelihood estimation using the covariance matrix; follow-up oblique EFAs were conducted using PROC FACTOR with the common-factor model (squared-multiple correlation communality estimates, oblique Harris-Kaiser rotation with  $p = 0.5$ ). Four "trait" models were examined in the CFAs: (a) the 3-factor Reidenbach and Robin (1988, 1990) model of *Moral Equity*, *Relativism*, and *Contractualism* (see Table 2); (b) a 2-factor model based on studies (e.g., Henthorne & LaTour, 1995) in which the *Moral Equity* and *Relativism* items loaded together; and (c) a general-factor model in which all MES items load on a single dimension. CFAs were conducted on aggregated data (i.e. by averaging ratings of each MES item across the 18 scenarios) and on disaggregated data (i.e., analyzing a 144-by-144 matrix in which each scenario was rated on each MES item). Factor metric was determined by fixing each variance to 1.0. To address the "scenario factor" issue, additional models included an 18-factor model in which the 8 MES items in each scenario loaded on a factor, as well as variants of the "trait" models that included the 18 scenario factors.

*MES-30.* Because each participant rated 44 items on each of 16 scenarios, and because all raters did not rate all possible scenarios, it was not possible to test disaggregated CFA models of the MES-30. To ensure that the ratings were made with maximum rater attention and minimum potential fatigue – while maintaining diversity in rated scenario – the ratings used in the factor analyses were taken from the first scenario presented to

each MES-30 participant. Because these were randomly selected from the 36 possible high/low scenarios for each rater, diversity was assured. CFA models tested 1- and 5-factor models (see Table 2), as well as a 3-factor model in which the item parameters for items in the two MES-30 domains that did not map onto the three MES-8 domains (see Table 2) were estimated using only unique variances. This latter model was included to quantify the impact of moving from a 5- to 3-dimensional view of ethics when the MES-8 was developed. IRT analyses for MES-30 were conducted using MULTILOG 6.0.

## Results and Discussion

*MES-8 Factor Analyses.* Table 3 presents the CFA results for the short-form MES items. As hypothesized, in the aggregated data these results indicate that the 3-factor model provides the best model fit, and that the oblique version fits much better than the orthogonal. However, the high factor correlations between these three supposedly distinct constructs (i.e.,  $r = .57$ ,  $.59$ , and  $.69$  for *Moral Equity – Relativism*, *Moral Equity – Contractualism*, and *Moral Equity – Contractualism*, respectively) raise questions regarding discriminant validity. Consistent with the view that the MES-8 primarily measures a general ethical dimension, the 1-factor model provided fit levels that were relatively close to the 3-factor results, and the EFA results using data aggregated across the 18 scenarios show that the first factor accounts for 81.7% of the total common variance (6.5:1 ratio of first-to-second eigenvalues). Thus, although the scree plot (see Figure 1) indicates a break at three, it also confirms that a powerful first factor is present. Similar results are seen using the data from the MES-30 sample (which does not aggregate over scenario, but does reflect heterogeneity in rated scenario) when factoring only the eight items in common between the two (models 13-14): a virtually identical scree plot is present, and the first factor is even stronger (96.4% of total common variance, 10.4:1 ratio).

Regarding the question of scenario-based variance, the Table 3 results for disaggregated data (i.e., with items representing the 144 combinations of MES and scenario) show that models with only orthogonal and oblique scenario-factors (models 3, 4) provide much stronger fit (e.g., CFI =  $.60$  versus  $.18$ ) than the substantive 3-factor MES models (1, 2). Although improvements in fit are seen when the substantive factors are added to the scenario-factor models (models 5-7), the scenario factors explain considerably more variance in MES ratings than the substantive MES factors when rating targets are not homogeneous. As in the aggregated data, only relatively minor improvements in fit are achieved when comparing the 1- versus 3-factor models (5 vs. 6-7). Thus, empirical support exists in both types of data regarding the superiority of the CFA 3-factor model over the 1- and 2-factor models; however, the EFA results indicate that a 1-factor view of the MES-8 is also plausible (and perhaps preferable, given the strong inter-factor correlations), and the disaggregated-data results indicate that the factor structure of the MES-8 is clearly not invariant across scenarios (even for the 1-factor model).

To further probe the issue of scenario-based factors, Table 4 presents the EFA results for the MES-8 items from the disaggregated data. Given the scree plot results (Figure 2), several breaks were present, and rotated solutions in 2-20 factors

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were examined; the 17-factor solution shown in Table 4 was chosen based on interpretability. Strong similarities were present across EFA solutions, in that factors tended to be scenario-based. Although the first two factors in the Table 4 solution represent a mix of MES items from different scenarios, the remaining factors clearly group MES items by scenario. These results are consistent with the CFA results for models with scenario-based factors: i.e., even though the MES-8 pool is dominated by a general ethical-judgment factor, the content of the scenarios exerts an impact on the way in which each item relates to the underlying ethical construct(s).

*MES-30 Factor Analyses.* Table 5 presents the CFA results for the full MES item pool; as with the results for the MES-8, the 1-factor model provides levels of model-fit that approach the levels seen for the multidimensional model advanced by Reidenbach and Robin (even more closely in this case), and as with the MES-8, the oblique Reidenbach and Robin model suffered from disturbingly high factor correlations (in the present case, factor correlations ranged from .90 to 1.0, with two estimates – involving *Justice-Egoism* and *Justice-Deontology* – exhibiting a Heywood case by attempting to exceed 1.0) that tend to give preference to the 1-factor model on the basis of parsimony and discriminant validity. Consistent with this view, the results for the 3-factor models (which included all items, but viewed items not classified into the three domains in the MES-8 factor structure as being 100% unique variance) show very poor model fit. Clearly, this 30-item pool is dominated by a general factor representing ethical perceptions.

The fit indices for follow-up EFA analyses on the full item pool are shown in Table 6; here, maximum-likelihood EFAs were conducted, and the model-fit indices were examined to shed light on the underlying dimensionality of the item pool. Consistent with the CFA results, and the scree plot in Figure 2, although models in higher dimensionalities improve somewhat over the strong results seen for the 1-factor model, the 30-item pool is clearly dominated by a general factor. Rotated solutions in varying dimensionalities were examined; the 3-factor solution (which was indicated by the SBC results) is presented in Table 7. Although factor correlations are modest (ranging from .23 - .40), the first factor is clearly dominant, and no division of items consistent with the Reidenbach and Robin taxonomy (Table 2) is evident.

*MES-30 IRT.* Table 8 presents the IRT item parameters for the MES-30 items using the GRM. Given the dominant general factor seen above, all MES-30 items (with the exception of 10 – “Prudent,” which had a negative item-total correlation and was therefore excluded) were calibrated using IRT; the test standard-error functions are presented in Figure 3, with item trace lines for the items included in the MES-8 pool shown in Figures 4-11 (Figure 12 shows results for a particularly poor item, “Self-Promoting”). As hypothesized, an inspection of the results in Table 8 and Figures 4-11 shows that although the MES-8 includes many of the items with high  $a$  parameters, it also includes others that rank much lower in terms of discriminating power (items include in the 10-item short form that we would form based on the IRT results are denoted by ‘\*’ in Table 8). Interestingly, the standard-error functions for the 29-item pool and our 10-item subset exhibit respectable measurement precision, with a flat function from approximately 1  $z$  unit above the mean through -3  $z$  units. Although the short form

unavoidably provides less information, it is encouraging to note that a scale one-third the length of the MES-30 still produces consistent precision across a wide range. The results for the MES-8, in contrast, show clearly inferior measurement precision with respect to our 10-item short form, with standard errors over twice the size of those seen for corresponding values produced by the full pool.

## Conclusions

Our results provide a “good news and bad news” view of the MES. On the positive side, the long-form pool was shown via IRT to provide strong measurement precision across a wide range of scale values, and to provide its maximum precision in the range in which it is arguably most important (i.e., for average-and-below ethical perceptions). On the negative side, our results flatly contradicted the view that the MES provides a clearly multidimensional assessment of ethical perceptions; although interpretable higher-dimensionality solutions can be produced, their high cross-scale correlations raise serious concerns regarding discriminant validity. Additionally, even for the 1-factor view of the MES, our results indicate that scenario-based effects may play a significant role. Accordingly, if the MES is to be used as an indicator of one’s general pattern of ethical decisions or perceptions, it would be advisable to collect measures across a wide range of scenarios and then aggregate across scenarios.

## References

- Alexander, C.S. & Becker, H.J. (1978). The use of vignettes in survey research. *Public Opinion Quarterly*, 42, 93-104.
- Clark, J.W., & Dawson, L.E. (1996). Personal religiousness and ethical judgements: An empirical analysis. *Journal of Business Ethics*, 15, 359-372.
- Cohen, J., Pant, L., & Sharp, D. (1993). A validation and extension of a multidimensional ethics scale. *Journal of Business Ethics*, 12, 13-26.
- Cohen, J.R., Pant, L.W., & Sharp, D.J. (2001). An examination of differences in ethical decision-making between Canadian business students and accounting professionals. *Journal of Business Ethics*, 30, 319-336.
- Cruz, C.A., Shafer, W.E., & Strawser, J.R. (2000). A multidimensional analysis of tax practitioner’s ethical judgements. *Journal of Business Ethics*, 24, 223-244.
- Davis, M.A., Andersen, M.G., & Curtis, M.B. (2001). Measuring ethical ideology in business ethics: A critical analysis of the ethics position questionnaire. *Journal of Business Ethics*, 32, 35-53.
- Davis, M.A., Johnson, N.B., & Ohmer, D.G. (1998). Issue-contingent effects on ethical decision making: A cross-cultural comparison. *Journal of Business Ethics*, 17, 373-389.
- Duska, R. (1996). Ethics, law, and the social sciences: Reflections on Robin, King, and Reidenbach. *American Business Law Journal*, 34, 301-316.
- Ellis, T.S., & Griffith, D. (2001). The evaluation of IT ethical scenarios using a multidimensional scale. *The DATA BASE for Advances in Information Systems*, 32, 75-85.
- Embretson, S. E., & Reise, S. P. (2000). *Item response theory for psychologists*. Mahwah, NJ: Erlbaum.
- Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, 4(3), 272-299.

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- Ferrell, O.C., Gresham, L.G., & Fraedrich, J. (1989). A synthesis of ethical decision models for marketing. *Journal of Macromarketing*, 11, 55-64.
- Flory, S.M., Phillips, T.J., Jr., Reidenbach, R.E., & Robin, D.P. (1992). A multidimensional analysis of selected ethical issues in accounting. *The Accounting Review*, 67, 284-302.
- Flory, S.M., Phillips, T.J., Jr., Reidenbach, R.E., & Robin, D.P. (1993). A reply to "A comment on 'A multidimensional analysis of selected ethical issues in accounting'". *Accounting Review*, 68, 417-421.
- Ford, J. K., MacCallum, R. C., & Tait, M. (1986). The application of exploratory factor analysis in applied psychology: A critical review and analysis. *Personnel Psychology*, 39(2), 291-314.
- Frey, B.F. (2000a). The impact of moral intensity on decision making in a business context. *Journal of Business Ethics*, 26, 181-195.
- Frey, B.F. (2000b). Investigating moral intensity with the world-wide web: A look at participant reactions and a comparison of methods. *Behavior Research Methods, Instruments, & Computers*, 32, 423-431.
- Hansen, R.S. (1992). A multidimensional scale for measuring business ethics: A purification and refinement. *Journal of Business Ethics*, 11, 523-534.
- Harvey, R. J., Billings, R. S., & Nilan, K. J. (1985). Confirmatory factor analysis of the Job Diagnostic Survey: Good news and bad news. *Journal of Applied Psychology*, 70, 461-461-468.
- Harvey, R. J., & Murry, W. D. (1994). Scoring the Myers-Briggs Type Indicator: Empirical comparison of preference score versus latent-trait methods. *Journal of Personality Assessment*, 62, 116-129.
- Henthorne, T.L., & LaTour, M.S. (1995). A model to explore the ethics of erotic stimuli in print advertising. *Journal of Business Ethics*, 14, 561-569.
- Humphreys, N., Robin, D.P., Reidenbach, R.E., & Moak, D.L. (1993). The ethical decision making process of small business owner/managers and their customers. *Journal of Small Business Management*, 31, 9-22.
- Hunt, S.D., & Vitell, S. (1986). A general theory of marketing ethics. *Journal of Macromarketing*, 6, 5-16.
- Jones, S.K., & Ponemon, L.A. (1993). A comment on "A multidimensional analysis of selected ethical issues in accounting". *The Accounting Review*, 68, 411-416.
- Jones, T.M. (1991). Ethical decision making by individuals in organizations: An issue-contingent model. *Academy of Management Review*, 16, 366-395.
- Kohlberg, L. (1981). *Essays on moral development. Vol. 1. The philosophy of moral development*. New York: Harper & Row.
- Kujala, J. (2001). A multidimensional approach to Finnish managers' moral decision-making. *Journal of Business Ethics*, 34, 231-254.
- LaFleur, E.K., Reidenbach, R.E., Robin, D.P., & Forrest, P.J. (1996). An exploration of rule configuration effects on the ethical decision processes of advertising professionals. *Journal of the Academy of Marketing Science*, 24, 66-76.
- LaTour, M.S., & Henthorne, T.L. (1994). Ethical judgments of sexual appeals in print advertising. *Journal of Advertising*, 23, 81-90.
- Lee, H. B., & Comrey, A. L. (1979). Distortions in a commonly used factor analytic procedure. *Multivariate Behavioral Research*, 14, 301-321.
- Levin, J. (1965). Three-mode factor analysis. *Psychological Bulletin*, 64, 442-452.
- Linn, R. L. (1968). A Monte Carlo approach to the number of factors problem. *Psychometrika*, 33(1), 37-71.
- Loo, R. (2004). Support for Reidenbach and Robin's (1990) eight-item multidimensional ethics scale. *The Social Science Journal*, 41, 289-294.
- Morris, S.A., & McDonald, R.A. (1995). The role of moral intensity in moral judgments: An empirical investigation. *Journal of Business Ethics*, 14, 715-726.
- Razzaque, M.A., & Hwee, T.P. (2002). Ethics and purchasing dilemma: A Singaporean view. *Journal of Business Ethics*, 35, 307-326.
- Reidenbach, R.E., & Robin, D.P. (1988). Some initial steps toward improving the measurement of ethical evaluations of marketing activities. *Journal of Business Ethics*, 7, 871-879.
- Reidenbach, R.E., & Robin, D.P. (1990). Toward the development of a multidimensional scale for improving evaluations of business ethics. *Journal of Business Ethics*, 9, 639-653.
- Reidenbach, R.E., & Robin, D.P. (1993). A comment on 'A multidimensional scale for measuring business ethics: A purification and refinement'. *Journal of Business Ethics*, 12, 663-664.
- Reidenbach, R.E., Robin, D.P., & Dawson, L. (1991). An application and extension of a multidimensional ethics scale to selected marketing practices and marketing groups. *Journal of the Academy of Marketing Science*, 19(2), 83-92.
- Rest, J.R. (1986). *Moral development: Advances in research and theory*. New York: Praeger.
- Robin, D.P., King, E.W., & Reidenbach, R.E. (1996). The effect of attorneys' perceived duty to client on their ethical decision making process. *American Business Law Journal*, 34, 277-299.
- Robin, D.P., Reidenbach, R.E., & Babin, B.J. (1997). The nature, measurement, and stability of ethical judgments in the workplace. *Psychological Reports*, 80, 563-580.
- Samejima, F. (1969). Estimation of latent ability using a response pattern of graded scores. *Psychometrika Monograph Supplement*, 34 (4, Pt. 2).
- Simpson, P.M., Brown, G., & Widing, R.E., II. (1998). The association of ethical judgment of advertising and selected advertising effectiveness response variables. *Journal of Business Ethics*, 17, 125-136.
- Skipper, R., & Hyman, M.R. (1993). On measuring ethical judgments. *Journal of Business Ethics*, 12, 535-545.
- Snipes, R.L., LaTour, M.S., & Bliss, S.J. (1999). A model of the effects of self-efficacy on the perceived ethicality and performance of fear appeals in advertising. *Journal of Business Ethics*, 19, 273-285.
- Street, M.D., Douglas, S.C., Geiger, S.W., & Martinko, M.J. (2001). The impact of cognitive expenditure on the ethical decision-making process: The cognitive elaboration model. *Organizational Behavior and Human Decision Processes*, 86, 256-277.
- Tansey, R., Brown, G., Hyman, M.R., & Dawson, L.E., Jr. (1994). Personal moral philosophies and the moral judgments of salespeople. *Journal of personal selling & sales manager*, 14, 59-75.
- Tansey, R., Hyman, M.R., & Brown, G. (1992). Ethical judgments about wartime ads depicting combat. *Journal of Advertising*, 21, 57-74.
- Tsalikis, J., & Ortiz-Buonafina, M. (1990). Ethical beliefs' differences of males and females. *Journal of Business Ethics*, 9, 509-517.
- Tsalikis, J., Seaton, B., & Shepherd, P.L. (2001). Relativism in ethical research: A proposed model and mode of inquiry. *Journal of Business Ethics*, 32, 231-246.
- Tucker, L.R. (1966). Some mathematical notes on three-mode factor analysis. *Psychometrika*, 31, 279-311.
- Tucker, L. R., Koopman, R. F., & Linn, R. L. (1969). Evaluation of factor analytic research procedures by means of simulated correlation matrices. *Psychometrika*, 34(4), 421-459.

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Table 1. Reidenbach and Robin's Items for Full and Short-Form (italicized) MES Versions

### *1. Justice*

***Just/Unjust***

***Fair/Unfair***

Results/Does not result in an equal distribution of good and bad

### *2. Relativist*

***Culturally acceptable/Unacceptable***

Individually acceptable/Unacceptable

Acceptable/Unacceptable to people I most admire

***Traditionally acceptable/Unacceptable***

***Acceptable/Unacceptable to my family***

### *3. Egoism*

Self promoting/Not self promoting

Selfish/Not selfish

Self sacrificing/Not self sacrificing

Prudent/not prudent

Under no moral obligation/Morally obligate to act otherwise

Personally satisfying/Not personally satisfying

In the best interests of the company/Not in the best interests of the company

### *4. Utilitarian*

Efficient/Inefficient

OK/Not OK if actions can be justified by their consequences

Compromises/Does not compromise an important rule by which I live

On balance, tends to be good/Bad

Produces the greatest/Least utility

Maximizes/Minimizes benefits while minimizes/maximizes harm

Leads to the greatest/Least good for the greatest number

Results in a positive/Negative cost-benefit ratio

Maximizes/Minimizes pleasure

### *5. Deontology*

***Violates/Does not violate an unwritten contract***

Violates/Does not violate my ideas of fairness

***Morally right/Not morally right***

Obligated/Not obligated to act this way

***Violates/Does not violate an unspoken promise***

Duty bound to act this way/Not duty bound to act this way

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Table 2. *Scenarios Used in Study*

Name (source)	Low Intensity	Control	High Intensity
Gifts (new)	As a Media Buyer at an advertising agency, Nancy Brown negotiates the price of television airtime and then places buys on behalf of the agency's clients. The agency has a policy against employees accepting gifts from suppliers. Today a courier delivered a gift to Nancy from a salesperson at one of the TV stations. The gift is a paperback copy of a Michael Crichton novel. Nancy has decided not to tell her boss about the gift, and plans on keeping it.	As a Media Buyer at an advertising agency, Nancy Brown negotiates the price of television airtime and then places buys on behalf of the agency's clients. The agency has a policy against employees accepting gifts from suppliers. Today a courier delivered a gift to Nancy from a salesperson at one of the TV stations. Nancy has decided not to tell her boss about the gift, and plans on keeping it.	As a Media Buyer at an advertising agency, Nancy Brown negotiates the price of television airtime and then places buys on behalf of the agency's clients. The agency has a policy against employees accepting gifts from suppliers. Today a courier delivered a gift to Nancy from a salesperson at one of the TV stations. The gift is a pair of one-carat diamond stud earrings. Nancy has decided not to tell her boss about the gift, and plans on keeping it.
Trade Show (adapted from Dabholkar & Kellaris, 1992, p. 325)	While attending a trade show, K. Nagle passed by a competitor's exhibit, which was temporarily unattended. K. took the four remaining free product samples from the competitor's booth, brought them out behind the convention center, and threw them out. The competitor returned to the booth and discovered that all of the product samples were gone and no more were available for prospective buyers attending the show.	While attending a trade show, K. Nagle passed by a competitor's exhibit, which was temporarily unattended. K. took all of the remaining free product samples from the competitor's booth, brought them out behind the convention center, and threw them out. The competitor returned to the booth and discovered that all of the product samples were gone and no more were available for prospective buyers attending the show.	While attending a trade show, K. Nagle passed by a competitor's exhibit, which was temporarily unattended. K. took boxes with the remaining 500 free product samples from the competitor's booth, brought them out behind the convention center, and threw them out. The competitor returned to the booth and discovered that all of the product samples were gone and no more were available for prospective buyers attending the show.
Office Supplies (new)	Steve Atkins is the assistant in charge of ordering office supplies for a large accounting firm. In this week's shipment of supplies Steve discovered a box of staples that was not ordered, and that did not appear on the invoice. Steve decided not to tell the office supply company about the mistake and took the staples home.	Steve Atkins is the assistant in charge of ordering office supplies for a large accounting firm. In this week's shipment of supplies Steve discovered an item that was not ordered, and that did not appear on the invoice. Steve decided not to tell the office supply company about the mistake and took the item home.	Steve Atkins is the assistant in charge of ordering office supplies for a large accounting firm. In this week's shipment of supplies Steve discovered a laptop computer that was not ordered, and that did not appear on the invoice. Steve decided not to tell the office supply company about the mistake and took the computer home.
New Market (adapted from Fritzsche & Becker, 1984, p. 169)	F. Connelly's firm is considering opening a facility in an underdeveloped country that appears to be poised for rapid growth in sales of consumer goods to the populace. Initial contacts with officials in the country left no doubt that approval of	F. Connelly's firm is considering opening a facility in an underdeveloped country that appears to be poised for rapid growth in sales of consumer goods to the populace. Initial contacts with officials in the country left no doubt that approval of the firm's entry into the	F. Connelly's firm is considering opening a facility in an underdeveloped country that appears to be poised for rapid growth in sales of consumer goods to the populace. Initial contacts with officials in the country left no doubt that approval of the firm's

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	<p>the firm’s entry into the market would require a contribution to the ruling political party. Other firms have also attempted to enter the market, some of which have made a contribution, and some of which have cancelled their plans because of their refusal to pay a contribution. As CEO of the firm, F. has approved payment of the contribution.</p>	<p>market would require a contribution to the ruling political party. As CEO of the firm, F. has approved payment of the contribution.</p>	<p>entry into the market would require a contribution to the ruling political party. Every other firm that has attempted to enter the market has decided against it, because making a contribution was a business practice they did not wish to engage in. As CEO of the firm, F. has approved payment of the contribution.</p>
<p>Lite Foods (adapted from Hoffman, 1998, p. 71)</p>	<p>Greg Vogel is the Marketing Director for a company that makes packaged foods that are relatively high in calories, which is hurting sales. Efforts to significantly reduce calories have adversely affected the taste. The government has regulations concerning the use of the word “light” in marketing food products. Industry practices vary greatly in the use of the word “lite” as a way to get around these regulations. Greg has decided to introduce a line of “lite” products that will contain only slightly fewer calories, but will be lighter in color, than the company’s regular products.</p>	<p>Greg Vogel is the Marketing Director for a company that makes packaged foods that are relatively high in calories, which is hurting sales. Efforts to significantly reduce calories have adversely affected the taste. The government has regulations concerning the use of the word “light” in marketing food products. To get around these regulations, Greg has decided to introduce a line of “lite” products that will contain only slightly fewer calories, but will be lighter in color, than the company’s regular products.</p>	<p>Greg Vogel is the Marketing Director for a company that makes packaged foods that are relatively high in calories, which is hurting sales. Efforts to significantly reduce calories have adversely affected the taste. The government has regulations concerning the use of the word “light” in marketing food products. The industry highly disapproves of the use of the word “lite” as a way to get around these regulations. Greg has decided to introduce a line of “lite” products that will contain only slightly fewer calories, but will be lighter in color, than the company’s regular products.</p>
<p>Computer Software (new)</p>	<p>Meg Dempsey decided to buy a new computer. She was able to purchase a state-of-the-art computer at a very affordable price, but the trade-off for getting a low price was that it came with a very limited amount of pre-loaded software. While her co-workers have mixed opinions about using unlicensed software, Meg has decided to install software, licensed exclusively to her workplace, onto her home computer for personal use.</p>	<p>Meg Dempsey decided to buy a new computer. She was able to purchase a state-of-the-art computer at a very affordable price, but the trade-off for getting a low price was that it came with a very limited amount of pre-loaded software. Meg has decided to install software, licensed exclusively to her workplace, onto her home computer for personal use.</p>	<p>Meg Dempsey decided to buy a new computer. She was able to purchase a state-of-the-art computer at a very affordable price, but the trade-off for getting a low price was that it came with a very limited amount of pre-loaded software. Even though her co-workers strongly support the purchase of a separate license for every computer on which a piece of software will be loaded, Meg has decided to install software, licensed exclusively to her workplace, onto her home computer for personal use.</p>

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<p>Delivery Date (adapted from Reidenbach, Robin, &amp; Dawson, 1991, p. 85)</p>	<p>Nearing the end of the month, Wayne Hall, a salesperson for a wholesale garden supply company, saw that he was just short of making his monthly sales budget. Wayne's commission rate on all of his monthly sales is higher if he exceeds his budget. In order to close a sale that would put him over his goal, Wayne promised a client a delivery date that his factory has a 10% chance of not being able to meet.</p>	<p>Nearing the end of the month, Wayne Hall, a salesperson for a wholesale garden supply company, saw that he was just short of making his monthly sales budget. Wayne's commission rate on all of his monthly sales is higher if he exceeds his budget. In order to close a sale that would put him over his goal, Wayne promised a client a delivery date that he is unsure his factory will be able to meet.</p>	<p>Nearing the end of the month, Wayne Hall, a salesperson for a wholesale garden supply company, saw that he was just short of making his monthly sales budget. Wayne's commission rate on all of his monthly sales is higher if he exceeds his budget. In order to close a sale that would put him over his goal, Wayne promised a client a delivery date that his factory has a 90% chance of not being able to meet.</p>
<p>Christmas Toy (adapted from Dawson, 1995, p. 62)</p>	<p>C. Kemp is the manager of a local toy store. The hottest Christmas toy of the year is the new "Peter Panda" stuffed animal, which is in great demand, and almost impossible to find. The store recently received a shipment of 12 "Peter Pandas", all of which are promised to people who previously stopped in the store to place a deposit to reserve one. The manufacturer has assured C. that the store will get another shipment before Christmas. C. decided to personally purchase one of the twelve as a Christmas present for a friend's child.</p>	<p>C. Kemp is the manager of a local toy store. The hottest Christmas toy of the year is the new "Peter Panda" stuffed animal, which is in great demand, and almost impossible to find. The store recently received a shipment of 12 "Peter Pandas", all of which are promised to people who previously stopped in the store to place a deposit to reserve one. C. decided to personally purchase one of the twelve as a Christmas present for a friend's child.</p>	<p>C. Kemp is the manager of a local toy store. The hottest Christmas toy of the year is the new "Peter Panda" stuffed animal, which is in great demand, and almost impossible to find. The store recently received a shipment of 12 "Peter Pandas", all of which are promised to people who previously stopped in the store to place a deposit to reserve one. The manufacturer has told C. that the store will most likely not get another shipment before Christmas. C. decided to personally purchase one of the twelve as a Christmas present for a friend's child.</p>
<p>Engine Control Settings (adapted from Zych, 1999, p. 258)</p>	<p>Laura Elkins has been notified that some of the used cars she is selling were manufactured with incorrect engine control settings. The error will not be noticed by most of her customers since it does not affect the performance of the cars. However, the error can create emissions levels that are higher than those allowed by environmental regulations, which may be detected during state emissions inspection programs. The error only impacts emissions under extremely high temperature conditions, and the dealership is located in Alaska. Laura has decided not to tell her buyers of the problem.</p>	<p>Laura Elkins has been notified that some of the used cars she is selling were manufactured with incorrect engine control settings. The error will not be noticed by most of her customers since it does not affect the performance of the cars. However, the error can create emissions levels that are higher than those allowed by environmental regulations, which may be detected during state emissions inspection programs. Laura has decided not to tell her buyers of the problem.</p>	<p>Laura Elkins has been notified that some of the used cars she is selling were manufactured with incorrect engine control settings. The error will not be noticed by most of her customers since it does not affect the performance of the cars. However, the error can create emissions levels that are higher than those allowed by environmental regulations, which may be detected during state emissions inspection programs. The error impacts emissions under extremely high temperature conditions, and the dealership is located in the Arizona desert. Laura has decided not to tell her buyers of the problem.</p>
<p>Waste Disposal</p>	<p>Amy Mullins is the President of a medium-</p>	<p>Amy Mullins is the President of a medium-</p>	<p>Amy Mullins is the President of a medium-</p>

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(adapted from McCabe, Dukerich & Dutton, 1991, p. 954)	sized medical waste disposal company. A recent internal study conducted by the company has uncovered evidence that certain materials disposed of by the firm may pose an environmental hazard to some sensitive wetlands. The report states that negative effects on the wetlands will not occur for another 20 years. Amy has decided to allow the current disposal procedure to continue.	sized medical waste disposal company. A recent internal study conducted by the company has uncovered evidence that certain materials disposed of by the firm may pose an environmental hazard to some sensitive wetlands. Amy has decided to allow the current disposal procedure to continue.	sized medical waste disposal company. A recent internal study conducted by the company has uncovered evidence that certain materials disposed of by the firm may pose an environmental hazard to some sensitive wetlands. The report states that negative effects on the wetlands are already occurring. Amy has decided to allow the current disposal procedure to continue.
Retirement Benefits (adapted from Jones, 1991, p. 376)	P. Turner is the Chief Executive Officer for an airline that has been going through rough financial times in recent years. P. had the finance department run the numbers on a variety of ways to cut overhead expenses, after which they made three recommendations. P. has chosen the recommendation to cut employee retirement benefits, a plan which will be phased in over the next 20 years.	P. Turner is the Chief Executive Officer for an airline that has been going through rough financial times in recent years. P. had the finance department run the numbers on a variety of ways to cut overhead expenses, after which they made three recommendations. P. has chosen the recommendation to cut employee retirement benefits.	P. Turner is the Chief Executive Officer for an airline that has been going through rough financial times in recent years. P. had the finance department run the numbers on a variety of ways to cut overhead expenses, after which they made three recommendations. P. has chosen the recommendation to cut employee retirement benefits of current and future retirees effective immediately.
Undercoating (adapted from Zych, 1999, p. 258)	Bob Gibson, the owner of an automobile dealership, has just become aware of a problem with the finish on one of the current model cars, which is not covered under the car's warranty. The Department of Public Works is using a type of road salt that may cause the paint under the car to start to blister after 15 years of exposure to the salt. Because of the location on the car, the chipping will not be readily visible. Bob decides not to tell his customers.	Bob Gibson, the owner of an automobile dealership, has just become aware of a problem with the finish on one of the current model cars, which is not covered under the car's warranty. The Department of Public Works is using a type of road salt that may cause the paint under the car to blister. Because of the location on the car, the chipping will not be readily visible. Bob decides not to tell his customers.	Bob Gibson, the owner of an automobile dealership, has just become aware of a problem with the finish on one of the current model cars, which is not covered under the car's warranty. The Department of Public Works is using a type of road salt that may cause the paint under the car to start to blister after one season of exposure to the salt. Because of the location on the car, the chipping will not be readily visible. Bob decides not to tell his customers.
Housing Development (adapted from Fritzsche, 1995, p. 913)	Ed Worley recently purchased a large tract of land in an undeveloped country for a new housing development his firm is about to start building. After making the purchase he discovered that the land is in an area that has flooded in the past. Ed has decided to proceed with the housing development anyway.	Ed Worley recently purchased a large tract of land for a new housing development his firm is about to start building. After making the purchase he discovered that the land is in an area that has flooded in the past. Ed has decided to proceed with the housing development anyway.	Ed Worley recently purchased a large tract of land in his home town for a new housing development his firm is about to start building. After making the purchase he discovered that the land is in an area that has flooded in the past. Ed has decided to proceed with the housing development anyway.
Sleepwear	T. Smith is the Chief Operating Officer of	T. Smith is the Chief Operating Officer of a	T. Smith is the Chief Operating Officer of a

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<p>(adapted from Harris, 1990, p. 748)</p>	<p>a manufacturer of children’s sleepwear. The company responded to an appeal by the National Safety Commission and treated its entire fall line with the flame retardant agent TRIS. Research has since found TRIS to be a carcinogenic agent. T. has approved the sale of the entire lot of unsold inventory to a third-world country.</p>	<p>manufacturer of children’s sleepwear. The company responded to an appeal by the National Safety Commission and treated its entire fall line with the flame retardant agent TRIS. Research has since found TRIS to be a carcinogenic agent. T. has approved the sale of the entire lot of unsold inventory.</p>	<p>manufacturer of children’s sleepwear. The company responded to an appeal by the National Safety Commission and treated its entire fall line with the flame retardant agent TRIS. Research has since found TRIS to be a carcinogenic agent. T. has approved the sale of the entire lot of unsold inventory to a retail store in town.</p>
<p>Used Car (adapted from Reidenbach, Robin, &amp; Dawson, 1991, p. 85)</p>	<p>Hannah Rollins recently purchased a new car. While she originally desired to trade in her old car at the dealership where she bought her new car, a serious engine problem was detected when the car was being appraised, so the price the dealership offered was quite low. Hannah decided that she could get a higher price if she sold it on her own, so she placed an ad in the paper. When a buyer from out-of-state came to look at her car, Hannah decided not to mention the engine problem.</p>	<p>Hannah Rollins recently purchased a new car. While she originally desired to trade in her old car at the dealership where she bought her new car, a serious engine problem was detected when the car was being appraised, so the price the dealership offered was quite low. Hannah decided that she could get a higher price if she sold it on her own, so she placed an ad in the paper. When a buyer came to look at the car, Hannah decided not to mention the engine problem.</p>	<p>Hannah Rollins recently purchased a new car. While she originally desired to trade in her old car at the dealership where she bought her new car, a serious engine problem was detected when the car was being appraised, so the price the dealership offered was quite low. Hannah decided that she could get a higher price if she sold it on her own, so she placed an ad in the paper. When a friend who was in the market for a used car came to look at her car, Hannah decided not to mention the engine problem.</p>
<p>Warranty (adapted from Jones, 1991, p. 377)</p>	<p>David Fleming is a Claims Adjuster for a company that manufactures roofing materials. The company is aware of a defect in roofing tiles that they manufactured over the past year. The wording of the warranty on the tiles is vague enough to provide a loophole by which David may deny warranty coverage to customers. Currently there are \$100,000 in outstanding warranty claims regarding the defective roofing tiles, filed by 10,000 individual homeowners with a claim of \$10.00 each. David has decided to use the loophole to deny coverage on all of the outstanding claims.</p>	<p>David Fleming is a Claims Adjuster for a company that manufactures roofing materials. The company is aware of a defect in roofing tiles that they manufactured over the past year. The wording of the warranty on the tiles is vague enough to provide a loophole by which David may deny warranty coverage to customers. Currently there are \$100,000 in outstanding warranty claims regarding the defective roofing tiles, filed by individual homeowners. David has decided to use the loophole to deny coverage on all of the outstanding claims.</p>	<p>David Fleming is a Claims Adjuster for a company that manufactures roofing materials. The company is aware of a defect in roofing tiles that they manufactured over the past year. The wording of the warranty on the tiles is vague enough to provide a loophole by which David may deny warranty coverage to customers. Currently there are \$100,000 in outstanding warranty claims regarding the defective roofing tiles, filed by 10 individual homeowners with a claim of \$10,000 each. David has decided to use the loophole to deny coverage on all of the outstanding claims.</p>
<p>Cutting Expenses (new)</p>	<p>Regan Preston is the Production Manager for a company that manufactures gift bags. Sales have been weaker than expected, and Regan has been told to review her department’s budget and find some way to</p>	<p>Regan Preston is the Production Manager for a company that manufactures gift bags. Sales have been weaker than expected, and Regan has been told to review her department’s budget and find some way to cut \$40,000 in</p>	<p>Regan Preston is the Production Manager for a company that manufactures gift bags. Sales have been weaker than expected, and Regan has been told to review her department’s budget and find some way to</p>

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	cut \$40,000 in expenses over the next four months. Regan has decided to temporarily cut 100 employees' salaries by \$400 each (\$100 per month for four months).	expenses over the next four months. Regan has decided to temporarily cut \$40,000 from employee salaries.	cut \$40,000 in expenses over the next four months. Regan has decided to temporarily cut five of her employees' salaries by \$8,000 each (\$2,000 per month for four months).
Product Shortage (new)	J. Lambert is the Shipping Supervisor for a company with the exclusive U.S. distribution contract for a product manufacture overseas. Due to a strike at the factory, orders have been unfulfilled for the past 6 months. Recently the strike ended, and today a shipment arrived with exactly enough units to fulfill the backorders. Due to supply and demand, prices have gone up since the backorders were placed. J. has decided to short-ship the backorders of one hundred customers by 200 units each in order to keep 200,000 units on the shelf for future orders at the higher price.	J. Lambert is the Shipping Supervisor for a company with the exclusive U.S. distribution contract for a product manufactured overseas. Due to a strike at the factory, orders have been unfulfilled for the past 6 months. Recently the strike ended, and today a shipment arrived with exactly enough units to fulfill the backorders. Due to supply and demand, prices have gone up since the backorders were placed. J. has decided to short-ship backorders in order to keep some units on the shelf for future orders at the higher price.	J. Lambert is the Shipping Supervisor for a company with the exclusive U.S. distribution contract for a product manufactured overseas. Due to a strike at the factory, orders have been unfulfilled for the past 6 months. Recently the strike ended, and today a shipment arrived with exactly enough units to fulfill the backorders. Due to supply and demand, prices have gone up since the backorders were placed. J. has decided to short-ship the backorders of two customers by 100,000 units each in order to keep 200,000 units on the shelf for future orders at the higher price.

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Table 3. *Goodness-of-Fit Indices for MES-8 Item Pool*

Model	$\chi^2$	DF	GFI	AGFI	CFI	NNFI
1. 3-factor orthogonal, disaggregated data	55394.8929	10152	0.2219	0.1999	0.1834	0.1718
2. 3-factor oblique, disaggregated data	55084.3066	10149	0.2218	0.1995	0.1889	0.1772
3. 18 scenario factors (orthogonal), disaggregated data	33696.9537	10152	0.2764	0.2559	0.5750	0.5690
4. 18 scenario factors (oblique), disaggregated data	32290.6738	9999	0.2861	0.2546	0.5976	0.5857
5. 18 scenario factors plus 1 general factor (oblique within scenarios), disaggregated data	27707.7758	9855	0.4241	0.3899	0.6778	0.6633
6. 3-factor plus 18 scenario factors (all orthogonal), disaggregated data	26439.7645	10008	0.4760	0.4533	0.7034	0.6949
7. 3-factor plus 18 scenario factors (oblique within cluster), disaggregated data	25004.9049	9852	0.5053	0.4757	0.7265	0.7142
8. Aggregated data, 1-factor model	786.0004	20	0.6831	0.4297	0.7261	0.6166
9. Aggregated data, 3-factor orthogonal model	450.4552	20	0.7482	0.5467	0.8461	0.7845
10. Aggregated data, 3-factor oblique model	103.7641	17	0.9270	0.8455	0.9690	0.9489
11. Aggregated data, 2-factor orthogonal	591.1287	20	0.7445	0.5401	0.7958	0.7141
12. Aggregated data, 2-factor oblique	390.5119	19	0.8004	0.6219	0.8672	0.8042
13. 3-factor using only 8 short-form items from MES-30, orthogonal	250.0701	20	0.8090	0.6562	0.7872	0.7020
14. 3-factor using only 8 short-form items from MES-30, oblique	39.3912	17	0.9628	0.9211	0.9793	0.9659

*Note.* GFI = goodness of fit index; AGFI = adjusted GFI; CFI = Bentler's comparative fit index; NNFI = Bentler & Bonnet non-normed fit index. Models 1-12 are based on data from the MES-8 sample; Models 13-14 are based on the MES-30 sample, using only the 8 items common to both.

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Table 4. *Rotated 17-Factor Pattern for 8-Item MES in 18 Scenarios, Study 1*

		Factor																	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
mes9_5	ENGINE: Culturally Acceptable	0.67	0.08	0.06	-0.07	0.04	-0.05	0.18	0.09	-0.12	-0.00	0.12	0.15	0.14	-0.10	-0.15	0.03	0.00	
mes12_5	UNDERCOAT: Culturally Acceptable	0.62	-0.05	-0.00	0.06	0.08	0.00	-0.02	-0.09	-0.03	0.00	0.01	0.04	0.51	-0.02	0.02	0.01	0.00	
mes15_5	USED CAR: Culturally Acceptable	0.62	0.00	0.01	0.01	0.04	-0.04	0.38	-0.10	0.02	-0.00	0.00	-0.10	-0.07	0.04	0.10	-0.02	0.06	
mes9_6	ENGINE: Traditionally Acceptable	0.62	0.11	0.09	-0.11	0.01	0.00	0.25	0.12	-0.07	0.02	0.12	0.13	0.06	-0.02	-0.18	0.04	-0.01	
mes15_6	USED CAR: Traditionally Acceptable	0.58	-0.06	0.01	0.00	0.07	-0.01	0.44	-0.02	0.05	-0.09	0.02	-0.12	-0.03	0.11	0.11	-0.00	0.07	
mes12_6	UNDERCOAT: Traditionally Acceptable	0.57	-0.07	0.00	0.07	0.05	0.05	-0.00	-0.06	0.04	-0.01	0.06	-0.00	0.51	0.07	0.04	0.02	-0.00	
mes16_5	WARRANTY: Culturally Acceptable	0.51	0.04	-0.04	0.02	0.14	0.07	0.02	-0.03	0.00	0.07	-0.00	0.12	-0.07	0.06	0.10	-0.03	0.43	
mes16_6	WARRANTY: Traditionally Acceptable	0.48	0.04	-0.06	0.04	0.15	0.05	0.11	-0.02	0.06	0.03	0.04	0.07	-0.11	0.14	0.13	-0.02	0.37	
mes3_5	OFFICE: Culturally Acceptable	0.39	0.36	0.04	-0.00	0.01	-0.01	-0.06	0.07	-0.08	0.19	-0.08	-0.12	0.17	0.24	0.05	0.05	-0.20	
mes6_5	SOFTWARE: Culturally Acceptable	0.37	0.28	-0.03	0.20	0.06	0.17	0.09	-0.23	-0.02	0.01	0.03	0.03	-0.01	-0.05	0.05	-0.03	-0.29	
mes6_6	SOFTWARE: Traditionally Acceptable	0.33	0.26	-0.01	0.21	0.07	0.18	0.17	-0.19	0.02	0.05	0.06	-0.01	-0.09	-0.06	-0.02	-0.00	-0.29	
mes1_2	GIFTS: Fair/Unfair	-0.09	0.80	0.03	0.08	0.03	-0.04	-0.03	-0.00	0.05	0.04	0.02	0.00	0.01	0.03	-0.05	0.02	0.14	
mes1_3	GIFTS: Morally Right/Not	-0.11	0.78	0.08	0.04	-0.00	-0.02	-0.03	0.06	0.02	0.07	-0.02	0.08	0.02	-0.05	0.05	-0.00	0.07	
mes1_4	GIFTS: Acceptable To My Family	0.03	0.78	0.04	0.07	0.01	-0.02	-0.07	-0.00	0.00	0.05	0.05	0.04	0.00	-0.02	0.02	-0.01	0.03	
mes1_1	GIFTS: Just/Unjust	-0.03	0.78	0.03	0.00	-0.00	-0.05	0.03	0.02	0.09	0.08	-0.04	0.03	0.01	-0.01	-0.01	-0.03	0.09	
mes1_6	GIFTS: Traditionally Acceptable	0.33	0.71	0.06	0.03	-0.03	0.06	-0.06	-0.02	0.01	0.00	-0.03	0.06	-0.11	-0.02	-0.08	-0.04	0.11	
mes1_5	GIFTS: Culturally Acceptable	0.38	0.66	0.07	0.07	-0.00	-0.00	-0.13	-0.06	-0.04	0.02	-0.05	0.03	-0.03	-0.08	-0.02	-0.01	0.13	
mes1_8	GIFTS: Violates Unwritten Contract	-0.06	0.62	0.04	-0.16	0.01	0.06	-0.04	0.01	0.07	0.09	0.06	0.09	0.07	0.03	0.07	-0.16	0.14	
mes1_7	GIFTS: Violates Unspoken Promise	-0.10	0.60	0.10	-0.08	-0.00	0.06	-0.12	0.03	0.08	0.05	0.06	0.05	0.11	0.12	0.08	-0.20	0.19	
mes3_2	OFFICE: Fair/Unfair	-0.01	0.52	-0.01	0.00	-0.01	-0.08	0.07	0.04	-0.00	0.16	0.08	-0.26	0.20	0.13	0.01	0.19	-0.21	
mes3_1	OFFICE: Just/Unjust	0.03	0.52	0.03	-0.04	-0.06	-0.03	0.14	0.02	0.00	0.18	0.01	-0.22	0.21	0.08	0.04	0.15	-0.24	
mes3_4	OFFICE: Acceptable To My Family	0.07	0.48	0.02	-0.04	-0.04	0.01	0.03	0.05	-0.03	0.16	-0.01	-0.15	0.16	0.17	0.15	0.12	-0.26	
mes6_1	SOFTWARE: Just/Unjust	-0.05	0.45	0.01	0.18	0.04	0.08	0.24	-0.07	0.03	0.01	0.12	-0.00	0.00	-0.08	0.07	0.02	-0.41	
mes6_2	SOFTWARE: Fair/Unfair	-0.08	0.43	-0.03	0.28	0.08	0.11	0.18	-0.09	-0.00	0.02	0.17	-0.01	-0.01	-0.03	0.05	0.05	-0.35	
mes3_3	OFFICE: Morally Right/Not	-0.05	0.42	0.05	-0.00	-0.01	-0.06	0.02	0.08	0.00	0.22	0.00	-0.15	0.22	0.15	0.14	0.10	-0.23	
mes6_4	SOFTWARE: Acceptable To My Family	0.13	0.41	-0.00	0.26	0.06	0.15	0.17	-0.19	0.05	-0.01	0.10	0.00	-0.05	-0.03	0.09	0.03	-0.34	
mes3_6	OFFICE: Traditionally Acceptable	0.35	0.39	0.05	-0.06	0.00	0.00	0.01	0.04	-0.06	0.15	-0.05	-0.12	0.12	0.29	0.04	0.10	-0.20	
mes8_3	TOY: Morally Right/Not	-0.12	0.05	0.87	0.02	0.04	0.03	0.07	0.02	0.01	0.04	0.00	0.01	0.01	-0.07	0.05	-0.00	-0.01	
mes8_4	TOY: Acceptable To My Family	0.03	0.07	0.84	0.05	-0.02	0.04	0.02	0.00	0.00	-0.00	0.04	0.04	-0.01	-0.05	0.07	0.09	-0.05	
mes8_2	TOY: Fair/Unfair	-0.09	0.07	0.84	0.03	0.05	0.03	0.04	-0.00	0.09	0.05	0.03	0.05	-0.01	-0.01	-0.00	0.03	0.00	
mes8_1	TOY: Just/Unjust	-0.07	0.02	0.83	0.07	0.08	0.03	0.11	0.04	0.08	0.06	-0.01	-0.06	-0.02	0.00	-0.02	0.04	0.06	
mes8_6	TOY: Traditionally Acceptable	0.33	-0.00	0.83	0.00	0.00	0.01	-0.03	0.00	0.01	-0.01	0.01	-0.02	0.01	0.01	0.01	0.04	-0.00	
mes8_8	TOY: Violates Unwritten Contract	-0.08	0.00	0.80	-0.01	-0.03	0.04	-0.05	0.05	0.06	0.07	0.00	0.07	0.01	0.13	0.04	-0.02	0.05	
mes8_7	TOY: Violates Unspoken Promise	-0.09	-0.00	0.80	-0.01	0.02	0.02	0.00	0.05	0.04	0.06	0.01	0.05	0.05	0.09	0.06	-0.04	0.02	
mes8_5	TOY: Culturally Acceptable	0.40	0.01	0.77	0.01	-0.04	0.05	-0.08	-0.03	-0.01	0.02	0.00	-0.03	0.03	0.01	0.04	-0.00	-0.01	
mes4_2	MARKET: Fair/Unfair	-0.02	-0.03	0.03	0.81	0.02	-0.01	0.03	0.10	-0.06	0.08	0.08	-0.02	0.07	-0.07	-0.00	-0.03	0.00	
mes4_1	MARKET: Just/Unjust	-0.08	0.00	0.08	0.79	0.01	-0.00	0.10	0.08	-0.05	0.09	0.08	-0.00	0.03	-0.06	-0.04	-0.03	0.02	
mes4_3	MARKET: Morally Right/Not	-0.16	0.01	0.02	0.78	-0.03	-0.01	0.05	0.09	-0.08	0.05	0.05	0.07	0.11	-0.05	-0.04	0.07	-0.01	
mes4_7	MARKET: Violates Unspoken Promise	0.00	0.10	0.04	0.77	0.04	-0.01	-0.05	0.00	-0.05	-0.09	0.03	0.03	0.01	0.17	-0.10	-0.00	0.01	
mes4_4	MARKET: Acceptable To My Family	-0.05	0.05	0.00	0.76	0.00	-0.00	0.05	0.08	-0.01	0.08	0.08	0.05	0.08	-0.07	0.01	0.03	-0.00	
mes4_8	MARKET: Violates Unwritten Contract	-0.03	0.05	0.03	0.75	0.09	0.00	-0.04	0.03	-0.01	-0.07	0.02	0.06	-0.00	0.17	-0.16	-0.04	0.02	
mes4_6	MARKET: Traditionally Acceptable	0.27	-0.01	-0.00	0.74	0.04	0.04	0.01	-0.00	0.01	0.04	-0.00	0.01	0.01	-0.00	-0.06	0.02	0.04	
mes4_5	MARKET: Culturally Acceptable	0.31	0.05	-0.00	0.71	-0.01	0.06	-0.05	0.01	-0.00	0.11	-0.05	-0.03	0.00	-0.00	-0.02	0.07	0.01	
mes13_3	HOUSING: Morally Right/Not	-0.06	0.00	0.01	-0.01	0.87	0.04	0.05	0.07	0.05	0.09	0.01	0.01	0.04	-0.07	-0.02	0.02	-0.01	
mes13_1	HOUSING: Just/Unjust	-0.04	0.04	0.04	0.03	0.84	0.05	0.02	0.00	-0.01	0.03	-0.00	-0.00	0.12	-0.10	-0.02	0.02	0.09	
mes13_2	HOUSING: Fair/Unfair	-0.01	0.05	0.01	0.03	0.84	0.05	0.00	0.05	0.02	0.06	0.00	-0.01	0.10	-0.07	-0.00	0.04	0.03	
mes13_4	HOUSING: Acceptable To My Family	-0.12	0.04	0.00	0.01	0.79	0.09	0.06	0.02	0.06	0.03	-0.02	0.08	0.02	-0.10	0.08	0.08	0.03	
mes13_7	HOUSING: Violates Unspoken Promise	0.01	-0.08	0.03	0.08	0.78	0.05	0.00	0.00	-0.06	-0.00	0.05	-0.00	0.22	-0.03	0.06	-0.04	0.04	
mes13_8	HOUSING: Violates Unwritten Contract	0.02	-0.05	0.04	0.04	0.76	0.08	-0.01	-0.02	-0.07	0.00	0.04	0.02	-0.04	0.23	-0.03	0.06	-0.03	
mes13_6	HOUSING: Traditionally Acceptable	0.32	0.00	-0.01	-0.01	0.75	-0.00	-0.00	-0.02	0.02	0.06	0.02	0.03	-0.07	0.06	0.04	0.02	-0.00	
mes13_5	HOUSING: Culturally Acceptable	0.35	0.00	-0.00	-0.02	0.74	-0.02	-0.05	0.03	-0.01	0.01	-0.04	0.01	0.01	0.03	0.04	-0.02	0.05	

## Multidimensional Ethics Scale

mes17_3	EXPENSES: Morally Right/Not	-0.04	-0.01	0.03	0.01	0.00	0.85	-0.01	0.08	-0.04	0.03	-0.00	0.04	0.06	-0.01	0.02	-0.00	-0.06
mes17_1	EXPENSES: Just/Unjust	-0.13	-0.01	0.05	-0.02	0.08	0.83	0.05	0.11	-0.03	-0.02	0.02	-0.04	0.04	-0.01	-0.02	0.01	0.01
mes17_2	EXPENSES: Fair/Unfair	-0.10	0.02	0.03	-0.04	0.06	0.82	-0.01	0.12	0.00	0.01	0.03	0.02	0.02	-0.06	0.01	-0.04	-0.02
mes17_4	EXPENSES: Acceptable To My Family	-0.01	0.04	-0.05	-0.01	0.01	0.79	0.05	0.08	0.00	0.09	-0.04	0.10	0.07	-0.05	0.03	0.04	-0.04
mes17_7	EXPENSES: Violates Unspoken Promise	-0.03	-0.04	0.05	0.02	0.03	0.78	0.08	0.02	0.03	0.03	0.00	-0.03	-0.02	0.17	0.00	0.01	0.09
mes17_8	EXPENSES: Violates Unwritten Contract	-0.00	-0.04	0.06	-0.00	0.04	0.78	0.04	0.04	0.01	0.04	0.02	-0.01	-0.02	0.19	0.00	0.01	0.08
mes17_6	EXPENSES: Traditionally Acceptable	0.30	-0.01	0.08	0.02	0.08	0.72	-0.08	0.11	0.05	0.02	0.02	-0.02	-0.00	-0.00	-0.03	0.05	0.02
mes17_5	EXPENSES: Culturally Acceptable	0.37	0.03	0.06	0.03	0.03	0.72	-0.14	0.08	0.02	0.01	-0.00	-0.06	0.03	-0.00	-0.00	0.06	0.05
mes15_1	USED CAR: Just/Unjust	-0.00	-0.03	-0.01	0.05	0.01	0.01	0.75	0.01	0.02	0.02	-0.00	-0.04	0.03	0.08	0.09	0.05	0.08
mes15_3	USED CAR: Morally Right/Not	-0.03	-0.12	0.06	0.10	0.01	0.00	0.73	0.05	0.13	0.06	-0.05	-0.03	-0.00	0.08	0.13	0.03	0.02
mes15_2	USED CAR: Fair/Unfair	-0.00	-0.06	0.05	0.07	0.03	-0.07	0.73	-0.04	0.08	0.11	-0.00	-0.04	0.04	0.03	0.11	0.01	0.08
mes15_4	USED CAR: Acceptable To My Family	0.15	-0.00	-0.01	0.08	0.04	0.02	0.62	-0.01	0.09	0.06	-0.02	-0.09	-0.00	-0.02	0.20	0.07	0.07
mes15_7	USED CAR: Violates Unspoken Promise	0.10	-0.11	0.01	0.04	-0.02	-0.00	0.54	0.05	0.09	0.01	0.00	-0.10	-0.07	0.46	0.01	0.01	0.12
mes9_3	ENGINE: Morally Right/Not	0.03	0.15	0.05	-0.06	-0.03	0.04	0.53	0.17	-0.09	0.01	0.12	0.26	0.24	-0.07	-0.19	0.03	-0.05
mes9_1	ENGINE: Just/Unjust	0.10	0.16	0.03	-0.10	0.03	0.05	0.51	0.16	-0.13	0.00	0.08	0.28	0.26	-0.13	-0.15	0.11	-0.00
mes9_2	ENGINE: Fair/Unfair	0.11	0.16	0.03	-0.11	0.02	0.05	0.48	0.18	-0.19	0.03	0.09	0.29	0.23	-0.11	-0.18	0.08	-0.02
mes9_4	ENGINE: Acceptable To My Family	0.18	0.09	-0.01	-0.12	0.04	0.04	0.47	0.14	-0.10	0.08	0.10	0.31	0.14	-0.08	-0.15	0.09	-0.02
mes9_7	ENGINE: Violates Unspoken Promise	0.11	-0.00	0.07	-0.13	0.00	0.07	0.39	0.09	-0.12	0.06	0.08	0.33	0.21	0.35	-0.19	0.02	0.03
mes11_2	BENEFITS: Fair/Unfair	-0.07	0.06	0.05	0.01	0.04	0.07	0.05	0.82	-0.01	0.03	0.08	0.04	-0.00	-0.07	0.03	0.00	-0.02
mes11_3	BENEFITS: Morally Right/Not	-0.07	-0.00	0.06	0.10	0.01	0.12	0.03	0.78	0.02	0.02	0.05	-0.01	0.01	-0.02	0.07	-0.02	0.01
mes11_1	BENEFITS: Just/Unjust	-0.08	0.05	0.03	0.07	0.07	0.11	0.11	0.78	-0.03	-0.02	0.06	0.04	0.02	-0.06	0.01	-0.00	0.05
mes11_4	BENEFITS: Acceptable To My Family	-0.04	0.02	0.00	0.01	-0.04	0.08	0.11	0.77	0.00	0.05	0.03	0.05	-0.00	-0.02	0.08	0.03	-0.00
mes11_8	BENEFITS: Violates Unwritten Contract	-0.04	-0.00	-0.01	0.04	0.02	0.11	-0.06	0.72	0.03	0.04	0.03	0.04	-0.02	0.18	0.01	0.07	0.05
mes11_7	BENEFITS: Violates Unspoken Promise	-0.01	-0.06	-0.00	0.02	0.03	0.16	0.01	0.70	0.03	0.06	0.07	0.01	-0.04	0.17	-0.00	0.01	0.08
mes11_5	BENEFITS: Culturally Acceptable	0.31	-0.05	0.01	0.07	0.02	0.05	-0.08	0.68	0.05	0.02	-0.01	0.07	0.02	-0.01	0.02	-0.01	-0.00
mes11_6	BENEFITS: Traditionally Acceptable	0.33	-0.04	-0.00	0.12	0.08	0.04	-0.03	0.65	0.11	-0.00	0.02	0.08	0.01	0.02	0.04	0.01	-0.06
mes18_2	SHORTAGE: Fair/Unfair	-0.02	0.07	0.05	-0.07	0.00	-0.01	0.02	0.05	0.80	0.02	0.06	0.06	0.10	-0.09	0.00	0.11	-0.00
mes18_1	SHORTAGE: Just/Unjust	-0.04	0.05	0.05	-0.06	0.00	-0.02	0.03	0.09	0.79	0.04	0.05	0.00	0.09	-0.08	-0.01	0.09	0.06
mes18_7	SHORTAGE: Violates Unspoken Promise	-0.05	-0.02	0.02	-0.01	-0.00	0.01	0.03	0.00	0.78	-0.02	-0.01	0.02	0.06	0.26	-0.02	-0.01	0.07
mes18_3	SHORTAGE: Morally Right/Not	-0.12	0.07	0.11	-0.03	-0.00	-0.01	0.07	0.01	0.77	-0.04	0.07	0.06	0.08	-0.08	-0.04	0.07	-0.00
mes18_8	SHORTAGE: Violates Unwritten Contract	-0.06	-0.03	0.01	-0.01	0.02	0.02	-0.03	-0.00	0.77	-0.00	-0.01	0.06	0.08	0.27	-0.03	-0.00	0.06
mes18_4	SHORTAGE: Acceptable To My Family	0.04	0.09	0.02	-0.05	-0.02	0.01	0.06	-0.00	0.73	0.00	0.08	0.09	0.03	-0.13	0.04	0.15	0.02
mes18_6	SHORTAGE: Traditionally Acceptable	0.50	0.00	0.05	-0.03	0.01	0.03	-0.00	-0.01	0.66	0.02	0.07	0.07	-0.04	-0.01	0.00	0.00	-0.08
mes18_5	SHORTAGE: Culturally Acceptable	0.53	-0.01	0.04	-0.01	0.00	0.02	-0.04	-0.02	0.61	0.03	0.06	0.05	-0.00	-0.02	0.01	-0.02	-0.05
mes7_2	DELIVERY: Fair/Unfair	-0.07	0.08	0.08	0.00	0.04	0.03	0.05	0.03	0.00	0.80	0.01	0.02	0.10	-0.02	0.01	0.04	-0.00
mes7_1	DELIVERY: Just/Unjust	-0.02	0.10	0.09	-0.00	0.05	0.03	0.05	0.06	-0.00	0.77	-0.00	0.00	0.06	0.02	-0.01	-0.02	-0.06
mes7_4	DELIVERY: Acceptable To My Family	-0.01	0.08	0.04	0.03	0.01	0.03	0.07	0.03	0.02	0.76	0.01	0.04	0.00	-0.08	0.04	0.03	-0.06
mes7_3	DELIVERY: Morally Right/Not	-0.10	0.10	0.07	0.06	0.00	0.02	0.10	0.05	0.02	0.75	-0.01	-0.01	0.11	-0.08	0.02	0.03	-0.04
mes7_6	DELIVERY: Traditionally Acceptable	0.28	0.01	0.02	0.08	0.09	-0.00	0.01	0.02	0.00	0.72	0.07	0.01	-0.03	-0.00	-0.01	-0.04	0.02
mes7_7	DELIVERY: Violates Unspoken Promise	-0.04	0.04	-0.02	0.04	0.05	0.05	0.01	-0.00	0.10	0.72	0.09	0.03	-0.01	0.12	-0.00	0.04	0.10
mes7_8	DELIVERY: Violates Unwritten Contract	-0.09	0.04	0.03	0.01	0.05	0.08	-0.02	-0.01	-0.01	0.70	0.13	0.11	-0.03	0.18	-0.00	-0.00	0.08
mes7_5	DELIVERY: Culturally Acceptable	0.28	0.03	0.01	0.11	0.11	0.00	-0.04	-0.00	-0.11	0.68	-0.00	0.06	0.03	-0.04	-0.01	-0.03	0.01
mes5_2	LITE: Fair/Unfair	-0.00	0.01	-0.04	0.05	0.01	0.01	0.06	0.02	0.07	0.06	0.79	-0.01	-0.01	-0.08	0.04	0.03	0.00
mes5_1	LITE: Just/Unjust	-0.02	0.02	-0.03	0.07	0.02	0.00	0.04	0.02	0.00	0.04	0.78	0.02	0.04	-0.03	0.02	0.07	0.07
mes5_7	LITE: Violates Unspoken Promise	0.03	-0.01	0.05	0.02	-0.01	0.01	0.01	0.02	0.05	-0.01	0.76	0.00	0.04	0.20	-0.03	0.00	0.01
mes5_3	LITE: Morally Right/Not	-0.07	0.01	0.05	0.06	0.03	0.03	0.03	0.08	0.09	0.01	0.76	0.00	0.05	-0.07	0.06	0.05	-0.02
mes5_4	LITE: Acceptable To My Family	-0.01	0.07	0.01	0.00	-0.04	-0.02	0.04	0.05	0.08	0.05	0.76	-0.01	0.03	-0.07	0.11	0.05	0.00
mes5_8	LITE: Violates Unwritten Contract	0.02	-0.03	0.05	0.03	0.00	0.01	-0.04	0.05	-0.02	0.01	0.76	0.04	0.03	0.18	-0.01	0.02	-0.03
mes5_6	LITE: Traditionally Acceptable	0.39	-0.04	0.05	0.07	0.07	0.00	-0.08	0.06	0.04	0.09	0.61	0.01	-0.06	-0.01	0.07	0.02	0.01
mes5_5	LITE: Culturally Acceptable	0.41	0.03	0.02	0.07	0.04	0.02	-0.14	0.10	0.00	0.06	0.58	-0.00	-0.00	-0.04	0.06	-0.02	0.04
mes10_3	WASTE: Morally Right/Not	-0.06	-0.02	0.05	0.04	-0.03	0.00	0.08	0.03	0.11	0.06	0.02	0.70	0.06	-0.05	0.12	0.05	0.04
mes10_2	WASTE: Fair/Unfair	-0.03	0.04	0.08	0.00	0.07	-0.01	0.04	0.05	0.06	0.12	0.00	0.69	0.02	-0.10	0.09	0.10	0.07
mes10_4	WASTE: Acceptable To My Family	-0.02	-0.03	0.00	0.07	0.00	-0.02	-0.00	0.09	0.15	0.09	0.02	0.67	0.04	-0.15	0.17	0.01	0.04
mes10_1	WASTE: Just/Unjust	-0.06	0.00	0.05	0.02	0.03	-0.04	0.11	0.06	0.08	0.17	0.02	0.65	-0.00	-0.12	0.11	0.10	0.07
mes10_8	WASTE: Violates Unwritten Contract	-0.00	0.04	-0.00	0.05	0.09	0.10	-0.11	0.02	0.04	-0.09	-0.02	0.64	-0.01	0.43	-0.05	0.03	-0.02
mes10_7	WASTE: Violates Unspoken Promise	0.03	0.06	0.00	0.05	0.04	0.07	-0.07	0.01	0.03	-0.10	-0.01	0.64	-0.01	0.37	-0.04	0.04	0.01

## Multidimensional Ethics Scale

mes10_5	WASTE: Culturally Acceptable	0.39	-0.00	-0.01	0.01	0.00	-0.05	-0.10	0.06	0.10	0.04	-0.05	0.59	-0.03	0.12	0.03	0.04	0.03
mes10_6	WASTE: Traditionally Acceptable	0.38	-0.02	0.00	0.10	0.00	-0.07	-0.04	0.04	0.11	0.01	0.03	0.56	-0.06	0.08	0.05	0.03	0.02
mes12_2	UNDERCOAT: Fair/Unfair	-0.04	0.10	0.01	0.03	0.09	0.00	0.08	-0.00	0.08	0.02	0.00	-0.00	0.82	-0.04	-0.00	0.00	0.03
mes12_3	UNDERCOAT: Morally Right/Not	-0.04	0.03	0.05	0.03	0.04	0.04	0.06	0.01	0.10	0.07	0.03	0.01	0.77	-0.09	0.05	-0.00	0.00
mes12_1	UNDERCOAT: Just/Unjust	-0.07	0.06	-0.02	0.10	0.03	0.02	0.04	0.05	0.06	0.11	0.02	-0.01	0.76	-0.00	0.08	-0.05	0.03
mes12_4	UNDERCOAT: Acceptable To My Family	0.10	0.01	-0.01	0.02	0.04	0.02	0.04	0.02	0.08	0.07	-0.01	0.01	0.72	-0.10	0.08	0.08	0.01
mes12_7	UNDERCOAT: Violates Unspoken Promise	0.06	-0.01	0.01	0.08	-0.01	0.03	-0.02	-0.02	0.10	-0.04	0.07	0.04	0.67	0.36	-0.00	-0.01	0.01
mes12_8	UNDERCOAT: Violates Unwritten Contract	0.10	0.00	-0.02	0.08	-0.04	0.10	-0.00	-0.08	0.08	-0.03	0.05	0.06	0.58	0.38	-0.05	-0.00	0.07
mes2_8	TSHOW: Violates Unwritten Contract	0.04	0.00	0.05	-0.06	-0.03	0.04	-0.02	0.01	-0.13	-0.09	0.08	0.15	-0.01	0.54	0.24	0.00	0.04
mes3_7	OFFICE: Violates Unspoken Promise	-0.03	0.43	-0.01	-0.02	0.08	0.00	0.14	0.03	0.05	0.13	-0.02	-0.14	0.08	0.51	-0.03	0.04	-0.19
mes15_8	USEDGAR: Violates Unwritten Contract	0.11	-0.14	-0.00	-0.00	-0.05	0.05	0.43	0.02	0.09	0.07	-0.01	-0.02	-0.04	0.51	0.09	-0.11	0.16
mes3_8	OFFICE: Violates Unwritten Contract	-0.04	0.45	-0.02	-0.00	0.05	-0.02	0.13	0.04	0.04	0.13	-0.03	-0.06	0.09	0.50	-0.01	0.02	-0.17
mes2_7	TSHOW: Violates Unspoken Promise	0.04	-0.01	0.06	-0.07	-0.03	-0.02	0.06	0.07	-0.10	-0.11	0.07	0.13	-0.06	0.50	0.33	-0.04	0.01
mes14_7	SLEEPWEAR: Violates Unspoken Promise	0.00	-0.08	0.05	0.05	0.09	0.07	0.03	0.03	0.13	0.01	-0.04	0.02	-0.03	0.47	-0.05	0.48	0.02
mes9_8	ENGINE: Violates Unwritten Contract	0.09	0.01	0.09	-0.13	0.01	0.03	0.31	0.11	-0.11	0.06	0.11	0.37	0.19	0.36	-0.19	0.00	0.04
mes2_4	TSHOW: Acceptable To My Family	0.01	0.02	0.03	-0.06	-0.03	0.00	0.08	0.02	-0.00	0.06	0.00	0.00	0.01	-0.00	0.78	0.03	0.01
mes2_1	TSHOW: Just/Unjust	-0.08	0.06	0.03	-0.11	0.03	0.01	0.04	0.08	-0.04	-0.00	0.08	0.09	0.08	-0.01	0.78	0.05	0.03
mes2_2	TSHOW: Fair/Unfair	-0.07	0.03	0.09	-0.10	0.04	-0.00	0.05	0.03	-0.03	0.01	0.09	0.07	0.03	-0.01	0.77	0.04	0.02
mes2_3	TSHOW: Morally Right/Not	-0.14	0.01	0.12	-0.07	0.03	0.03	0.12	0.10	0.01	-0.05	0.06	0.05	0.06	-0.02	0.71	0.09	0.04
mes2_5	TSHOW: Culturally Acceptable	0.43	-0.00	0.01	-0.02	-0.06	0.02	-0.08	0.00	-0.01	0.02	-0.04	0.04	0.02	0.09	0.64	-0.00	0.06
mes2_6	TSHOW: Traditionally Acceptable	0.48	-0.05	0.00	0.00	0.01	-0.03	-0.02	0.01	0.01	-0.02	0.03	0.02	-0.02	0.11	0.63	0.01	0.02
mes14_4	SLEEPWEAR: Acceptable To My Family	-0.04	0.06	0.07	-0.06	-0.00	-0.03	-0.01	0.04	0.12	0.01	0.06	0.07	0.01	-0.01	0.05	0.78	-0.01
mes14_2	SLEEPWEAR: Fair/Unfair	-0.05	0.00	0.01	-0.01	0.09	0.01	0.06	0.03	0.04	0.03	0.02	0.07	0.02	0.01	0.06	0.76	0.09
mes14_3	SLEEPWEAR: Morally Right/Not	-0.10	-0.02	0.02	0.00	0.05	0.03	0.08	0.02	0.09	0.06	0.07	0.05	0.01	-0.07	0.09	0.75	-0.00
mes14_1	SLEEPWEAR: Just/Unjust	-0.14	-0.02	0.04	0.06	0.12	0.02	0.13	-0.04	-0.00	0.01	0.09	-0.00	0.03	-0.03	0.03	0.70	0.19
mes14_6	SLEEPWEAR: Traditionally Acceptable	0.42	0.00	-0.01	0.06	0.06	0.02	0.01	-0.00	0.04	-0.06	0.01	0.03	-0.05	0.04	0.02	0.65	0.02
mes14_5	SLEEPWEAR: Culturally Acceptable	0.48	-0.04	-0.04	0.02	0.00	0.01	-0.08	0.00	0.01	-0.05	0.04	0.02	-0.00	0.07	0.02	0.64	0.00
mes14_8	SLEEPWEAR: Violates Unwritten Contract	0.00	-0.08	0.08	0.05	0.04	0.10	-0.05	-0.09	0.07	0.03	-0.01	0.06	-0.02	0.49	-0.08	0.54	0.07
mes16_1	WARRANTY: Just/Unjust	0.05	0.18	0.08	0.12	0.10	0.07	0.13	0.01	0.01	-0.00	0.02	-0.03	0.05	-0.15	0.06	0.13	0.63
mes16_2	WARRANTY: Fair/Unfair	0.00	0.14	0.00	0.04	0.09	0.01	0.20	0.04	0.08	0.02	0.05	0.06	0.05	-0.08	0.12	0.17	0.62
mes16_7	WARRANTY: Violates Unspoken Promise	-0.01	0.12	-0.00	0.07	0.05	0.08	0.06	-0.03	0.04	-0.03	0.07	0.05	0.06	0.33	-0.02	0.10	0.57
mes16_8	WARRANTY: Violates Unwritten Contract	0.01	0.12	-0.05	0.06	-0.01	0.08	-0.02	0.00	-0.00	-0.02	0.10	0.08	0.06	0.32	-0.06	0.08	0.56
mes16_3	WARRANTY: Morally Right/Not	-0.04	0.10	0.05	-0.01	0.00	0.00	0.26	0.03	0.11	0.07	0.01	0.08	0.05	-0.05	0.18	0.09	0.55
mes16_4	WARRANTY: Acceptable To My Family	0.03	0.16	0.02	0.04	-0.01	0.03	0.18	0.03	0.09	0.02	0.02	0.14	0.01	-0.14	0.22	0.06	0.53
mes6_8	SOFTWARE: Violates Unwritten Contract	-0.09	0.24	-0.07	0.18	0.07	0.17	0.12	-0.11	0.11	-0.00	0.10	0.20	-0.02	0.21	0.11	-0.11	-0.28
mes6_7	SOFTWARE: Violates Unspoken Promise	-0.13	0.24	-0.08	0.18	0.08	0.18	0.19	-0.16	0.08	0.00	0.10	0.19	0.01	0.25	0.12	-0.07	-0.29
mes6_3	SOFTWARE: Morally Right/Not	-0.05	0.33	0.01	0.25	0.12	0.14	0.26	-0.18	0.03	0.06	0.12	0.06	-0.02	-0.08	0.17	0.03	-0.37

*Note.* Entries represent rotated primary factor loadings, sorted by descending value on the strongest factor loading of each item. MES item numbers are coded to reflect the scenario (1-18), a ‘\_’, and the item within the MES scale (1-8).  $N = 260$ .

## Multidimensional Ethics Scale

Table 5. *Confirmatory Factor Analysis Fit Indices on 30-Item MES, Study 2*

Model	$\chi^2$	DF	GFI	AGFI	CFI	NNFI
1. 1-factor	1202.5955	405	0.7299	0.6898	0.8102	0.7962
2. 3-factor from short form, orthogonal	3779.3821	427	0.2531	0.1867	0.2024	0.1875
3. 3-factor short form, oblique	3568.7032	424	0.2864	0.2174	0.2518	0.2324
4. 5-factor a priori, orthogonal	2367.4798	405	0.5900	0.5292	0.5331	0.4985
5. 5-factor a priori, oblique*	1095.7645	397	0.7559	0.7140	0.8338	0.8178

*Note.* GFI = goodness of fit index; AGFI = adjusted GFI; CFI = Bentler's comparative fit index; NNFI = Bentler & Bonnet non-normed fit index.  $N = 260$ .

\*Contains two out-of-bounds estimates of factor correlations that were fixed at 1.0.

## Multidimensional Ethics Scale

Table 6. *Exploratory Factor Analysis Fit Indices on 30-Item MES, Study 2*

# Factors	$\chi^2$	AIC	SBC	TLRC	% TCV
1	1202.5955	392.5955	-1049.4806	0.8006	0.7832
2	900.6334	148.6334	-1190.1829	0.8608	0.8659
3	728.4494	32.4494	-1206.6678	0.8926	0.9164
4	618.8046	-23.1954	-1166.1742	0.9102	0.9515
5	507.1572	-82.8428	-1133.2439	0.9322	0.9838
6	419.1350	-120.8650	-1082.2491	0.9497	1.0074
7	349.2791	-142.7209	-1018.6486	0.9637	1.0275
8	284.58932	-161.41068	-955.44269	0.97868	1.0441
9	238.75442	-163.24558	-878.94258	0.98800	1.0583
10	197.46316	-162.53684	-803.45953	0.99752	1.0706
11	158.78663	-161.21337	-730.92243	1.00838	1.0813
12	128.92154	-153.07846	-655.13457	1.01651	1.0877

*Note.* AIC = Akaike information criterion; SBC = Schwarz Bayesian criterion; TLRC = Tucker-Lewis reliability criterion; %TCV = percentage of estimated total common variance accounted for by factor solution.

## Multidimensional Ethics Scale

Table 7. *Rotated Primary Factor Pattern Loadings for EFA 3-factor Solution for MES-30*

		Factor1	Factor2	Factor3
mes_20	Morally right (Deontology)	0.78074	0.14074	0.03436
mes_9	Selfish (Egoism-R)	0.77857	0.02783	-0.13305
mes_23	Fair (Justice)	0.76977	0.10395	0.11223
mes_2	Violates my idea of fairness (Deontology-R)	0.76868	-0.09330	0.05484
mes_27	Acceptable to my family (Relativist)	0.73288	0.10915	0.20385
mes_11	Acceptable to people I most admire (Relativist)	0.69789	0.04989	0.23185
mes_19	Under no moral obligation to act otherwise (Egoism)	0.67571	0.08592	-0.07180
mes_1	Violates an unspoken promise (Deontology-R)	0.66542	0.03934	-0.18425
mes_18	On balance tends to be good (Utilitarian)	0.61227	0.30974	0.15491
mes_0	Just (Justice)	0.58279	0.19159	0.18298
mes_25	Individually acceptable (Relativist)	0.54842	0.28058	0.22672
mes_24	Violates an unwritten contract (Deontology-R)	0.54799	0.21187	-0.19335
mes_14	Leads to the greatest good for the greatest number (Utilitarian)	0.53568	0.33238	0.03316
mes_8	Results in an equal distribution of good and bad (Justice)	0.51344	0.16948	0.13186
mes_30	Duty bound to act this way (Deontology)	0.47786	0.37511	-0.11806
mes_12	Compromises an important rule by which I live (Utilitarian-R)	0.47554	0.01557	-0.07555
mes_22	Obligated to act this way (Deontology)	0.44355	0.33853	-0.03161
mes_17	Maximizes benefits while minimizes harm (Utilitarian)	0.42258	0.37695	0.13762
mes_16	OK if actions can be justified by consequences (Utilitarian)	0.41173	0.36912	0.05596
mes_3	Traditionally acceptable (Relativist)	0.36093	0.30914	0.16483
mes_29	Self sacrificing (Egoism)	0.24139	0.14804	-0.19049
mes_6	Efficient (Utilitarian)	0.11483	0.65562	0.14954
mes_7	Produces the greatest utility (Utilitarian)	0.05419	0.63350	0.07060
mes_5	In the best interests of the company (Egoism)	0.12013	0.62937	-0.10570
mes_26	Results in a positive cost-benefit ratio (Utilitarian)	-0.03073	0.62148	0.14231
mes_4	Personally satisfying (Egoism)	0.22797	-0.05941	0.57854
mes_28	Maximizes pleasure (Utilitarian)	0.05189	0.12977	0.57417
mes_21	Self promoting (Egoism)	-0.17551	0.19457	0.53299
mes_13	Culturally acceptable (Relativist)	0.30795	0.20540	0.32616
mes_10	Prudent (Egoism)	-0.04567	0.08621	-0.09388

## Multidimensional Ethics Scale

Table 8. *Item Parameters for 30 MES Items, Study 2*

	Item	Loading	Item- total	Mean	SD	a	b1	b2	b3	b4	b5	b6
mes_27	<b>Acceptable to my family (Relativist) *</b>	<b>0.84299</b>	<b>0.790656</b>	<b>5.44615</b>	<b>1.64897</b>	2.750	-2.98	-2.02	-1.360	-0.7560	-0.2690	0.566
mes_18	On balance tends to be good (Utilitarian) *	0.84275	0.816548	4.93846	1.67772	2.430	-2.73	-1.85	-1.070	-0.5040	0.3300	1.300
mes_20	<b>Morally right (Deontology) *</b>	<b>0.84030</b>	<b>0.786954</b>	<b>5.57692</b>	<b>1.42165</b>	2.620	-3.49	-2.36	-1.790	-1.1400	-0.2890	0.710
mes_23	<b>Fair (Justice) *</b>	<b>0.83713</b>	<b>0.779706</b>	<b>5.44615</b>	<b>1.64897</b>	2.440	-2.97	-1.90	-1.360	-0.9550	-0.2280	0.623
mes_25	Individually acceptable (Relativist) *	0.79252	0.787933	4.97308	1.77369	2.200	-2.66	-1.96	-1.030	-0.4620	0.1680	0.969
mes_11	Acceptable to people I most admire (Relativist)	0.78222	0.738611	5.47308	1.53065	1.870	-4.40	-2.56	-1.780	-0.8540	-0.2510	0.744
mes_00	<b>Just (Justice) *</b>	<b>0.74818</b>	<b>0.728877</b>	<b>5.15385</b>	<b>1.80288</b>	1.820	-2.75	-1.84	-1.160	-0.7220	-0.1290	0.997
mes_14	Leads to the greatest good for the greatest number (Utilitarian) *	0.73657	0.721558	4.80385	1.72758	1.740	-2.78	-1.84	-0.997	-0.3280	0.3360	1.530
mes_17	Maximizes benefits while minimizes harm (Utilitarian)	0.70212	0.681021	4.68846	1.70143	1.570	-3.10	-2.15	-0.951	-0.0202	0.6470	1.520
mes_09	Selfish (Egoism-R) *	0.69578	0.634497	5.69231	1.65963	1.590	-3.14	-2.33	-1.710	-1.2800	-0.6620	0.291
mes_02	Violates my idea of fairness (Deontology-R) *	0.68228	0.625157	5.47308	1.73407	1.730	-2.85	-1.99	-1.530	-1.2200	-0.5570	0.684
mes_19	Under no moral obligation to act otherwise (Egoism) *	0.66242	0.627652	5.01538	1.69708	1.740	-3.01	-2.29	-1.450	-0.6190	0.0613	1.220
mes_16	OK if actions can be justified by consequences (Utilitarian)	0.65372	0.651566	4.41923	1.86132	1.320	-2.38	-1.77	-0.826	0.0370	0.7630	1.830
mes_30	Duty bound to act this way (Deontology)	0.64939	0.647716	5.15385	1.59856	1.360	-3.82	-2.67	-1.820	-0.5250	0.1360	1.080
mes_08	Results in an equal distribution of good and bad (Justice)	0.64774	0.627641	4.94231	1.72214	1.430	-2.98	-2.09	-1.540	-0.4120	0.2100	1.400
mes_22	Obligated to act this way (Deontology)	0.62792	0.620204	5.24231	1.59842	1.320	-3.84	-3.01	-1.550	-0.7720	-0.0337	1.100
mes_03	<b>Traditionally acceptable (Relativist)</b>	<b>0.61033</b>	<b>0.618019</b>	<b>4.77308</b>	<b>1.84915</b>	1.270	-3.29	-1.71	-1.060	-0.4100	0.3950	1.510
mes_06	Efficient (Utilitarian)	0.60245	0.611886	4.25385	1.97401	1.090	-2.78	-1.45	-0.440	0.4110	0.9000	1.830
mes_24	<b>Violates an unwritten contract (Deontology-R)</b>	<b>0.57671</b>	<b>0.546651</b>	<b>5.05385</b>	<b>1.78718</b>	1.180	-3.42	-2.23	-1.560	-0.7480	-0.0395	1.250
mes_01	<b>Violates an unspoken promise (Deontology-R)</b>	<b>0.57642</b>	<b>0.541717</b>	<b>5.10769</b>	<b>1.85058</b>	1.170	-2.87	-2.14	-1.620	-0.8860	-0.2710	1.260
mes_13	<b>Culturally acceptable (Relativist)</b>	<b>0.55714</b>	<b>0.549706</b>	<b>4.33462</b>	<b>1.87432</b>	1.020	-3.29	-1.70	-0.591	-0.0310	0.9450	2.090
mes_07	Produces the greatest utility (Utilitarian)	0.49893	0.508289	4.00769	1.63691	0.818	-3.76	-2.01	-0.897	1.2200	2.0500	3.210
mes_05	In the best interests of the company (Egoism)	0.48680	0.488214	4.25769	2.13604	0.840	-2.99	-1.29	-0.394	0.2500	0.6670	1.800
mes_26	Results in a positive cost-benefit ratio (Utilitarian)	0.44022	0.464503	4.10769	1.89389	0.725	-3.53	-1.88	-0.836	0.5470	1.4000	2.740
mes_12	Compromises an important rule by which I live (Utilitarian-R)	0.42633	0.395117	4.59231	1.94994	0.890	-3.21	-2.13	-1.170	-0.3880	0.3310	1.890

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mes_04	Personally satisfying (Egoism)	0.40878	0.402158	4.70000	1.96750	0.807	-3.32	-2.33	-1.520	-0.3450	0.3150	1.690
mes_28	Maximizes pleasure (Utilitarian)	0.36691	0.372070	4.14615	1.79278	0.589	-4.62	-2.64	-1.170	0.9230	1.8500	3.360
mes_29	Self sacrificing (Egoism)	0.24766	0.230826	5.04231	1.81854	0.497	-6.42	-4.36	-3.080	-1.1100	-0.0234	1.840
mes_21	Self promoting (Egoism)	0.17961	0.185331	3.53077	2.06156	0.207	-7.42	-1.68	1.180	3.2100	5.6700	9.090
mes_10	Prudent (Egoism)	-0.02378	-0.036229	3.85000	1.66401	n/a	n/a	n/a	n/a	n/a		

*Note.* Loading = loading of each item on the unrotated first principal axis; item-total = corrected item-total correlation; *a* and *b1-b6* present item parameters from Samejima's (1969) GRM calibration. *N* = 260. Bold-italic items denote ones included in the 8-item short-form version of the MES. \*Denotes items that would be included in a 10-item short form based on magnitude of loading on general factor and content-domain balance.

# Multidimensional Ethics Scale

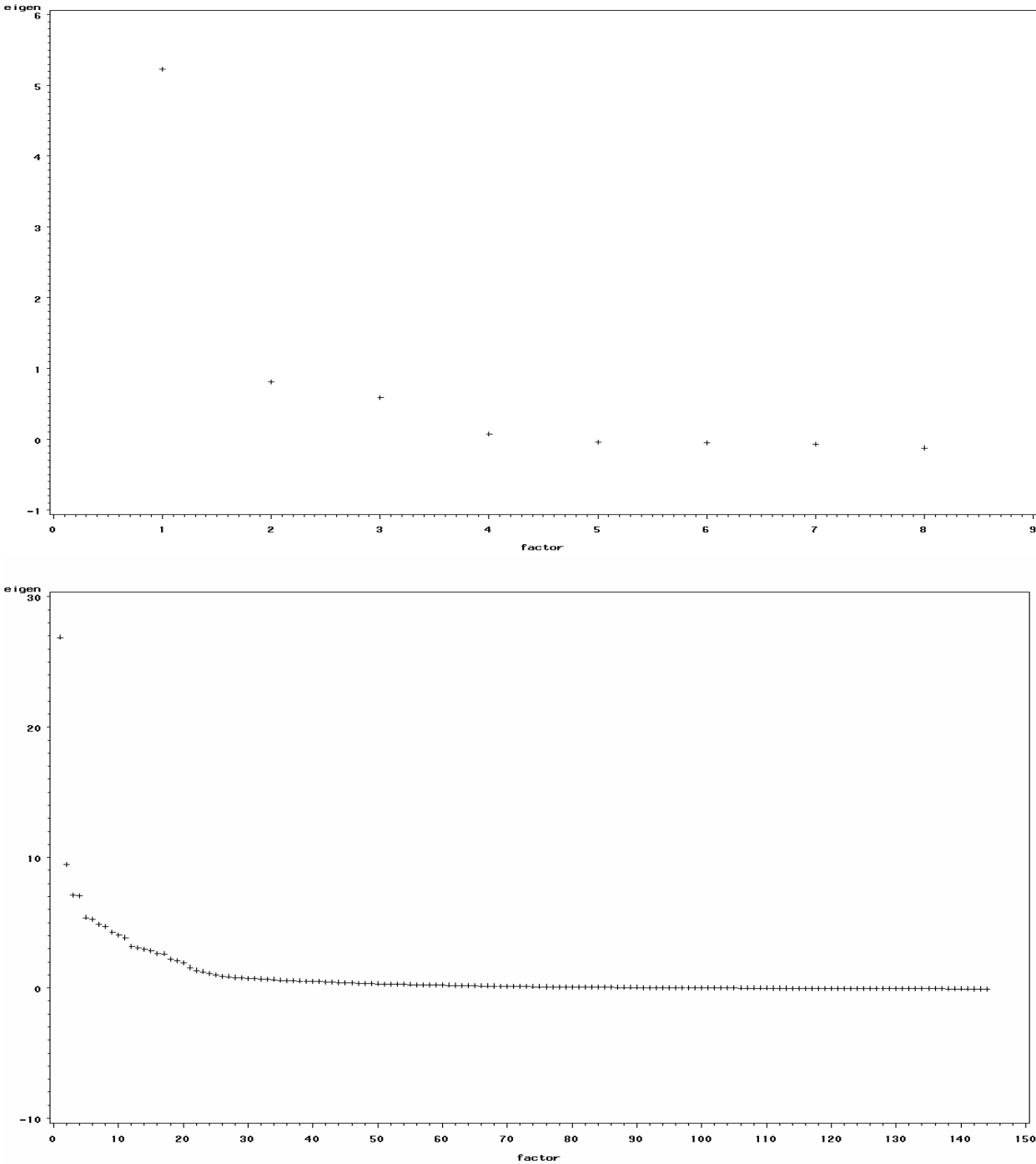


Figure 1. Scree plot of eigenvalues from common-factor analysis (squared multiple correlation estimates of communality) for ratings of 8 MES items in data aggregated across 18 ethical scenarios (top) and disaggregated (bottom).

# Multidimensional Ethics Scale

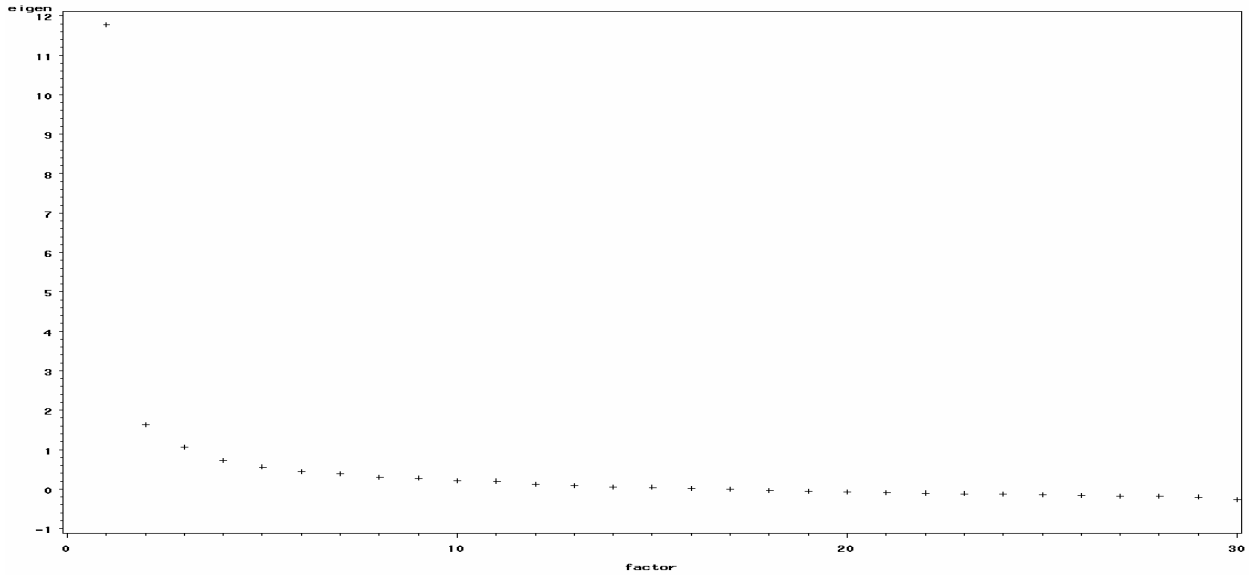


Figure 2. Scree plot of eigenvalues from common-factor analysis (squared multiple correlation estimates of communality) for ratings of 30 MES items for 18 ethical scenarios.

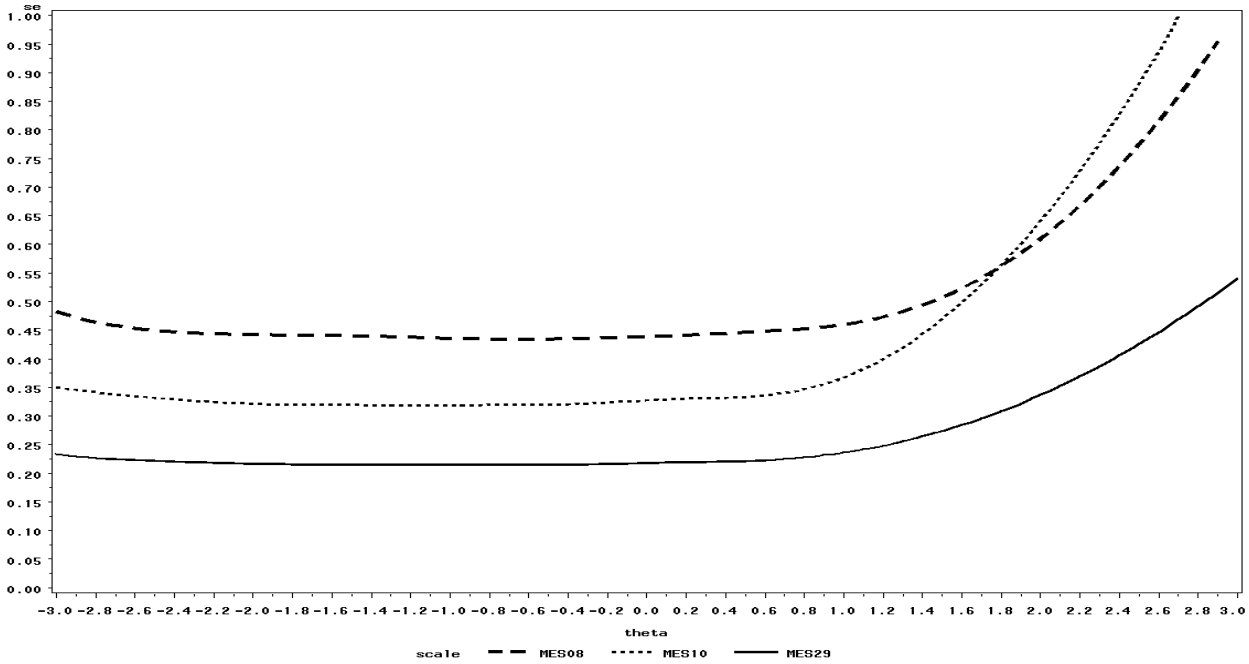


Figure 3. Test standard error functions for 29 MES item pool (solid line), 10-item short form (finely dashed line), and MES-8 pool (heavy dashed line) calibrated using the Samejima (1969) graded response model.

# Multidimensional Ethics Scale

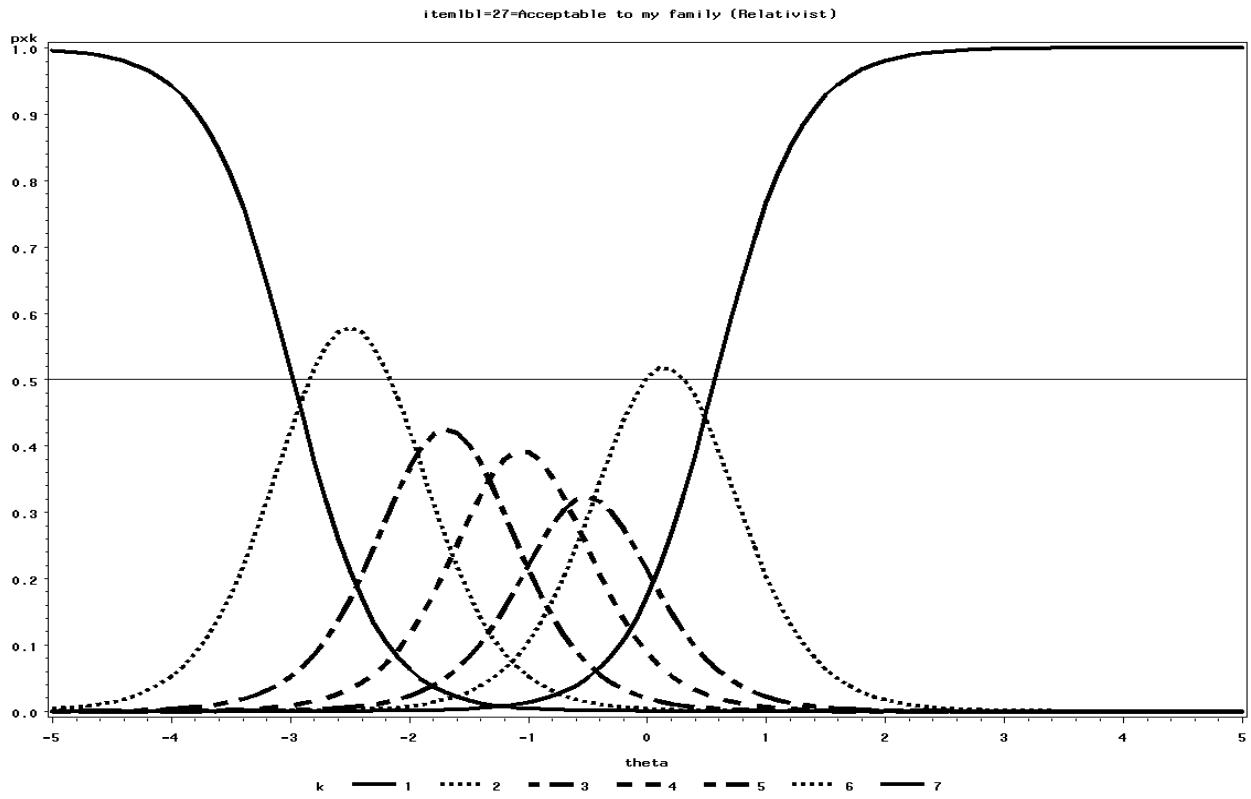


Figure 4. Item trace lines for MES item 27 calibrated using the Samejima (1969) GRM.

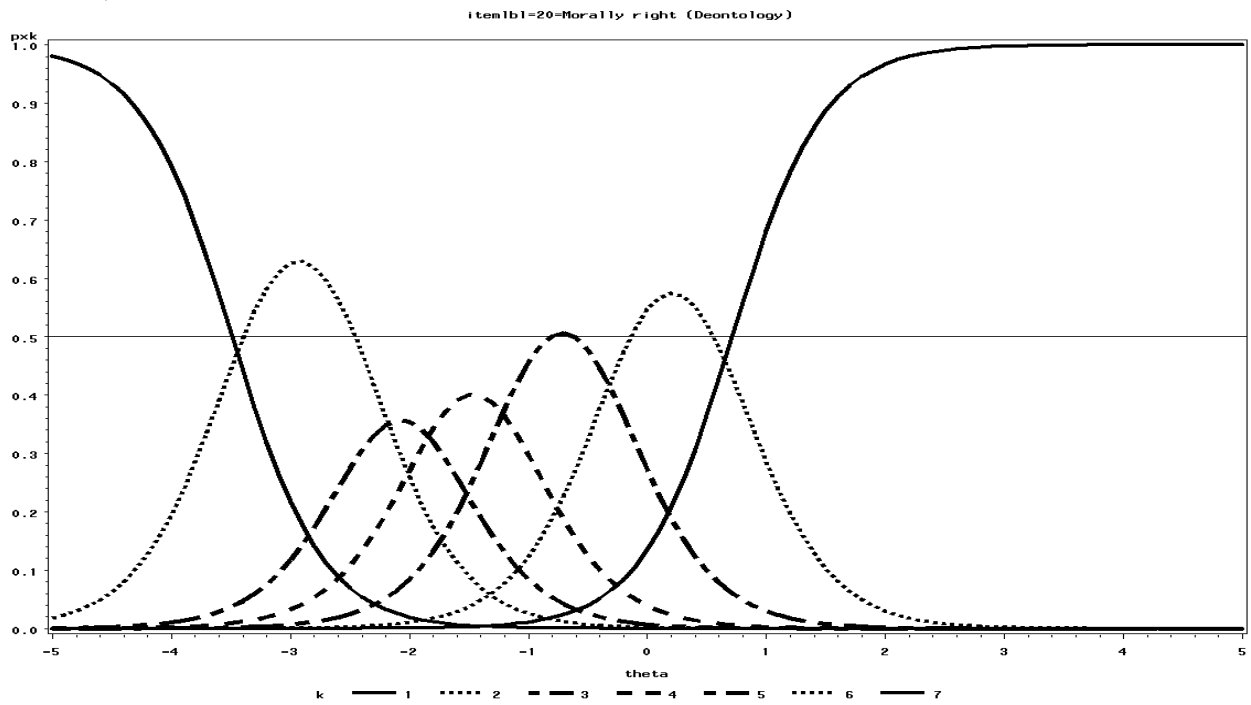


Figure 5. Item trace lines for MES item 20 calibrated using the GRM.

# Multidimensional Ethics Scale

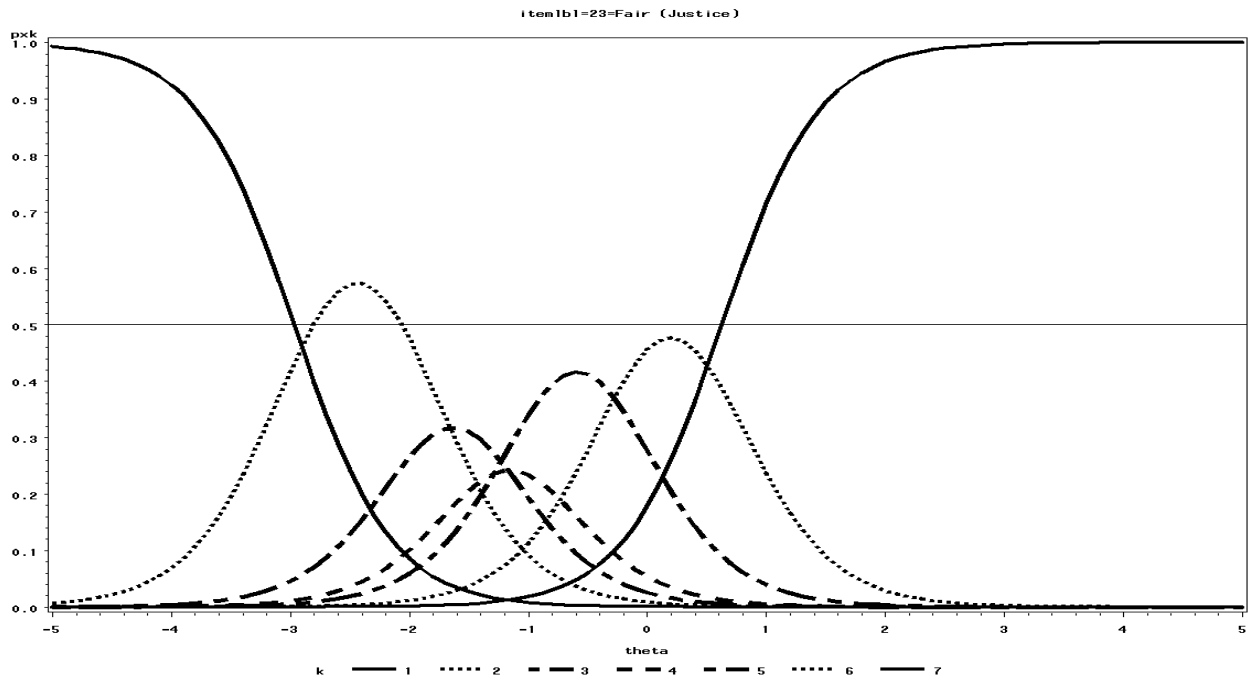


Figure 6. Item trace lines for MES item 23 calibrated using the Samejima (1969) GRM.

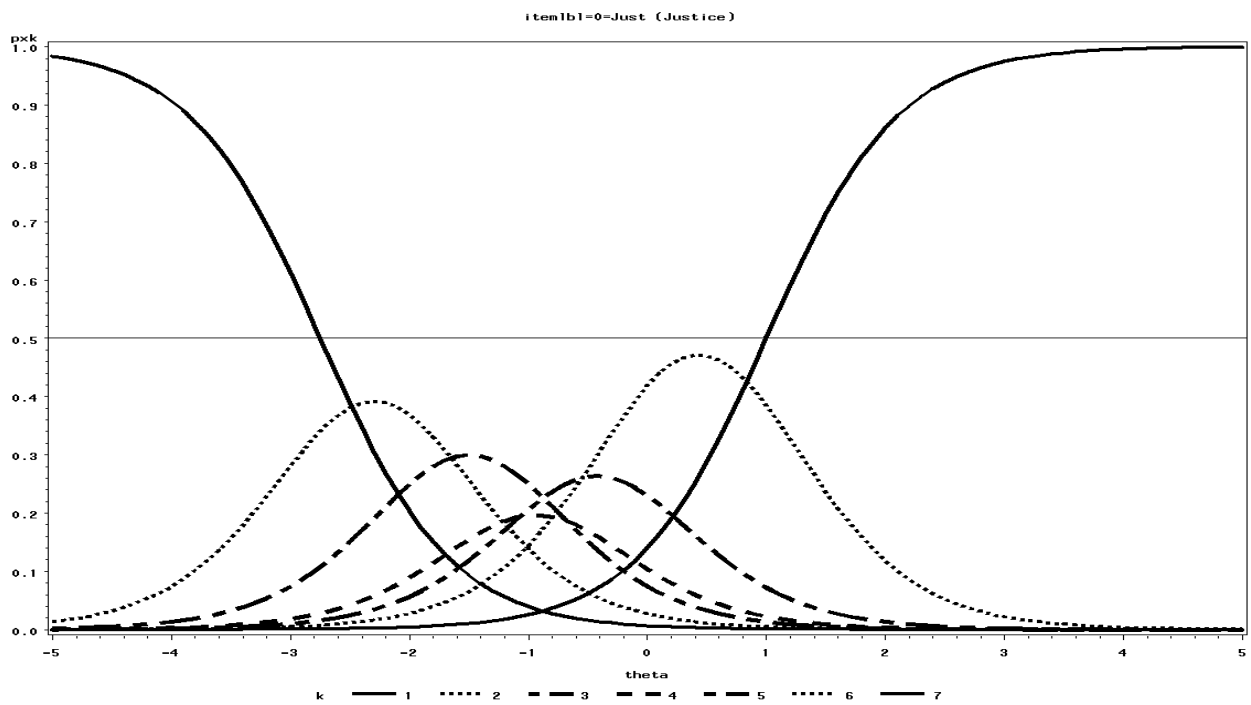


Figure 7. Item trace lines for MES item 0 calibrated using the Samejima (1969) GRM.

# Multidimensional Ethics Scale

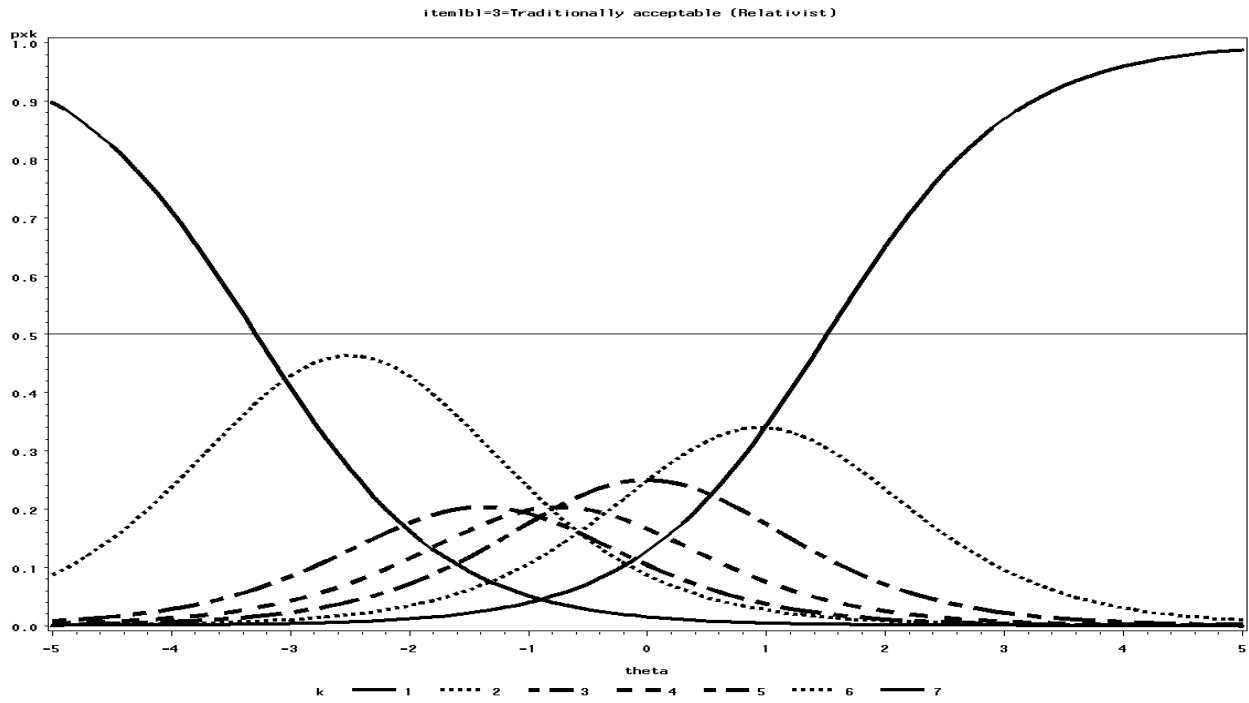


Figure 8. Item trace lines for MES item 3 calibrated using the Samejima (1969) GRM.

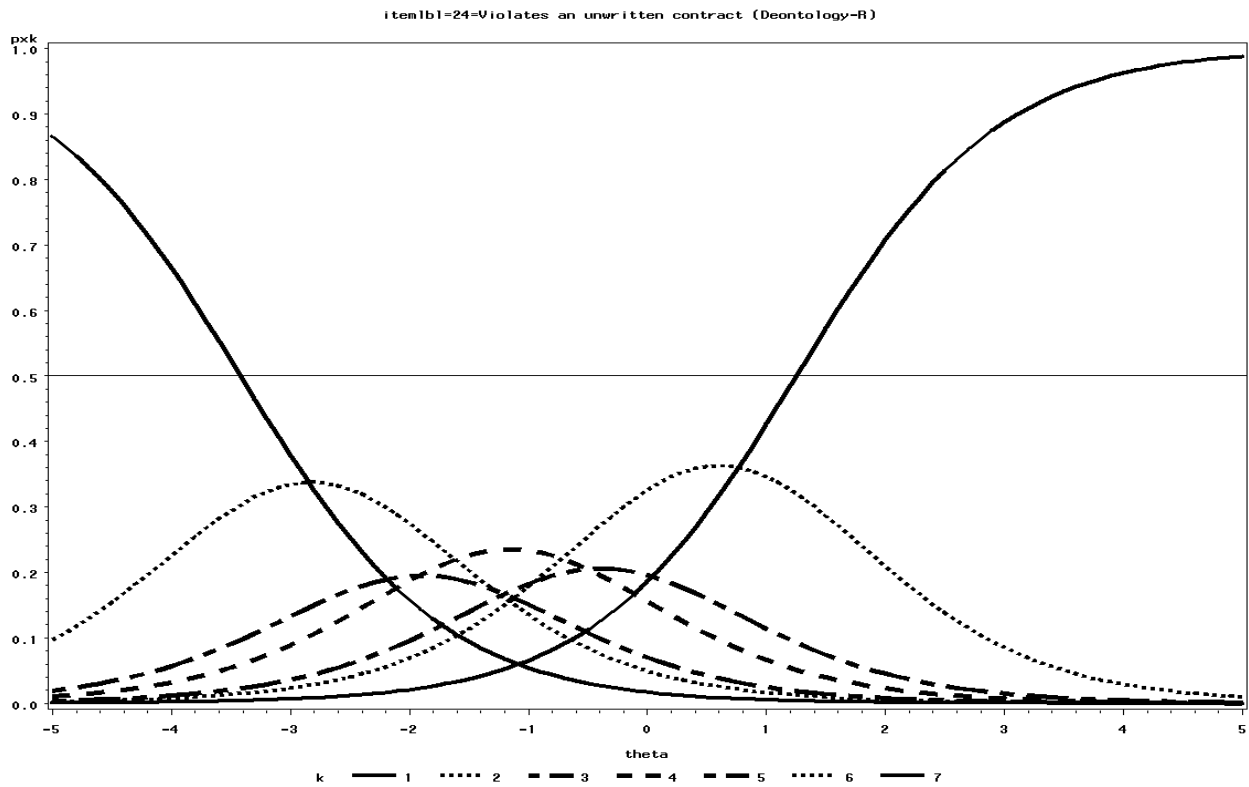


Figure 9. Item trace lines for MES item 24 calibrated using the Samejima (1969) GRM.

# Multidimensional Ethics Scale

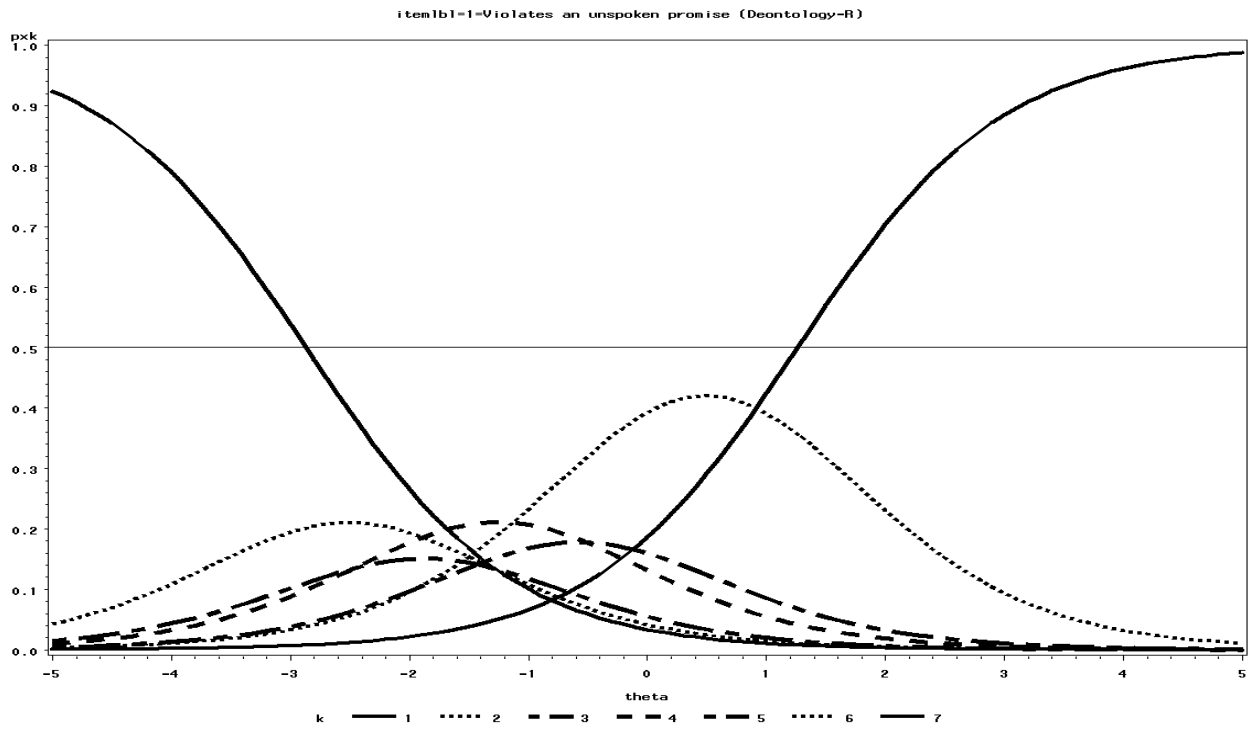


Figure 10. Item trace lines for MES item 1 calibrated using the Samejima (1969) GRM.

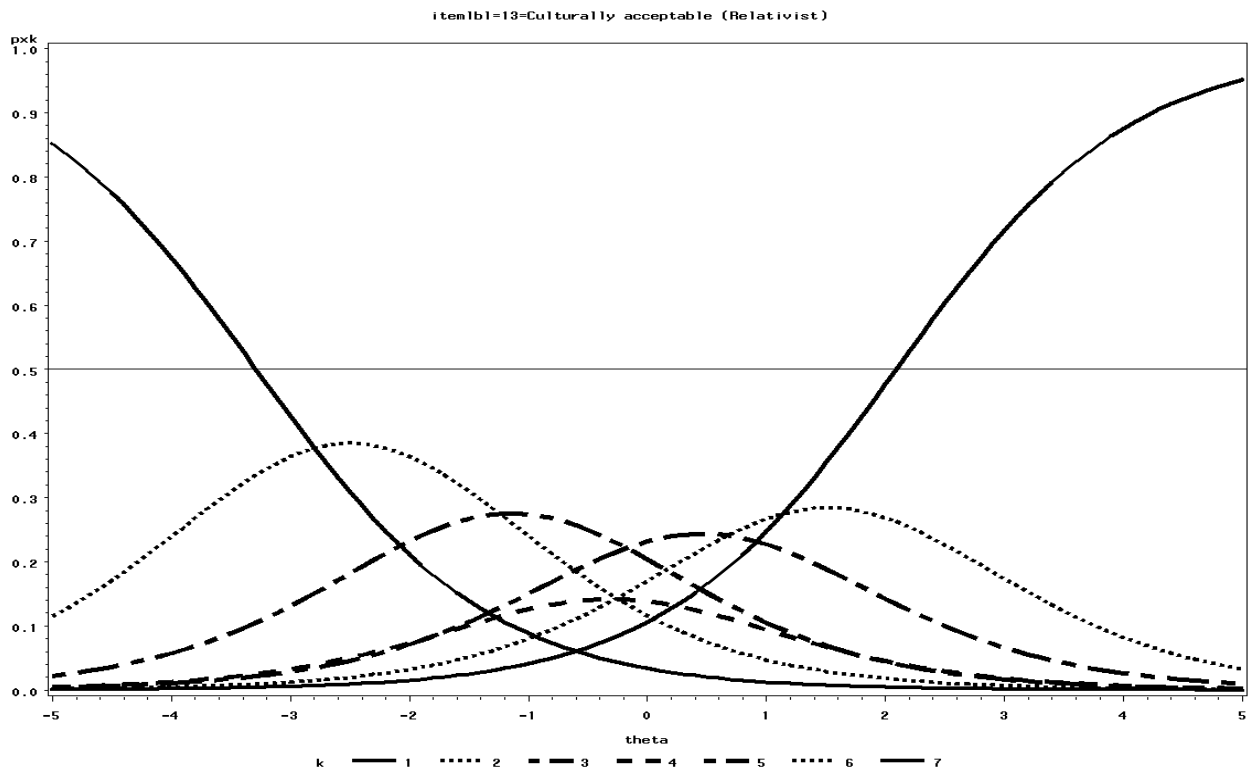


Figure 11. Item trace lines for MES item 13 calibrated using the Samejima (1969) GRM.

Multidimensional Ethics Scale

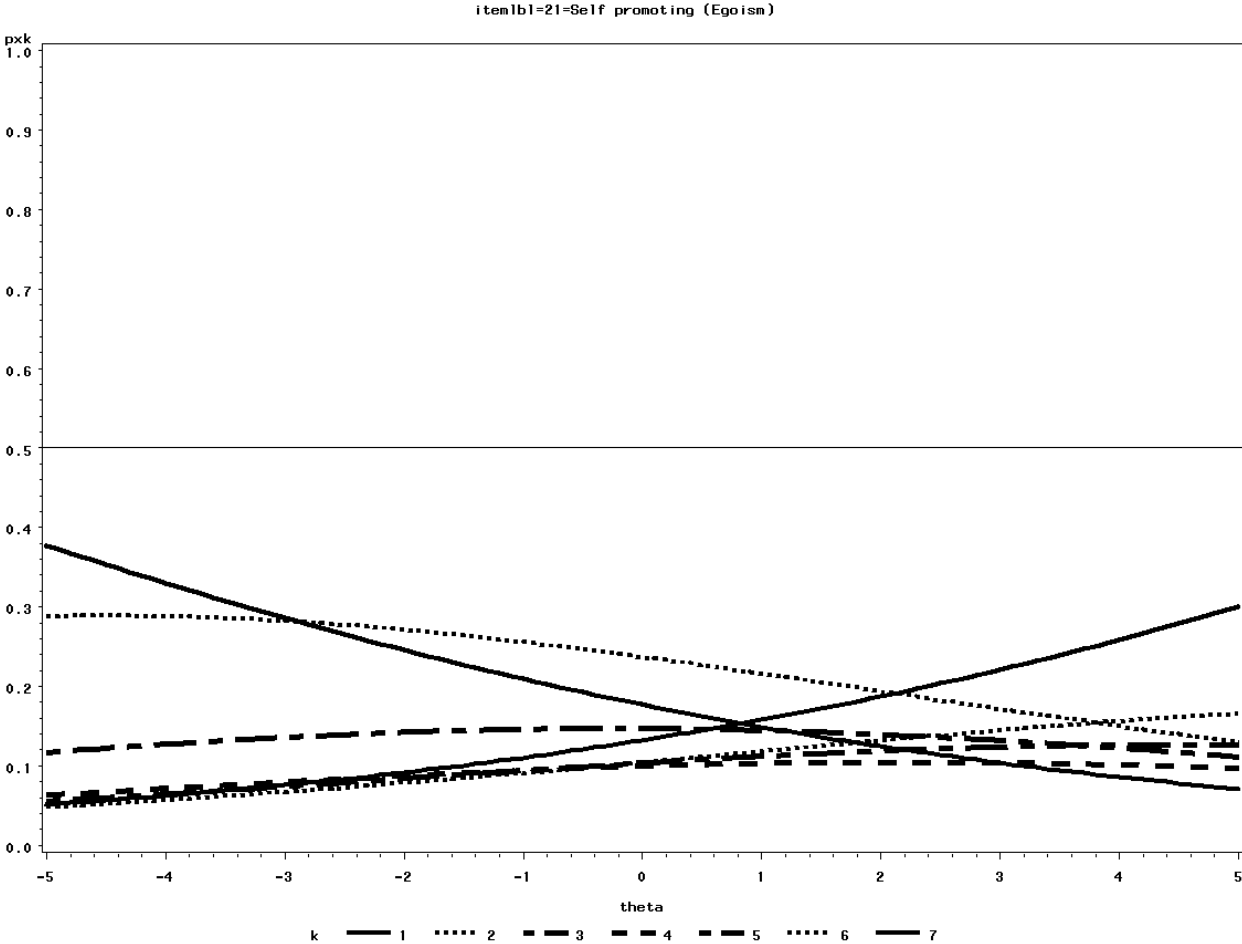


Figure 12. Item trace lines for MES item 21 calibrated using the Samejima (1969) GRM