EGO-STRENGTH IN STUDENT LEADERSHIP ASSESSMENT:

A PATTERN-ANALYTIC INVESTIGATION

By

MARVIN SCHILLER

A THESIS

Submitted to the College of Science and Arts of Michigan State University of Agriculture and Applied Science in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Department of Psychology

1959

To my
wife

ACKNOWLEDGMENT

The author owes a primary debt of gratitude to Dr. Louis L. McQuitty for his patient guidance and constructive criticism instrumental in the ultimate completion of this research. As chairman of the Guidance Committee, Dr. McQuitty provided the encouragement and understanding that helped make this a challenging experience.

The suggestions of the other Committee members, Drs. Albert I. Rabin, Frederic R. Wickert, and Gerald F. King, were invaluable in facilitating the development and organization of this project.

The assistance in preliminary formulations of this dissertation by the staff members at the Michigan State University Counseling Center is also gratefully acknowledged.

Finally, appreciation is expressed to members of the faculty in the departments of Air Science, Business Administration, Military Science, and Psychology at Michigan State University for their time and cooperation in allowing their enrollees to be used as subjects in this research.

M. S.

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ABSTRACT

As a means of testing one important concept from psychoanalytic theory in the assessment of leadership, it was hypothesized that patterns of ego-strength characteristics are related to leadership behavior.

The Ss were 400 male college seniors who were assigned to one of four leadership categories on the basis of the number and hierarchical level of leadership positions held, as reported in a biographical leadership questionnaire. The criterion categories were P, presidential leaders (N = 86); CCa, committee chairman who held more than one such position but none higher (N = 83); CCb, committee chairman who held such positions only once (N = 92); and NL, non-leaders or Ss who have never held any leadership position (N = 139). The total population was randomly divided into standardization and cross-validation groups of equal size.

Ego-strength was defined as that process which facilitates the analysis and integration of impinging stimuli (i. e. environmental as well as those attributed to internal dynamic processes) in the direction of need-satisfying goal achievement. The ES scale, comprised

of the 68 item Barron Ego-strength Scale and 30 items constructed by this author based on specific criteria of ego-strength, was used as a measure of ego-strength for testing the Ss. Both linear (additive) and configural (pattern-analytic or typal) methods were used for the analysis of the data and the efficacy of each, in assessing leadership, was investigated.

Appropriate item analyses were employed for selecting the best items for the linear and configural tests. The primary configural treatment was the newly developed Multidimensional Scalogram Analysis.

Some of the major findings are as follows:

1. The linear method was superior in differentiating between all four criterion categories with 5 and 10 item keys ($p < .01$), whereas with the configural method the criterion for the selection of items was not satisfied; therefore a configural test was not developed.

2. The linear and configural analyses (5 item keys) were effective in differentiating between criterion categories P and NL. The mean percent of correct categorization of Ss in the cross-validation sample were 73% and 64.5% for the respective analyses ($p < .01$).

3. There was no significant difference between the effectiveness of the linear and configural keys in differentiating between P and NL, and between these and the linear key which differentiated across all four criterion categories.

4. By combining both the linear and configural keys greater effectiveness was found in the accuracy of classification (76%) than was the case with either method treated separately, but the increase was not statistically significant.

5. The items of the ES scale that were developed by this author proved to be of greater effectiveness in differentiating between leadership categories than were Barron's items.

As a result of these findings it can be concluded that ego-strength, as measured by the ES scale, is effective in leadership assessment. Furthermore, the hypothesis was found tenable within the limits of the particular experimental conditions employed.

The value of the pattern-analytic approach to the data, and suggestions for future research were discussed.

Approved Louis S. McCarthy
Major Professor

30 November 1959
Date

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I. Introduction

A vital area of research and theory in social psychological science is that of leadership. Educators, military men, and industrialists have long been interested in this subject, and though numerous attempts have been made in the direction of leadership assessment, relatively little success has been achieved (Cartwright, and Zander, 1956; Jenkins, 1947; Stogdill, 1948).

Some of the earliest research, under the rubric of the "great man" thesis, placed primary weight on the traits and characteristics of the leader, with the contention that the rest of the group is worthy of consideration only insofar as its behavior is the result of his instigation (Binet, 1892; Borgatta, et al, 1954; Elliot, 1957; Feldman, 1955; Given, 1957; Stryker, 1959). Physical, intellectual, social, and personality factors were studied in an attempt to differentiate between leaders and non-leaders.

During World War II, and immediately thereafter, concern was with outlining and describing the various personality traits and behavioral syndromes most typical of leaders. Initiative, responsibility, agressiveness, fairness, and the ability to make decisions were found to be of importance in some studies, but, in

general, the results were equivocal (Stogdill, 1948). Jenkins (1947), after reviewing the literature, concluded that "progress has not been made in the development of criteria of leadership behavior, nor in the setting-up of an adequate working definition of the concept to guide research in the isolating of leadership traits. The situation does not appear to be a happy one with regard to the deriving of general principles or of setting up a systematic theory of leadership from the available information." Currently, the situation is not very much better (Cartwright, and Zander, 1956).

As a result of the work by Kurt Lewin (1947a; 1947b) and several of his colleagues, a situational approach to the understanding of the leadership phenomenon has been developed. Here, an individual's accession to this role is seen as dependent upon social factors; the particular situation and the contributions made to the group's goal achievement (DuVall, 1943; Haythorn, et al., 1956; Jennings, 1937; Murphy, 1937). Gibb (1947) and others (Knickerbocker, 1951; Pigors, 1935; Schneider, 1937; Stogdill, 1950) support this view and add to it the concept of mutual stimulation. Some social interactional process is said to take place in which "the attitudes, ideals, and aspirations of the followers play as important a determining role as do the individuality and personality of the leader" (Gibb, 1947). The membership is emphasized and

the leader is considered to be the product of the group situation.

Some of the proponents of this interactional theory maintain that since there can be no leadership in isolation (Gibb, 1947), and since leadership, only on few occasions, is an enduring role (Fiedler, 1954), some social phenomenon must therefore account for the leader's emergence. But to accept this point of view, with but secondary weight attached to the personality dynamics involved, might be to omit a vital consideration in the understanding of the leadership pnenomenon. There may be value in attending to the other side of the coin; the interaction of individual attributes of leadership that are sufficient to band the group membership into a cohesive, goal-seeking organization. Rather than considering the characteristics of the group structure that develop a need for a central guiding figure, attention might also be turned toward the individual himself and those qualities and traits that are sought after and called upon by the group.

One of the primary stumbling blocks in evaluating leadership is due to the inadequacies in defining the terminology employed (Andrews, 1955; Stogdill, 1950). In the present investigation it is proposed that there are different types of leaders. When the advocates of the interactional theory suggest that leadership varies from situation to situation (Cowley, 1928; Fiedler, 1954) they

are probably referring to different types of leaders than are those researchers who find a consistent tendency in certain persons to ascend to the leadership position in a variety of groups (Bass, 1949; Bell, & French, 1950; Carter, et al., 1951; Jackson, 1953).

Borgatta, Couch, and Bales (1954) have been able to delineate "six types of thinking about the optimum leadership structure of the group for effective performance." In accordance with the great man theory they make a special effort to investigate the "all-around leader." It is pointed out that the latter leadership type needs to possess a combination of specific personality qualities to a substantial degree. With a simultaneous fusion of these characteristics "the great man is able to satisfy the major role demands and personality needs of group members." It is a purpose of the present study, in assessing leadership, to differentiate between types of leaders according to the leadership characteristics present.

In surveying the literature on leadership theory and research it appears that relatively few attempts have been made to utilize orthodox Freudian theory (Freud, S., 1924) to provide an understanding of the problem at hand. Some investigations have centered about the Oedipal conflict and its resolution (Henry, 1957), while others have been concerned with superego identification where the leader is thought of as the "father" (Scheidlinger, 1952) or

"grandfather" image (Feldman, 1955). Scheidlinger (1952) ties this work together and emphasizes the differences in the relationship between the group members and the leader, depending upon the character of the group. He suggests that in a group with an autocratic kind of leadership, "the leader tends to replace the individual's superego. He assumes the role of a new inner authority and the tie to him is the basic cohesive force . . . In democratic groups there is less projection of the individual's superego upon the leader and less dependence upon him. Instead, there is more identification (in the ego) with him and opportunity for individualized, at times critical, responses from the group."

For the most part, these theoretical explorations seem to have failed to make significant contributions to the comprehension of leadership, and its assessment, because of either untenable hypotheses, inadequacies in the research design, and/or failure by the rest of the field to accept the esoteric theoretical assumptions.

One worthwhile research attempt though, tends to compensate for many of the other inadequacies. In evaluating children's groups, Redl (1942) distinguished between ten types of leadership in which some central person acts as the focal point around whom the group formative process takes place. Typical of the formulae offered to explain each of these types is the following:

> The central person renders an important service to the ego of the potential group members. He does so by providing the means for the satisfaction of common undesireable drives and thus prevents guilt feelings, anxieties, and conflicts which otherwise would be involved in that process for them. On the basis of this service, the latent undesireable drives of these youngsters can manifest openly. Through this common conflict-solution, group emotions develop in the interpersonal situation (Redl, 1942).

The ego of the single individuals involved in the group situation is given greatest prominence and seems worthy of further consideration.

With the dynamic concept of ego-strength as the chief point of reference, the present investigation considers leadership in terms of both the prevailing environmental and personality premises. Within this context, ego-strength is defined as the process which facilitates the analysis and integration of impinging stimuli in the direction of need-satisfying goal achievement.

Ego-strength is perceived as the vehicle for integrating the two major theoretical leadership positions. It enables the individual to behave as a "great man" in response to the needs of the membership of a group by emerging in the leadership role as a reaction to group pressures.

Recognition is taken of the possibility that ego-strength may be diverted along lines other than personnel leadership achievement (see Figure 1). A person may, as a consequence, be high in ego-strength and still not be a leader; he expresses his strengths in

other roles. On the other hand, it is argued though, that high ego-strength is a prerequisite for leadership (i. e. every leader will have it), but not all persons who have high ego strength will necessarily be leaders.

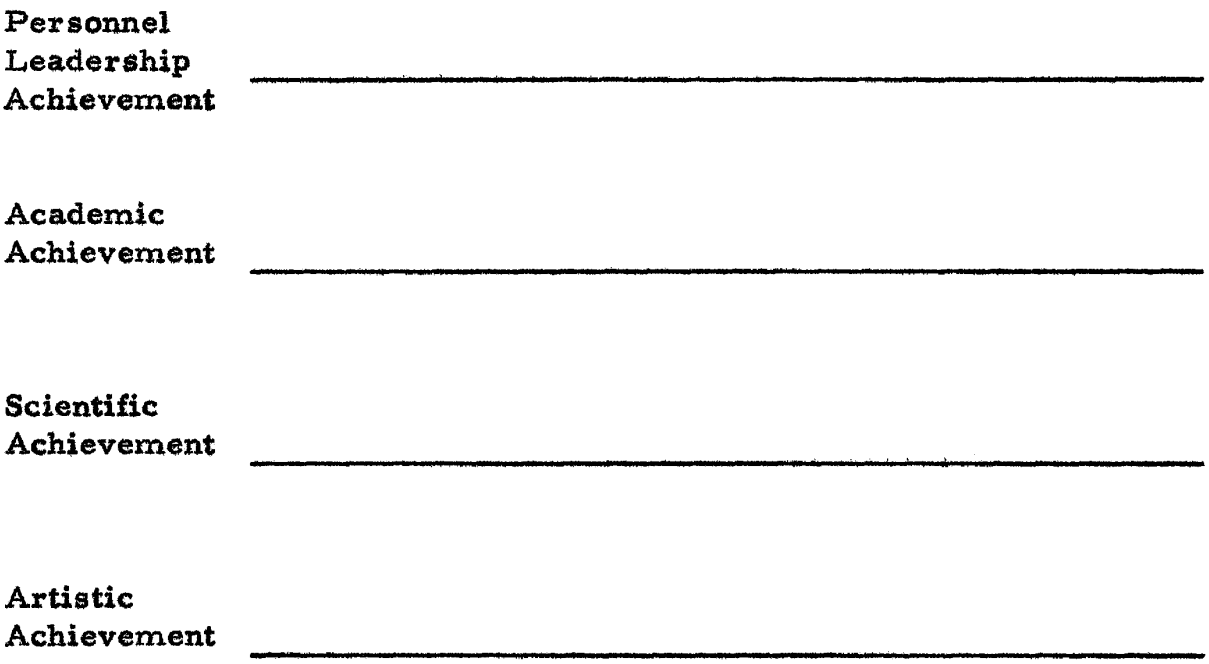
Ego-strength is a highly abstract and global concept and is assumed to express itself in various patterns of ego characteristics. Furthermore, the various roles in which ego-strength is expressed are postulated to have patterns of ego characteristics which are distinctive of that particular role. This approach is applicable to the leadership concept; leaders will express their ego-strength in ego characteristics which are peculiar to the leadership role.

A hypothetical plot of the expected relationship between personnel leadership and the abstract concept of ego-strength is seen in Figure 2. With leadership arranged at the ordinate and ego-strength on the abscissa, it is noted that anyone high in leadership is also expected to be high in ego-strength. Someone found high in ego-strength though, does not necessarily have to be high in leadership; his psychic energy is probably directed along other lines (i. e. academic achievement, etc.). It is the interaction or configuration of the variables which comprise ego-strength that demonstrates the uniqueness of any one mode of behavior.

The comments by Bellak (1958) on the structural organization of the personality are representative of this theoretical position.

Figure 1

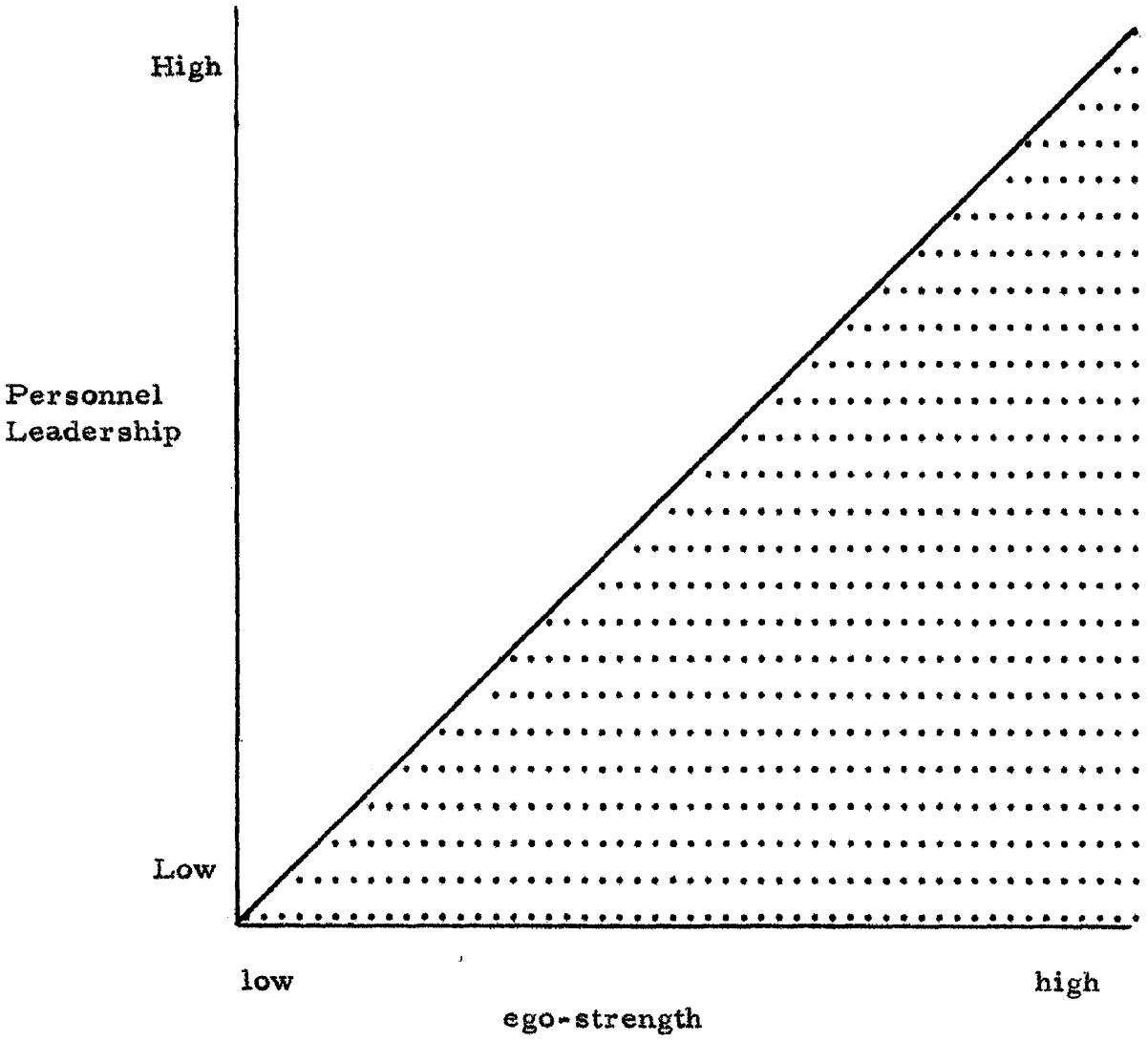
Several examples of achievement areas toward which an individual might direct himself, and the level of ego-strength associated with each.



Legend: An individual may be high in ego-strength in any one or more areas of achievement. He may be low in any one or more achievement area(s) but still be high in other ones. In order to be high in one achievement area he must be high in ego-strength, but if he is high in ego-strength he need not be high in every achievement area.

Figure 2

Theoretical plot of the relationship between leadership and ego-strength



He maintains that the best understanding of the concept of the ego is in terms of the total integrated performance of its functions, rather than as an over-all concept of ego-strength where degrees of ego functions are additive. It is mentioned further that though ego-strength must be viewed globally, the ego cannot be conceptualized as a perfect sphere. "The image that suggests itself is that of an uneven raspberry on which each surface point constitutes the terminous of one of the many ego functions. Furthermore, this protean raspberry might be made of stretchable rubber and which would change its shape developmentally and be subject to momentary daily variations" (Bellak, 1958; p. 35).

Fenichel (1945), exemplifying Freudian psychoanalytic theory, has suggested that the maturation of the ego is the result of the "continuous interplay of the organism's needs and environmental influences." It is in constant conflict with those portions of the personality involved with the expression of primitive, instinctual demands (the id) and the expression of the learned ideal standards (the superego).

> Underneath the organized periphery of the ego lies the core of a dynamic, driving chaos of forces, which strive for discharge and nothing else, but which constantly receive new stimulation from external as well as internal perceptions . . . . The organization proceeds from the surface to the depth. The ego is to the id as the ectoderm is to the endoderm. The ego becomes the mediator between the organism and the outer world. As such it has to provide protection

> against hostile influences from the environment as well as enforcement of gratification even against a restricting outside world (Fenichel, 1945, p. 16).

The ego is considered as dealing with the "executive" (as well as perceptual and integrative) functions of the personality as a result of its responsibility for reality testing, judgment, self-realization, emotional integration, and mastery of reality situations (Blum, 1953; Hall, 1954; Klopfer, 1951; Murray, & Kluckhohn, 1955).

It should not be assumed that an appropriate patterning of ego-strength characteristics precludes the existence of ego protective, defensive mechanisms. On the contrary, the more complex, higher order defenses (eg. intellectualization, sublimation, compensation, etc.) may be vital in the promotion of leadership behavior. King and Schiller (1959) have found that for those individuals with a higher degree of ego-strength, there is a tendency toward a relatively greater use of defenses such as rationalization as compared with the more primitive defenses like denial and projection. The individual with inferiority and inadequacy feelings may tend to compensate by striving all the harder for such positions where his status will be enhanced. In doing so he may rationalize away any threat to his well being or, in the cases of lower ego-strength levels, deny the existence of any obstacles.

Schafer (1954) refers to the developed "strength" of the ego as "synonymous with an adaptive, adequately realistic, resilient personality, defended well but not rigidly." He goes on to point out that the adaptive ego operations seek to "articulate, regulate, and coordinate a wide variety of inner (id, ego, superego) demands with each other and to integrate these with the opportunities, dangers and limits in the surrounding physical and social environment."

The quantity of excitation that can be appropriately tolerated without discharge was discussed by Freud (1924) as being a matter of psycho-economics. "When tendencies to discharge and tendencies to inhibit are equally strong, there is externally no evidence of activity; but energy is consumed in an internal hidden struggle. Clinically this is manifested by the fact that the individuals subject to such conflicts show fatigue and exhaustion without doing perceptible work . . . . Those who have inner problems to solve must apply a great deal of their energy to them, and there remains little for other functions" (Fenichel, 1945; pp. 13-14). Therefore, if the organization of the ego is such that a rigid bulwark of defenses is continually needed for protection against the relentless pressures of the id and superego, not much psychic energy can remain to be devoted to the more creative processes that exemplify leadership.[1]

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[1]Again, it is important to note that the creative achievement to which reference is made is primarily that which is most typical of creative personnel leadership. Instances of this would be seen in an

Kris (1952), expanding on the Freudian notion, supports this contention and refers to "regression in the service of the ego" as characteristic of creative and productive processes. There is said to be an increased openness of consciousness which requires relaxation of the defensive, regulatory, and organizing ego attitudes that normally screen conscious material seeking passage from the unconscious to consciousness. An appropriate interaction of ego characteristics is a requisite factor for such processes to occur.

In speaking of "field-analytic" persons who have a "strong ego," Stagner (1959) suggests that to the extent that each individual perceives his environment in his own personal fashion, seeing attractive and threatening objects and relating himself to them, we have a major source of uniqueness in personality. These individuals are better able to strip away the cultural artifacts and non-essentials that cloud the situation. They should be less subject to group conformity, as described by Asch (1951) and Crutchfield (1955), and more prone to independent leadership emergence.

Attempts at evaluating ego-strength have tended, for the most part, to follow a psychotherapeutic rationale (Barron,

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executive's interpersonal planning, decision making, organizational strategy, etc. But it is also recognized that creativity can be expressed in other directions as well (i.e. artistic and scientific pursuits). The latter manifestations are not considered here.

1953; Klopfer, 1951; Rogers, 1951; Schiller, 1958). It is suggested that as a result of successful psychotherapy an individual is likely to relinquish many of his defense mechanisms which were previously employed to protect the ego from libidinal pressures and their resultant anxiety (Fenichel, 1945; Rogers, 1951). A relearning takes place in which the individual attains a better understanding of himself and his problems so that the environment can be perceived through a more realistic, objective and rational framework. Consequently, this strengthening of the ego permits the application of psychic energy forces in a more positive direction (Rogers, 1951; Schiller, 1958).

Murray and Kluckhohn (1955) have presented some fifteen specific variables which permit an outline of the "criteria of ego-structure or ego-strength." Under three major categories, perception and apperception, intellection, and conation, they consider the important factors that have been associated with the ego-strength concept by other theorists (Bellak, 1958; Blum, 1953; Fenichel, 1945; Schafer, 1954; Stagner, 1959).

Table 1 contains a listing of these "criteria" with a brief descriptive statement for each, based on the original work of Murray and Kluckhohn (1955). It might be noted that the ego's role is portrayed as both a modifier between inner dynamic forces (id and superego), and as a modifier between the internal demands

Table 1

Criteria of ego-strength*

A. Perception and apperception.
   1. External objectivity: the ability to perceive human actions and events without distortion.
   2. Internal objectivity: insight into one's own motives, evaluations, and emotional reactions.
   3. Long apperceptive span: the habit of making causal connections between events that are temporally not contiguous in experience.

B. Intellection.
   4. Concentration, directionality: the ability to apply one's mind to an assigned or selected topic.
   5. Conjunctivity of thought and speech: the ability to think, speak, and write clearly, coherently and logically.
   6. Referentiality of thought and speech: the absence of vague undefined, essentially meaningless terms and expressions.

C. Conation.
   7. Will-power: the ability to do what one resolves to do and is capable of doing.
   8. Conjunctivity of action: the ability to schedule and organize one's activities.
   9. Resolution of conflicts: the ability to choose between alternative courses of action.
   10. Selection of impulses: the power to repress temporarily, inhibit, or modify unacceptable emotions or tendencies.
   11. Selection of social pressures and influences: the ability to choose among the demands, claims, enticements, and suggestions that are made by other people.
   12. Initiative and self-sufficiency: the ability to decide for oneself and act without waiting to be stimulated, urged or encouraged.
   13. Responsibility for collective action: the willingness and ability to take responsibility and effectively organize and direct the behavior of others.
   14. Adherence to resolutions and agreements: the disposition and ability to abide by long-term decisions and commitments.
   15. Absence of pathological symptoms: freedom from incapacitating neurotic and psychotic symptoms.

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*Taken, in part, from Murray and Kluckhohn (1955).

and the environment. Representatives of the former function are seen, for example, in the criteria "selection of impulses," "internal objectivity," and "absence of pathological symptoms." On the other hand, "selection of social pressures," "external objectivity," and "referentiality of thought and speech" are more typical of those ego-strength characteristics which act as a means of successful compromise between internal and external stimuli. The resulting manifestations of ego-strength are seen, in accordance with the previously cited definition, as facilitating the analysis and integration of impinging inner and environmental stimuli in the direction of need satisfaction and goal achievement.

Much of the research findings concerned with leadership can be subsumed under one or more of these criteria of ego-strength. In Table 2 are listed the Murray and Kluckhohn variables with appropriate bibliographic references to theory and research carried on in the area of leadership which tend to be supportive of each. There appears to be a close association between what is considered as characteristic of leadership and the criteria of ego-strength. Since findings supportive of both the "great man" and "social interactional" theories can fit with facility within the ego-strength context, it is suggested that this approach can provide greater cohesion and comprehension of the leadership phenomenon.

Table 2

An outline of some criteria of ego-strength* with bibliography references to leadership studies** supportive of each.

Criteria	References
A. Perception and apperception	
1. External objectivity	(1, 14, 16, 18, 21, 28, 44, 72, 96, 100, 103, 106,)
2. Internal objectivity	(1, 14, 50)
3. Long apperceptive span	(6, 21, 43, 51, 69, 70, 72, 98, 107)
B. Intellection	
Concentration, directionality	(6, 37, 50, 51, 72, 98)
5. Conjunctivity of thought and speech	(7, 21, 58, 72, 96, 98)
6. Referentiality of thought and speech	(6, 72, 96, 98)
C. Conation	
7. Will-power	(1, 8, 17, 26, 37, 43, 51, 72, 93, 96)
8. Conjunctivity of action	(3, 18, 20, 44, 72, 81, 93, 98)
9. Resolution of conflicts	(4, 12, 21, 37, 38, 39, 51, 72, 81, 93, 106)
10. Selection of impulses	(1, 32, 72)
11. Selection of social pressures and influences	(32, 39, 43, 52, 55, 59, 63, 71, 83, 92, 96, 100, 102)
12. Initiative and self-sufficiency	(3, 4, 6, 15, 18, 41, 42, 56, 59 83, 108)
13. Responsibility for collective action	(12, 14, 39, 41, 42, 43, 50, 56 57, 72, 96, 97, 103, 104, 105)
14. Adherence to resolutions and agreements	(17, 49, 72, 96, 97, 107, 108)
15. Absence of pathological symptoms	(12, 20, 38, 39, 81)

*From (Murray and Kluckhohn, 1955).

**See bibliography.

Members of industry have reluctantly recognized that there are comparatively few great, all-around leaders. Fortune, in a series of articles on executive qualities, dealt with the traits of emotional stability, ambition, drive, initiative, judgment, etc. and concluded that there can be no standard list of personal attributes because the development of one may "stunt the growth" of another (Stryker, 1959). It was found also, that a manager may be weak in some trait frequently considered "essential" and still do an excellent job; that the manifestations of leadership characteristics may vary greatly from time to time in the same individual.

Other research evidence suggests that various patterns of personality functions may interact to form a different executive or leadership type (Henry, 1957; Madden, 1954; Mandell, 1957). In an article summarizing previous findings concerning the "executive personality," Henry (1957) made the following conclusions:

> The characteristics of the executive as found by the researchers in a sense comprise a personality pattern. They are the characteristics which seem most important in the executive personality configuration, which seem to have contributed most to success in the executive role, which are present most frequently in the personalities of those individuals who would be called successful in this area (p. 329).

Differences in leadership types can be seen, for example, in the case of the business administrator who is not necessarily the same person as the business leader. The job functions, and probably

the personality manifestations of an organization's president, treasurer, and first-line supervisor, all management personnel and supposed leaders, are quite different. These differences should be amenable to a typal categorization.

Hypotheses

It is therefore assumed that by considering leadership types and differentiating between them in terms of individual differences in patterns of ego-strength characteristics, it is possible to integrate the major research findings concerning the "great man" and "social interactional" theories of leadership. More specifically, as a test of one important concept from psychoanalytic theory in the assessment of leadership, it is hypothesized that patterns of ego-strength characteristics are related to leadership behavior. Furthermore, the results of linear (additive) and configural (typal) models will be compared in an attempt to determine the efficacy of both of these analyses in leadership assessment.

Testing instruments

Barron (1953) developed an ego-strength scale out of the Minnesota Multiphasic Personality Inventory (MMPI). His original goal was to predict response to psychotherapy. Using 17 neuro-psychiatric patients who were judged to have improved as a result of psychotherapy, and 16 patients judged unimproved, he item analyzed the 550 item MMPI. Sixty-eight items were found to correlate

significantly with the rated improvement in the normative sample, as well as in several cross-validation groups.[2]

There was no theoretical rational for the acceptance of the final 68 items, except that derived from the logic of construct validity (Cronbach and Meehl, 1955). It was suggested that since the scale differentiated between those who did and did not respond to psychotherapy, and since increased ego-strength is theoretically considered to be of major import in the improvement resulting from therapy, the scale must therefore be a measure of ego-strength (Barron, 1953). The findings of other attempts to evaluate the construct validity of Barron's scale have not proven as fruitful (Schiller, 1958), probably because of the contaminating effects of response set (King and Schiller, 1958).

As a result of the test's objective, the items tend to be primarily concerned with psychopathological factors that might be associated with the ego-strength variable. Some sample items are:

#6. "I frequently find myself worrying about something."

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[2] Supporting the relationship between ego-strength and leadership, Barron (1953), in so far as his cross validation samples are concerned, reports a somewhat higher mean ego-strength score for an Air Force officer sample than with patients and student groups. Military populations, such as the one reported on, are often considered as exemplifying leadership (David, 1954; Halpin, 1954; Jenkins, 1947; Page, 1948).

#38. "Evil spirits possess me at times."

#55. "Often I cross the street in order not to meet someone I see."

#89. "At times I have fits of laughing and crying that I cannot control."

II. Method and Procedure

Since ego-strength is a rather broad concept, it probably encompasses more than just the seven "psychological homogeneities" that Barron (1953) was able to cull from the MMPI. As a means of extending the scope of that testing instrument, thirty new items were developed by the present investigator and randomly combined with Barron's scale to form a 98 item ego-strength (ES) scale (Appendix A).

The thirty items were based on the descriptive statements of Murray and Kluckhohn's (1955) fifteen criteria of ego-strength, with one "true" and one "false" response, positively weighted to measure high ego-strength, established for each. In constructing items, attempts were made to remain as close as possible to the original wording of each criterion so that the association would be unequivocal. For example, the criterion of "external objectivity" was described, in part, as " . . . to predict the behavior of others," and the equivalent test item was, "I have found myself able to predict the behavior of others." Furthermore, the criterion of "internal objectivity" was described, in part, as " . . . insight into one's own motives, evaluations, and emotional

reactions," while the test item associated with it was worded, "I understand myself and many of the motives underlying my behavior."

For those descriptive statements which could not easily be reworded to form a test item, the item was constructed as a close approximation to the criterion's meaning. Such an example is seen in the case of the criterion described as "freedom from incapacitating neurotic or psychotic symptoms," and the simplified equivalent item, "I never have problems with nervousness."

The close association between the wording of the test items and the descriptive statements of the criteria of ego-strength provide some evidence, in the form of content validity, for the 30 item portion of the ES scale as a measure of ego-strength.

Subjects

Since the purpose of the present investigation is to assess leadership by means of a scale designed to tap ego-strength, it was necessary to test a population involved in leadership activities. The subjects (Ss) were drawn from the college population available at Michigan State University. Previous research evidence has indicated that campus leadership is the forerunner of, and closely associated with later community and/or industrial leadership (Bridgman, 1930; Elliot, 1957).

University enrollment records were examined and classes containing large numbers of male seniors were later tested. The

resultant population of 400 seniors were enrollees from business administration, military science, psychology, and other diversified courses. All of the Ss had had the opportunity, during at least three academic years, of becoming associated with the more than 250 student organizations at MSU.

Statistical and experimental controls were instituted for the population tested in an attempt to harness the effects of several variables which had, in previous studies (Jenkins, 1947; Stogdill, 1948), been found related to leadership.

Both sex and level of education were kept constant by employing only male college seniors as Ss.

The American Council on Education (ACE) test was employed as a measure of intellectual ability. This instrument was administered under similar conditions to all incoming students at MSU and results for each of the Ss were readily available. Prior to the administration of the test instrument the Ss were instructed by the author, in effect, as follows:

> I would appreciate your cooperation in a research study concerning leadership with which I am involved. I am particularly interested in testing college seniors such as yourselves who may someday be involved in important leadership capacities. The test which I will ask you to complete is meant to measure leadership, but it is strictly intended for research purposes and will in no way effect your standing in the University.
>
> The test will take about a half hour. When you are finished I would like you to fill out a short questionnaire.

If you have any questions about the purpose of this research or your results on the test, I will be glad to discuss them with you afterward.

When you receive the material you may begin.

Leadership categorization

After each of the Ss completed the ES scale, personal information and a history of leadership participation was obtained by means of a biographical questionnaire (Appendix B). Assuming that all individuals have some leadership potential, overt and/or implicit, a leader was operationally defined as a student who was appointed or elected by his peers to an executive level position in any one or more student organizations recognized by Michigan State University. An executive position is one which involves some advisory or supervisory activity in which other students are involved as subordinates.

From the above definitions it might be inferred that there are at least two relative-leadership types. The first can be described in terms of the participation or active involvement in organizations, while the second, though possessing leadership potential, has a history of no leadership performance.

As a result of this classification, and in accordance with the previous theoretical discussion, it was next attempted to differentiate among those sub-types that comprise the "active leader" type. In order to accomplish this task the Ss were divided into four

categories with respect to the leadership level reported in the biographical questionnaire. The categories were each assumed to be relatively unique. They were differentiated and defined as follows:

1. Presidential (P): the attainment on at least one occasion of the position of president (or its equivalent) in one or more organizations.

2. Committee Chief "A" (CCa): the attainment on two or more occasions of the position of committee chief or vice president (or their equivalent) in an organization(s), with no higher post ever held.

3. Committee Chief "B" (CCb): the attainment on only one occasion of the position of committee chief or vice-president (or their equivalent) in an organization, with no higher post ever achieved.

4. Non-leader (NL): no history of the attainment of any leadership position.

The separation resulting in the categorizations of Committee Chiefs "A" and "B" was due to an examination of the biographical questionnaires which suggested that the repeated attainment of committee chief or vice-presidential posts by some Ss might represent a relatively unique group, as opposed to those Ss who held such middle-leadership positions on only one occasion. It seemed that those Ss in the CCa category exhibited a rather stagnant history of leadership (which might also be indicative of their ego organization), while those Ss typical of the CCb category might be indicating potential for leadership above and beyond that which is overtly exhibited.

The differentiation between CCa and CCb was born out in a pilot study where Schiller and Abeles (1959) found that the CCb

people were more like the presidential (P) type in their patterns of responses to the ES scale, than they were like those in category CCa.

The Ss in each of the four leadership categories were randomly divided into two groups for standardization and cross-validation purposes (i. e. P = 43, CCa = 46, CCb = 42, NL = 69 in the standardization samples and P = 43, CCa = 46, CCb = 41, NL = 70 in the cross-validation group).

Configural analysis

A configural selection of items was performed on the standardization sample to select most promising items from a typological point of view. The approach was derived from an expansion of the Meehl Paradox (Meehl, 1950) which demonstrates that it is theoretically possible for two test items, when considered in combination, to have a perfect relationship with a criterion even though each item treated in isolation has a zero correlation with the same criterion.

Elaborating further on this proposition, McQuitty (1957a, 1957b, 1958, 1959) has developed pattern analytic methods for the purpose of classifying objects into types so that two or more categories of objects might be differentiated in terms of types. The number and nature of the types isolated are a function of both the method employed and the concatenations in the data. In the present study a type is defined as a category of persons of such a nature that anyone in a

category is more like every other person in that category than he is like anyone in any other category.

Every criterion category into which persons are classified is considered to represent a type. The individuals of any one type have particular characteristics in common; the pattern of characteristics are unique for every type. Therefore, any S is predicted to represent a specific leadership type if he possesses, in this investigation, the pattern of ego-strength characteristics which is unique to that type.

Of the several pattern-analytic methods available, Lingoes' (1959) Multidimensional Scalogram Analysis (MSA) was employed in the present study. This technique was used because, as far as the requirements for pattern-analytic studies are concerned, we are dealing with a relatively small population of Ss. It would therefore be most advantageous to obtain a method of analysis which minimizes the number of types which are isolated, and as a result, increases their dependability. MSA meets these standards.

MSA is a hybrid of McQuitty's Agreement Analysis (1957) and Guttman's Scalogram Analysis (1944). One important respect in which MSA differs from Guttman's technique is that more than just one unidimensional scale can be developed out of a set of data without making assumptions about the psychological nature of the universe of items involved. The MSA is multidimensional; it permits the possibility of more than one differential pattern in a single analysis.

MSA's primary advantage over McQuitty's method is based on the contention that "order" is a crucial parameter of both Ss and items, and the method is, therefore, capable of producing information which is equivalent to communality; this information serves as a basis for determining the categorization. Hence MSA is considered to be a noteworthy addition to both scaling and pattern-analytic methods as a result of the minimal assumptions made about the data, its theoretical implications, and its versatility (Lingoes, 1959).

In order to select the best configural items, matrices of intercorrelations between items for the four criterion categories were obtained (Appendix C). For every category of Ss each item was correlated with every other one. From these matrices, difference matrices were evolved which represent the correlation differences between categories for comparable item pairs (Appendix D). For example, the correlation coefficient between items 1 and 2 for leadership category P is subtracted from the corresponding coefficient in category CCa. The same procedure is followed for the correlation coefficients of other item pairs until difference matrix P, CCa is completed. This method was also used for obtaining the other difference matrices (i. e. P, CCb; P, NL; CCa, CCb; CCa, NL; and CCb, NL).

In order to facilitate and expedite the various analyses required in this research, the Michigan State Integral Computer (MISTIC) was used. A problem arose in attempting to complete the intercorrelation and difference matrices in that MISTIC is unable to handle matrices as large as 98 x 98, which would result from using the entire 98 item ES scale. Therefore, it was necessary to divide the scale into three groups of approximately equal size. Because the individual items had originally been randomly assigned to their position in the ES scale, it was assumed that randomness would be retained by using items 1 to 33 for the first intercorrelation matrix, 34 to 66 for the second, and 67 to 98 for the third.

Difference matrices were then evolved by subtracting, algebraically, each matrix from each of the other three which were concerned with the same items. For example, the intercorrelation matrix representing items 1-33 for the Ss in leadership category P were subtracted from those representing the same items for CCa, CCb, and NL. Eighteen such difference matrices (three for each of the six category comparisons) were derived in this fashion.

It was next attempted to determine which items were best from a configural point of view. To accomplish this, column sums of the difference matrices were computed and those items with the highest column sums were assumed to be best. This is an elaboration and application of Meehl's (1950) thesis concerning configural scoring.

Employing the difference matrix column sums for each criterion category pair, the next step was to determine the extent to which the ES scale items were sensitive to differences across all four criterion categories. This was accomplished by means of three independent Phi correlations between the difference matrix column sums for pairs of criterion categories. For example, the column sum for item one in difference matrix P, CCa was compared with that for the pair CCb, NL; and so on for every one of the 98 items in the ES scale. The same procedure was followed for the item column sums for category pairs P, CCb versus CCa, NL; and P, NL versus CCa, CCb.

Differentiation between two categories (configural)

It was next attempted to determine whether any separate pair of categories could be used. To learn the extent of differentiation that was feasible, an analysis was carried out using the best configural items in all four categories.

In selecting the most appropriate items from the difference matrix column sums, a cut-off point was arbitrarily set at 6.000. This sum, when divided by its N (i. e. 33 in this case), is equivalent to a correlation difference of approximately .20. This cut-off point also permitted the selection of at least two items from each of the 18 difference matrices.

Next, each of the four criterion categories of the standardization population were treated separately with the best configural items by means of the computer program prepared for MSA. Based on the concept of dimensionality, a listing was obtained of those Ss whose patterns of responses were in agreement with that of each S in the same criterion category under investigation. For example, S 1 might have S 4 agreeing with his pattern of responses on 25 items. S 12 might agree with S 1 on 22 items. Finally, S 24 might agree with S 1 on only 12 items. It might therefore be said that three other Ss were in agreement with S 1 on twelve items or more.

A frequency distribution was set up which provided information concerning the number of occasions in which each of the Ss was found in agreement with the other Ss in the leadership category. For example, it might first be found that the pattern of responses for S 1 has Ss 4, 12, and 24 in at least partial agreement. Subject 2 might have Ss 6, 12, 13, and 31 agreeing with his pattern of responses. The third S might be in agreement with the response patterns of Ss 4, 9, 12, and 42. A frequency distribution of the occasions on which each S, in this hypothetical situation, appears in agreement with other Ss would have S 12 as appearing most often (three times), followed by S 4 (two times), and so on.

That individual pattern of responses which was found to be most frequently agreed with by the patterns of the other Ss was

considered a pre-prototype. All those Ss who were in agreement, and therefore represented by this pre-prototype, were temporarily removed from the analysis. The response patterns of the remaining Ss then underwent comparable analyses until all of the Ss were found to be in agreement with a pre-prototype from that criterion category.

Because we were interested in maximum differentiation between categories, the next step was to remove from the pre-prototypes those items for which the answer is common. Once these "universals" (i. e. reporting universal agreement across pre-prototypes in answers) were eliminated from each of the pre-prototypes, the remaining patterns (i. e. prototypes) were used for scoring the Ss.

The mean score for each prototype in the four criterion categories was computed. The highest mean of the mean score differences between any two leadership categories, for the appropriate prototypes, was employed as the criterion for selecting that pair of categories for which differentiation was expected to be greatest on cross-validation studies. Mean differences were computed only for the scores on the specific prototypes derived from the pair of criterion categories being examined. This was done, rather than obtaining all possible mean differences for any one pair of categories, because further analyses would be concerned only with the patterns of the categories finally selected.

Since the "best configural items" used for the development of the previously mentioned prototypes were selected from an analysis

of all four criterion categories, and since we are now interested only in that pair of categories for which differentiation is expected to be greatest, it was necessary to return to the original difference matrices representing the two categories with which we were now concerned so that a new set of items could be obtained. The column sums for the 98 item ES scale difference matrix was placed in rank order and examined in an attempt to find any apparent "gaps" between adjacent sums. The point where the difference matrix column sums no longer differed markedly from the adjacent sums was used as the cut-off point in selecting the best configural items for that analysis. For example, if the difference between the column sums for items ranked 1 and 2 was 150, the difference between items ranked 2 and 3 was 170, between 3 and 4 was 10, between 4 and 5 was 3, between 5 and 6 was 8, and so on, the cut-off point would be selected between ranks 3 and 4 since it is at this location that the differences begin, and continue to be, relatively small, following the first few larger differences. As a result, items ranked 1, 2, and 3 would be selected as best, from a configural point of view, for the particular criterion category involved.

The responses of the Ss in the two leadership categories to these items were then treated, one category at a time, by means of MSA in a manner comparable to that described earlier. The mean scores of the two categories on the derived prototypes were computed

and differences between them were measured with Student's *t* test. Those prototypes for which significantly different means were found were then reanalysed insofar as their common (i. e. universals) and uncommon responses were concerned. This was done to answer the question about whether the differentiation between criterion categories was due to the universals or to those items on which the prototypes differed in their responses. The best key was finally selected for the scoring of Ss in the leadership categories and cut-off scores which permitted maximum accuracy of classification in the standardization population were determined.

The percent of correct assignment of Ss in each of the categories was tested for significance of difference from chance expectancy by means of the Chi Square test. The cross-validation sample was then tested in a similar manner.

Linear analysis

For the linear analysis of the data 98 2x4 Chi Squares were computed so as to select those items of the ES scale which tend to differentiate between two or more criterion categories. These Chi Squares were for the "true" and "false" responses to all the ES scale items by the standardization Ss in the four categories. Items were selected for three tests: a) those items which were found to differentiate between two or more categories at the 1% confidence level; b) those items that differentiate at the 5% level, including those

significant at the 1% level; and c) those N items which were best able to differentiate, where N equals the number of items derived configurally.

The linear keys were used for scoring the standardization Ss. Appropriate cut-off scores were determined in a manner analogous to that used in the configural analysis so as to maximize correct classification in the cross-validation groups. Analysis of variance and Tukey's D test were used for determining those categories for which differentiation was greatest.

Differentiation between two categories (linear)

The next step with the linear analysis was to select that pair of leadership categories for which differentiation was greatest. The Chi Square test was employed with the standardization group to make this determination.

Each of the four criterion categories was compared with every other one (i, e. six possible comparisons) for all of the responses to the 98 item ES scale. From the resulting 588 2x2 Chi Squares, using the Yates correction, three sets of items were obtained in a manner comparable to that described above. This time though, the items were selected which were best able to differentiate between one pair of criterion categories; that pair which was represented by the most items significant at the 5% confidence level or better.

The cut-off point found to best differentiate (i. e. the highest mean percent of correct classification) between categories in that standardization sample was also used to test the cross-validation groups.

Comparisons were then made between the linear and configural methods in terms of differences in percent of correct categorization in the cross-validation sample.

Combining appropriate linear and configural keys

It was next attempted to consider together the keys derived through both linear and configural analyses. The responses to best configural key which differentiated between two criterion categories was examined with the comparable linear key in a scattergram. New cut-off scores for each key were determined so as to maximize the total percent of accurate classification when the results of both methods are considered in combination. These cut-off scores were then used for a similar comparison with the cross validation population and these results were compared to those obtained when each key was evaluated separately.

III. Results

Table 3 shows the results of several statistical tests which were used to measure existing differences in intelligence, age and veterans' status between the four criterion categories. No significant mean differences were found between the four categories on total scale raw score data ($F = 1.04$). Similarly, no statistically significant differences between criterion categories were found for age ($F = .82$) and the distribution of veterans within the sample ($\chi^2 = 3.94$).

Configural analysis with standardization Ss

The Phi correlations that were used with the configural analysis to determine the extent to which the ES scale items were able to differentiate across all four categories were not significantly different from chance expectancy ($p > .05$). The relationship (r) between the difference matrix column sums for criterion categories P, CCa versus CCb, NL was -.009, for P, CCb versus CCa, NL it was .134, and for P, NL versus CCa, CCb it was .024. It was therefore concluded that the configurally selected items were inadequate for the differentiation across all four categories. As a result, this analysis was not carried out.

Table 3

The subjects in each of the four leadership criterion categories described in terms of their veterans status, age, and intelligence score.

		Criterion Categories			
		P	CCa	CCb	NL
Veterans	Number of veterans*	24	30	32	61
	Number of non-vets	62	62	51	78
	Total N	86	92	83	139
Age	Mean**	22.18	21.83	21.57	22.56
	S.D.	1.27	1.09	1.32	1.48
Intelligence (total ACE raw score)	Mean***	117.06	115.87	117.21	116.19
	S. D.	12.24	13.46	12.83	13.37

*The Chi Square test revealed no significant difference between the number of veterans in each of the categories ($\chi^2 = 3.94$; $p > .05$).

**Analysis of variance revealed no significant difference between the means of the categories ($F = 0.82$; $p > .05$).

***Analysis of variance revealed no significant difference between the means of the categories ($F = 1.04$; $p > .05$).

Fifty-two items were culled out of the original 98 in the ES scale so as to meet the criterion for selection outlined earlier. Table 4 gives the original position of each item in the ES scale and cites their original source. There was no significant difference in the number of items developed by Schiller (N = 14), as compared with those from Barron's (N = 38) scale ($\chi^2 = .36$; $p > .05$).

In employing the MSA for the analysis of the responses of the Ss in the standardization population two pre-prototypes were found in leadership category P, two in CCa, two in CCb, and three in NL. Removal of the universals resulted in nine 20 item prototypes. These are seen in Table 5, together with their responses and the criterion category from which they evolved.

The mean scores for each prototype in the four criterion categories are depicted in Table 6, and Table 7 shows the prototype-score mean differences between criterion categories from which prototypes evolved. The greatest average mean difference was found between categories P and NL. It will be recalled that the Ss on these leadership categories were assigned because they had held presidential posts (P), or had never been involved in a leadership capacity (NL).

In returning to the difference matrix column sums for criterion categories P and NL we were able to select the best configural items for this category pair. An examination of the difference between ranked column sums revealed several marked gaps. This was

Table 4

The fifty-two items culled from the ES scale by means of the configural analysis, and the source of origin for each.

ES scale item position	Original source	ES scale item position	Original source
1	Barron	59	Schiller
4	Barron	60	Barron
6	Barron	62	Barron
7	Barron	63	Schiller
9	Schiller	64	Barron
12	Schiller	65	Barron
13	Barron	68	Barron
14	Barron	69	Schiller
16	Barron	70	Barron
17	Barron	71	Barron
19	Barron	73	Barron
21	Barron	75	Barron
23	Barron	77	Schiller
26	Barron	78	Barron
29	Barron	81	Schiller
31	Schiller	82	Barron
34	Schiller	83	Barron
35	Barron	85	Barron
37	Barron	86	Barron
40	Schiller	88	Barron
43	Schiller	89	Barron
47	Schiller	90	Barron
48	Barron	95	Barron
51	Barron	96	Schiller
53	Schiller	97	Barron
55	Barron	98	Barron

Table 5

Nine prototypes (20 items each), derived from the 52 best configural items, are shown with the direction of their responses and the criterion category from which they evolved.

	P		CCa		CCb		NL		
ES scale item position	P_1	P_2	P_3	P_4	P_5	P_6	P_7	P_8	P_9
6	+	-	+	-	-	+	-	+	-
12	-	-	-	-	-	+	-	-	+
13	-	+	-	-	+	+	-	-	-
14	+	-	+	-	-	+	-	-	+
17	-	+	-	-	+	-	-	+	-
23	-	+	-	+	-	-	-	-	-
31	-	+	-	+	+	-	-	+	+
34	+	+	+	-	+	+	-	+	-
35	-	-	-	-	-	+	-	-	+
40	-	-	-	-	-	-	-	-	+
43	-	-	-	+	-	+	-	-	-
47	+	+	+	-	+	-	+	+	-
48	-	-	-	-	-	-	-	+	-
51	-	-	-	+	-	+	-	-	-
53	+	-	+	-	-	+	+	-	+
55	-	-	-	+	-	+	-	-	-
59	+	+	-	-	+	+	-	+	+
60	-	-	-	+	-	-	-	-	-
62	-	-	-	+	-	-	-	-	-
63	+	-	+	-	-	+	+	+	+
68	-	-	-	-	-	+	-	-	-
69	+	+	+	+	+	+	-	-	-
70	-	-	-	+	+	-	-	+	+
71	+	-	-	-	+	+	-	+	+
73	-	-	-	+	-	+	-	-	-
77	-	+	-	-	+	-	-	+	-
78	-	-	-	-	-	-	-	-	+
82	-	-	-	+	-	-	-	-	+
83	-	-	-	-	-	-	-	-	+
86	-	-	+	-	-	-	+	-	-
90	+	+	+	+	+	+	-	+	-
96	+	+	+	-	+	+	-	+	-
97	-	-	-	-	-	-	-	-	+
98	-	-	-	-	-	-	-	-	+

+ = "true" - = "false"

Table 6

The mean score for each of the criterion categories on the nine configurally derived prototypes

Prototypes	Criterion Categories			
	P	CCa	CCb	NL
P_1	25.63	24.83	25.10	24.41
P_2	23.77	22.22	23.57	21.48
P_3	24.81	24.04	23.76	23.93
P_4	23.28	22.96	23.24	22.22
P_5	23.93	23.09	23.19	21.64
P_6	19.14	19.48	19.52	18.71
P_7	22.63	22.39	22.05	23.06
P_8	24.09	23.44	23.76	22.29
P_9	17.02	17.35	16.95	18.17

Table 7

Prototype-score mean differences between criterion categories from which prototypes evolved.

Prototypes	Criterion Categories: P & CCa	P & CCb	P & NL	CCa & CCb	CCa & NL	CCb & NL
P_1	.80	.53	1.22			
P_2	1.55	.20	2.29			
P_3	.77			.28	.11	
P_4	.32			.28	.74	
P_5		.26		1.10		1.55
P_6		.38		.04		.81
P_7			.43		.67	1.01
P_8			1.80		1.05	1.47
P_9			1.15		.82	1.22
Mean of means	.86	.34	1.38	.42	.70	1.21

the case (as is seen in Table 8) between ranks 1&2; 2&3; 6&7; 8&9; 11&12; and 13&14. After the 14th rank the gaps did not appear to fluctuate in size to any appreciable extent. As a result, a cut-off point was arbitrarily set after the 13th rank so as to include only those items with the highest difference matrix column sums. (Twelve of these 13 items (item 25 excepted) were part of the original 52 best configural items which were selected for differentiation across all four criterion categories.)

Six pre-prototypes were found when these 13 items were treated by MSA for Ss in P and NL. Table 9 shows that three of these were obtained from the analysis of category P. The first (#1) was found to be in agreement with the responses of 41 out of the 43 Ss in the category. The responses of the other two Ss were considered as pre-prototypes in themselves (#1a and #1b) because neither was in agreement with #1, and they agreed with each other on an equal number of items (i. e. two).

Three pre-prototypes also resulted from the pattern-analysis of the responses by the 69 Ss in leadership category NL. The first pre-prototype (#2), in agreement with 28 patterns, was identical to #1 which evolved from criterion category P. (This pattern is therefore referred to hereafter as #1&2.) The second pre-prototype obtained from category NL (#2a) was in agreement with 31 patterns of responses. Finally, the remaining 10 response patterns were in

Table 8

Partial ranking of the column sums of the difference matrix derived from the item correlation matrices for criterion categories P and NL.

Rank Order	ES scale item position	Difference matrix column sum	Difference between ranks
1	89	8301	748
2	78	7553	812
3	47	6741	72
4	82	6669	2
5	48	6667	55
6	31	6612	166
7	34	6446	50
8	16	6396	218
9	65	6178	7
10	98	6171	39
11	25	6132	192
12	29	5930	2
13	26	5928	159
14		5769	6
15		5763	8
16		5755	33
17		5722	24
18		5698	44
19		5654	23
20		5631	68
21		5563	2
22		5561	

Table 9

Six pre-prototypes (thirteen items in each) which evolved from the Multi-dimensional Scalogram Analysis of criterion categories P and NL.

ES scale item position	Pre-prototypes					
	P_1*	P_{1a}	P_{1b}	P_2*	P_{2a}	P_{2b}
16	-	-	+	-	-	-
25	-	+	+	-	+	-
26**	-	-	-	-	-	-
29	+	-	+	+	+	+
31	+	+	+	+	-	+
34	+	-	-	+	-	-
47	+	+	+	+	-	-
48	-	+	+	-	-	-
65**	-	-	-	-	-	-
78	-	-	-	-	-	+
82	-	+	-	-	-	+
89**	-	-	-	-	-	-
98	-	-	-	-	+	+

*Identical pre-prototypes.

**Universals, i. e. common response direction across all pre-prototypes.

+ = "true" - = "false"

agreement with the third pre-prototype (#2b) resulting from the analysis of NL.

An examination of all pre-prototypes resulted in the removal of three universals. The remaining five unique prototypes, ten items in each, were employed to score the Ss in both leadership categories, P and NL. The resulting mean scores and standard deviations are reported in Table 10. The t test was used to test for significance of difference between category means. A significant t was found for prototype #1&2 ($t = 4.67$; $p < .01$) and for prototype #2a ($t = 2.64$; $p < .05$). The other three prototypes were unable to differentiate between the two criterion categories and were therefore not retained for further analyses.

An examination of the responses of prototypes #1&2 and #2a revealed that the responses for five of the ten items was the same, i. e. universals. The question then arose as to whether the differentiation between criterion categories by these prototypes was due to the common-response items, or to those items on which they differed in their answer. To determine the primary source of differentiation several further analyses were made.

The Ss in both criterion categories were scored on the following two experimental prototypes: 1) #1&2 + 2a, which represented the five items for which the direction of response was common for the two prototypes, plus the three universals previously eliminated

Table 10

Means, standard deviations, and t test results for five pre-prototypes tested on criterion categories P and NL.

Pre-prototypes	Criterion Categories: P mean	P s.d.	NL mean	NL s.d.
1&2*	8.70	1.36	7.44	1.46
1a**	5.00	1.31	4.58	1.28
1b**	5.84	1.04	5.38	1.22
2a***	5.30	1.03	5.88	1.42
2b**	5.26	1.40	5.01	1.45

*$t = 4.67$; $p < .01$

**$p > .05$

***$t = 2.64$; $p < .05$

from the 13 item pre-prototypes; 2) #1&2', which represented the five items (employing the response direction of prototype #1&2) on which the two prototypes, #1&2 and #2a, differed in direction of response. The results of these analyses, reported in the form of means, standard deviations, and t scores, are seen in Table 11.

The differentiation between criterion categories P and NL seems to be due primarily to the effect of the five items on which prototypes #1&2 and #2a differed ($t = 4.53$; $p < .01$) rather than to the common-response items ($t = 1.80$; $p > .05$).

Consistently following the previous procedure, we removed from prototypes #1&2 and #2a those items on which there is common agreement in response direction (i. e. the 5 universals for those two prototypes). Remaining then are 5 items which comprise the final pattern (or key), derived configurally, that has been found to best differentiate between criterion categories P and NL in the experimental population.

To arrive at the most appropriate cut-off point, each possible score was considered in turn. In Table 12 we have the findings of the three best cut-off scores; that for a score greater than 2 (i. e. a score of 3, 4, or 5), for a score greater than 3, and for a score greater than 4. The total number and percent of Ss in both criterion categories of the standardization population that were correctly classified by each cut-off score are also shown. The average percent

Table 11

Means, standard deviations, and *t* test results for two experimental prototypes tested on criterion categories P and NL.

Experimental prototypes	Criterion categories	Number of items	Mean	S.D.	"t"
#1&2 + 2a	P	8	7.33	.94	1.80*
	NL		6.97	1.17	
#1&2'	P	5	4.21	.89	4.53**
	NL		3.35	1.14	

*$p > .05$

**$p < .01$

Table 12

Accuracy of classification of Ss in the standardization population to criterion categories P and NL as a result of the use of three cut-off scores on the configurally derived items. Also shown is the accuracy of classification of cross-validation Ss at the best cut-off point.

Cut-off score	Criterion category	Total N	Number accurately classified	Percent accurately classified	Mean percent accurately classified
		Standardization population			
>2	P	43	42	98%	60%
	NL	69	15	22%	
>3	P	43	32	74%	64%
	NL	69	37	54%	
>4	P	43	21	49%	65%
	NL	69	56	81%	
		Cross-validation population			
>4	P	43	18	42%	64.5%
	NL	70	61	87%	

of correct categorization was greatest (65%) for a cut-off score of greater than 4 (i. e. a score of five versus scores of 0 through 4). In other words, for this standardization population, by using the configural key and a cut-off score of >4 we were able to accurately assign 21 of the Ss in P and 56 of the Ss in NL.

This percent of correct categorization was found to be significantly different from chance expectancy at the .01 confidence level ($\chi^2 = 9.57$).

Configural analysis with cross-validation Ss

The cross-validation sample (P = 43, NL = 70) was then tested in a similar manner and the results are also reported in Table 12. The mean percent of correct categorization was 64.5 and the resulting Chi Square was 9.49, significant at the 1% level.

Linear analysis across four categories

Ninety-eight 4x2 Chi Squares were set up as a means of testing all items of the ES scale so as to determine those which could significantly differentiate, when computed, across all four criterion categories in the standardization population. Ten items were found to differentiate at the 5% confidence level or better; with five of these items significant beyond the 1% level (Table 13).

The cross-validation groups were scored on both a key for the 5 items for which Chi Squares were greatest, and a key representing

Table 13

The original source, the response in the direction of high leadership, and the confidence level of 10 items of the ES scale which, by means of the Chi Square test, were found able to differentiate across all four leadership categories are presented in order of χ^2 magnitude

ES scale position	Item	Source	Response direction	Confidence level
54	"I am not certain of my ability or of the goals I should like to strive for."	Schiller	False	.01
2	"I am made nervous by certain animals."	Barron	False	.01
31	"People often make favorable comments about my ability to think and speak in a logical and coherent manner."	Schiller	True	.01
96	"I do not mind having responsibilities no matter how big they may be."	Schiller	True	.01
19	"I do many things which I regret afterwards (I regret more things or more often than others seem to)."	Barron	False	.01
69	"I tend to have the ability to foretell and be prepared for future events."	Schiller	True	.05
98	"Parts of my body often have feelings like burning, tingling, crawling, or like "going to sleep."	Barron	False	.05
11	"Some people are so bossy that I feel like doing the opposite of what they request even though I know they are right."	Schiller	False	.05
72	"I find no difficulty in applying my mind to an assigned topic."	Schiller	True	.05
80	"I have had very peculiar and strange experiences."	Barron	False	.05

all 10 significant items. The results of these tests are reported in Table 14 in the form of means and variances for each leadership category on both keys. Analysis of variance for 3 and 196 degrees of freedom resulted in an F of 7.30 for the 5 item key ($p < .01$) and an F of 14.53 for the 10 items ($p < .01$).

Linear analysis between two categories

When attempting to determine the significance of difference between separate pairs of criterion categories, heterogeneity of variance was detected between P and CCb, and between P and NL on the 10 item key. This heterogeneity probably accounts for some of the magnitude of the F resulting from the analysis of that scale. Norton (1952) has shown that when marked heterogeneity of variance is found, it is desirable to allow for some discrepency by setting a slightly higher "apparent" level of significance for the test than would otherwise be employed. As a result, heterogeneity effects on the simple analysis of variance can be minimized.

In the present study we wished the risk of a Type I error to be less than 1% and therefore required that the obtained F exceed the .005 point in the normal-theory F-distribution. Since an F of 3.38 is normally considered to be significantly different from chance at the 1% level (with df = 3 and 196), our obtained F of 14.53, for the 10 item key, even when shifting to an apparent significance level

Table 14

Means and variances for the Ss in each leadership category on the 5 and 10 item linear keys.

		Mean	Variance
P	5 item key	3.79	1.22
	10 item key	7.86	1.93
CCa	5 item key	2.80	1.96
	10 item key	5.95	2.80
CCb	5 item key	3.13	1.67
	10 item scale	6.54	3.85
NL	5 item key	2.67	1.76
	10 item key	5.60	4.19

would still be different from chance expectancy well beyond the .01 level of confidence.

Because the obtained magnitude of the F for the 10 item key cannot be attributed to mean differences exclusively (and because the 5 item key without such a restriction gives almost as much significance), the 5 item key was ultimately employed in testing for significance of difference between separate criterion category pairs.

Due to the fact that after-the-fact comparisons were being made, Tukey's D, a relatively conservative test, was used and the results are reported in Table 15. With a D of .32, significant differences between the means of five of the six comparisons were found. The only pair of criterion categories for which there was no statistically significant difference between means was that between CCa and NL.

The next step in the linear analysis was to determine that pair of criterion categories for which differention was expected to be greatest. To do this, 588 2x2 Chi Squares were computed for all of the responses to the ES scale by the standardization Ss in the four categories. Thirty Chi Squares were found to differ significantly from chance at the 5% confidence level or better.

An examination of Table 16 reveals that the greatest number of items able to differentiate between a pair of categories were

Table 15

Tukey's D test of the significance of difference between mean scores on the 5 item key for separate criterion category pairs.

Criterion categories	Mean ($\bar{X}$)	($\bar{X}$)-2.67	($\bar{X}$)-2.80	($\bar{X}$)-3.13
P	3.79	1.12*	.99*	.66*
CCb	3.13	.46*	.33*	
CCa	2.80	.13		
NL	2.67			

$D_{.05} = .32$

*$p < .05$

Table 16

The results of 30 significant Chi Square tests for the responses of the Ss in the standardization population between pairs of criterion categories.

ES scale position	Chi Square	Criterion categories	Confidence level
2	14.25	CCb-NL	.01
54	12.10	P-NL	.01
2	11.61	CCa-CCb	.01
31	10.25	P-NL	.01
54	8.32	CCb-NL	.01
2	7.81	P-CCb	.01
69	7.71	P-NL	.01
98	7.26	CCa-NL	.01
97	6.80	CCa-CCb	.01
48	6.35	CCa-NL	.05
25	6.17	P-CCa	.05
19	5.90	P-NL	.05
11	5.62	CCa-NL	.05
54	5.28	P-CCa	.05
39	5.21	CCb-NL	.05
72	5.18	P-NL	.05
49	5.02	P-CCa	.05
8	5.02	CCa-CCb	.05
27	4.90	P-NL	.05
69	4.76	CCb-NL	.05
94	4.51	P-CCa	.05
80	4.51	P-CCa	.05
40	4.47	P-NL	.05
72	4.39	CCa-NL	.05
80	4.00	CCa-NL	.05
11	3.98	P-NL	.05
69	3.93	CCa-NL	.05
25	3.92	P-CCb	.05
19	3.92	CCb-NL	.05
16	3.86	P-NL	.05

those nine items differentiating between P and NL; the same pair of criterion categories found from the configural analysis.

Three separate sets of items were used to test the standardization population. The three items for which the Chi Square test showed significance of difference at the .01 confidence level between P and NL comprised the first test of the experimental Ss. The second test was made on all 9 items found to be significant at the 5% level or better and the final test was made on the best five items (equal in number to those derived configurally) which best differentiated between P and NL.

With both criterion categories considered separately, various cut-off scores were tried, as was done with the configural analysis, in an attempt to select that point at which greatest overall differentiation could occur. The best cut-off point for each of the three tests was determined first (Table 17) and then that one which appeared superior to the others was ultimately located. The mean percent of correct assignment to the criterion categories in the standardization group for the 5 item test was 75.5%, whereas the tests with 3 and 9 items could only classify a maximum mean percent of 70.5% and 74.5% of the Ss, respectively.

The five item test was therefore used for testing the cross-validation sample (P = 43, NL = 70) with a cut-off score set at > 3

Table 17

Accuracy of classification of Ss in the standardization population to criterion categories P and NL as a result of the use of three cut-off scores on each of three linearly derived keys. Also shown is the accuracy of classification of cross-validation Ss at the best cut-off point for the best linear set of items.

Number of items	Cut-off score	Criterion category	Total N	Number accurately classified	Percent accurately classified	Mean percent accurately classified
			Standardization population			
	>0	P	43	41	95%	59.5%
		NL	69	18	24%	
3	>1	P	43	32	74%	70.5%
		NL	69	46	67%	
	>2	P	43	20	47%	69.0%
		NL	69	63	91%	
	>2	P	43	36	84%	69.5%
		NL	69	38	55%	
5	>3	P	43	29	67%	75.5%
		NL	69	58	84%	
	>4	P	43	15	35%	65.5%
		NL	69	66	96%	
	>4	P	43	37	86%	68.5%
		NL	69	35	51%	
9	>5	P	43	35	81%	74.0%
		NL	69	46	67%	
	>6	P	43	27	63%	73.0%
		NL	69	57	83%	
			Cross-validation population			
5	>3	P	43	29	67%	73.0%
		NL	70	55	79%	

(i. e. 4 or 5 versus scores of 0 through 3). These results are also reported in Table 17 where it can be seen that the average percent of correct classification was 73%. This finding is significantly different from chance expectancy at the 1% level of confidence ($\chi^2 = .97$; $p > .50$).

Combining both analyses

The five linear and five configural items, together with their original source and appropriate response scored in the direction of high leadership, are reported in Table 18. The answers for all items, determined through these analyses to measure high leadership, are in agreement with that predicted by Barron and Schiller as indicative of high ego-strength.

One item, "People often make favorable comments about my ability to think and speak in a logical and coherent manner," was found to occur in both the linear and configural sets of items.

In order to determine the most appropriate cut-off points for the two keys used jointly, one scattergram was developed for the five linear items and the four different configural items (Figure 3), and another for both sets of five items (Figure 4). The overlapping item was one that was found in the linear analysis to differentiate between criterion categories at the .01 level of confidence. It was therefore retained in the latter key and removed from the configural, rather than using the opposite procedure, because it was felt that less

Table 18

The five linear and five configural items, together with their original source and appropriate responses scored in the direction of high leadership.

	ES scale position	Item	Source	Response direction
Linear	19	"I do many things which I regret afterwards (I regret things more or more often than others seem to)."	Barron	False
	31	"People often make favorable comments about my ability to think and speak in a logical and coherent manner."	Schiller	True
	54	"I am not certain of my ability or of the goals I should like to strive for."	Schiller	False
	69	"I tend to have the ability to foretell and be prepared for future events."	Schiller	True
	72	"I find no difficulty in applying my mind to an assigned topic."	Schiller	True
Configural	25	"If I were an artist I would like to draw flowers."	Barron	False
	31	"People often make favorable comments about my ability to think, and speak in a logical and coherent manner."	Schiller	True
		"Once I start work on something it is hard to get me away from it."	Schiller	True
	47	"I understand myself and many of the motives underlying my behavior."	Schiller	True
	98	"Parts of my body often have feelings of burning, tingling, crawling, or like going to sleep."	Barron	False

Figure 3

A scattergram of the responses of the standardization Ss in criterion categories P and NL to the five item linear key and the four unique items of the configural key.

Configural

Linear score	0	1	2	3	4
5			0	XXXXO	XXXXX XXXXX XO
4			XXXXO OO	XXXXO O	XXXXX XOO
3	O	OO	XXOOO OO	XXOOO OOO	XXXOO OOO
2		OO	OOO	XXOOO OOOO	XXXOO OOOOO O
1			OOO	XOOOO OO	XOOOO OOOOO
0					

X = Criterion category P
O = Criterion category NL

	P	NL
Number of Ss correctly classified*	25	62
Total percent correctly classified*	78%	

*With cut-off scores set at >2 for configural key, and >3 for linear key for maximum differentiation.

Figure 4

A scattergram of the responses of the standardization Ss in criterion categories P and NL to both the linear and configural keys.

Configural

Linear score	0	1	2	3	4	5
5			O	X	XXXXX O	XXXXX XXXXO
4			XOO	XXXXX XOOO	XXO	XXXXX OO
3	O	O	OOOOO	XXOOO OOOO	XXOO	XXXOO O
2		O	O	XOOOO OOOO	XOOOO OO	XXXOO OO
1			OOO	OOOO	XOOOO OOOOO	XOO
0						

X = Criterion category P
O = Criterion category NL

	P	NL
Number of Ss correctly classified*	28	61
Total percent correctly classified*	79%	

*With cut-off scores set at >2 for the configural key, and >3 for the linear key for maximum differentiation.

disturbance to the power of the configural key would result from its absence.)

An examination of the results revealed that the combination of the 5 item linear and 5 item configural keys (79% total correct classification) was superior to the 5 item linear and 4 item configural keys (78% total correct classification) in the standardization population. In both cases the cut-off scores were set at >2 for configural and >3 for linear keys so as to achieve maximum differentiation. As a result, the former combination was used in testing the cross-validation sample for P and NL.

The results of this test are depicted in the scattergram of Figure 5. With cut-off scores retained at >2 and >3 for the configural and linear keys, respectively, the total percent of Ss correctly categorized is 76% (30Ss correctly assigned to P, and 56 Ss correctly assigned to NL from the entire sample where N = 113). This percent, though higher than that found when configural and linear keys were analyzed separately is not significantly different, statistically.

Determining the best key and method of analysis

No one key can be considered better than any other since the differences found were not statistically significant from each other. It was noted for example that there was no significant difference between the effectiveness of the 5 item configural key which differentiated between P and NL, the 5 item linear key which tested the same

Figure 5

A scattergram of the responses of the cross-validation Ss in criterion categories P and NL in both the linear and configural keys.

Linear score	Configural 0	1	2	3	4	5
5				XX	XXXXX OOOO	XXXXX XOO
4			OO	XXX	XXXXX XXOOO OOOO	XXXXX XXO
3				XXOO	XXXXX OOOOO OOOOOO	XXXXO OO
2			OOOOO	OOOO	OOOOO OOO	XOO
1			OO	OOOOO OOOO	XOOO	O
0		O		OO	O	

X = Criterion category P
O = Criterion category NL

	P	NL
Number of Ss correctly classified*	30	56
Total percent correctly classified*	76%	

*With cut-off scores set at >2 for the configural key, and >3 for the linear key for maximum differentiation.

categories, and the 5 item linear key which was designed to differentiate across all four criterion categories. Each key, therefore, within the limits of chance expectancy, is comparably effective.

The one key which gave the highest total percent of correct categorization with the cross-validation population (76%), but was not statistically significant in difference of accuracy of results, is that for the combined configural and linear keys testing P and NL. Both keys, considered individually as well as collectively, were found to contribute to the accuracy of classification beyond that which would be expected by chance alone.

The same results are found in attempting to select that method of analysis, configural or linear, which was found most effective in this investigation. Neither method provided statistically significant better results than the other. Each method can claim its own advantages.

The linear analysis of P and NL was found to be slightly better (but not significantly so) in the percent of accurate assignment of Ss to their appropriate category. But when the configural key was added to the linear one, effectiveness was found to increase, but not significantly.

Also, it was found that the 5 item configural key was more consistent (but again not to a significant extent) in its findings when

comparing the results of standardization and cross-validation samples The mean percent of correct classification in the standardization population, for P and NL, was 65%. In the cross-validation sample, the same key was accurate in assigning Ss on an average of 64.5%. The linear scale testing the same categories showed an average percent of 75.5% and 73% correct classification for the Ss in the experimental and cross-validation samples, respectively.

Finally, it might be stated that the linear method was found to be superior to the configural insofar as its ability to select items which were capable of differentiating across all four categories is concerned. Ten such items (significant at the 5% level or better) were evolved via the linear analysis, whereas the non-significant Phi correlation coefficients precluded analogous testing of configurally derived items.

IV. Discussion

The findings of this study show that the leadership categorization which was employed (i. e. presidential leaders, two categories of "middle leadership," and a non-leader group) is a meaningful one in that some differentiation is feasible. The fact that we were able to distinguish between the four criterion categories with linear, as opposed to configural methods, does not necessarily warrant our concluding that only linear methods are of value in testing the relationship between ego-strength and leadership; we must first be fully aware of the potentialities of both linear and configural methods.

We can cull out of the present investigation certain findings that, together with the results of other studies lead us to a better understanding of the techniques and concepts involved. For example, with a larger N it might have been expected that more types, if they exist, would have evolved. The present population parameter may not permit the configural test the freedom it requires to express itself fully. The MSA tends to minimize the number of types, but those that do evolve are likely to be dependable. However, with a larger population and a different configural method that tends to isolate a relatively large number of types, the obtained results might

be quite different. McQuitty (1958) has pointed out that at least 200 Ss in each criterion category would be necessary "to achieve close to their top capabilities" in the particular method of configural analysis that he employed.

Furthermore, MSA was found to be as effective a method of analysis for a portion of the data even under the possible handicap just described. The two types, presidential and non-leader, between which differentiation was found possible, apparently were dominant in this sample. The number of Ss in the NL category was greater than that for any of the others and therefore was selected by the MSA as distinguishable from another category. An examination of the means of the mean differences of prototype scores in Table 7 (which were used for selecting that pair of categories for which differentiation was expected to be greatest) further supports this contention. The category pair P & NL was chosen for analysis because the mean of its means was higher than any of those for other categories. The next highest was for categories CCb and NL, and the next was for CCa and NL. The repeated superiority of this category is probably due to its larger N.

The fact that the category pair CCb & NL was the second best, from a configural point of view is not necessarily unexpected. It is in accord with the results of the pilot study previously reported (Schiller and Abeles, 1958) where Ss in categories CCa and NL

were found to be more like each other in their patterns of response than they were like anyone in any other category (i. e. P and CCb).

Further support for this relationship between criterion categories is seen in the Tukey D test reported in Table 15. No significant difference was found between the means of CCa and NL. This, together with the other results suggests that a quantitative leadership continuum, where the extremes are represented by individuals who hold a great many or very few leadership positions, might not be the most appropriate theory. Instead, an approach to leadership which is concerned more with qualitative aspects of both individuals and positions would be of greater validity. The ego-strength concept fits this standard.

In the present investigation the Ss in CCb held fewer leadership posts than did the other middle leadership people in CCa. If a quantitative leadership continuum was followed it would be expected that CCa would follow P in the degree of leadership displayed. A continuum based on the type or level of leadership position held, such as is supported to some extent by the findings here, would consider potential leadership in its boundries and therefore might include Ss in CCb as showing greater implicit leadership than those with more positions (but less leadership ability). The Ss in category CCa might be considered to have been working to their fullest capacity, as far as leadership is concerned, but to lack that ability or those ego-strength

characteristics that are typical of presidential-caliber leaders. Those in category CCb, on the other hand, might have the characteristics that are requisite for the highest forms of leadership, but these characteristics may, for the most part, be untapped.

Before more specific conclusions can be drawn, further investigation is necessary. The configural method might have special value in such studies. For the configural evolution of these probably weaker committee chairman types (i. e. CCa and CCb), more Ss characteristic of each category would be desired. A different method, such as Hierarchical Syndrome Analysis (McQuitty, 1959), could also be used so as to provide data concerning the relationship between the several types that exist.

The linear analysis might be employed in such a study too because it has already been found to differentiate between the four criterion categories. The larger N would help to provide more reliable differentiation. One way to determine, more adequately than was done here, the superiority of one method of analysis over the other would be to increase the over-all N in another study.

The established relationship between leadership and the ES scale tends to draw together the research findings in the literature concerning the "great man" and "social interactional" theories. Greater cohesion is had due to the suggested possibility that the inconsistent findings of previous studies might now be explained with

greater facility and dependability by employing aspects of psychoanalytic theory such as that concerned with the concept of ego-strength. Both individual characteristics and processes of social interaction can be delegated to a common plane subsumed within the ego-strength concept.

Relatively few ES scale items were selected through the analyses as capable of differentiating between the leadership categories. An examination of these items does not permit the designation of a clear-cut psychological description which distinguishes between those Ss who scored either high or low. It was found though that Schiller's items tended to evolve more frequently than Barron's (i. e. in the combined configural and linear keys 6 of the items were developed by Schiller whereas 3 were from Barron's scale). Future research would do well to initially employ a larger number of items based on Murray and Kluckholm's criteria than were used here so that those selected following item analyses would tend to be more clearly descriptive of leadership types.

It should be noted also that just because attempts were made to retain content validity in the construction of Schiller's items, based on the criteria of ego-strength outlined by Murray and Kluckhohn, it cannot be concluded that those items are adequate measures of ego-strength. Further research is needed here also to either support or refute the suggested relationship between these items and the ego-strength concept.

V. Summary

As a means of testing one important concept from psychoanalytic theory in the assessment of leadership, it was hypothesized that patterns of ego-strength characteristics are related to leadership behavior.

The Ss were 400 male college seniors who were assigned to one of four leadership categories on the basis of the number and hierarchical level of leadership positions held, as reported in a biographical leadership questionnaire. The criterion categories were P, presidential leaders (N = 86); CCa, committee chairman who held more than one such position but none higher (N = 83); CCb, committee chairman who held such positions only once (N = 92); and NL, non leaders or Ss who have never held any leadership position (N = 139). The total population was randomly divided into standardization and cross-validation groups of equal size.

Ego-strength was defined as that process which facilitates the analysis and integration of impinging stimuli (i. e. environmental as well as those attributed to internal dynamic processes) in the direction of need-satisfying goal achievement. The ES scale, comprised

of the 68 item Barron Ego-strength Scale and 30 items constructed by this author based on specific criteria of ego-strength, was used as a measure of ego-strength for testing the Ss. Both linear (additive) and configural (pattern-analytic or typal) methods were used for the analysis of the data and the efficacy of each, in assessing leadership, was investigated.

Appropriate item analyses were employed for selecting the best items for the linear and configural tests. The primary configural treatment was the newly developed Multidimensional Scalogram Analysis.

Some of the major findings are as follows:

1. The linear method was superior in differentiating between all four criterion categories with 5 and 10 item keys ($p < .01$), whereas with the configural method the criterion for the selection of items was not satisfied; therefore a configural test was not developed.

2. The linear and configural analyses (5 item keys) were effective in differentiating between criterion categories P and NL. The mean percent of correct categorization of Ss in the cross-validation sample were 73% and 64.5% for the respective analyses ($p < .01$).

3. There was no significant difference between the effectiveness of the linear and configural keys in differentiating between P and NL, and between these and the linear key which differentiated across all four criterion categories.

4. By combining both the linear and configural keys greater effectiveness was found in the accuracy of classification (76%) than was the case with either method treated separately, but the increase was not statistically significant.

5. The items of the ES scale that were developed by this author proved to be of greater effectiveness in differentiating between leadership categories than were Barron's items.

As a result of these findings it can be concluded that ego-strength, as measured by the ES scale, is effective in leadership assessment. Furthermore, the hypothesis was found tenable within the limits of the particular experimental conditions employed.

The value of the pattern-analytic approach to the data, and suggestions for future research were discussed.

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Appendix A

ES Scale

This inventory consists of numbered statements. Read each statement and decide whether it is true as applied to you or false as applied to you.

You are to mark your answers on the answer sheet you have. If a statement is TRUE or MOSTLY TRUE, as applied to you, then blacken between the lines in the column headed T. If a statement is FALSE or NOT USUALLY TRUE, as applied to you, blacken between the lines in the column headed F.

Remember to give YOUR OWN opinion of yourself. Do not leave any blank spaces.

In marking your answers on the answer sheet, be sure that the number of the statement agrees with the number on the answer sheet. Make your marks heavy and dark. Erase completely any answers you wish to change.

---

1. I sometimes feel that I am about to go to pieces.

2. I am made nervous by certain animals.

3. I stick with long term commitments even if they turn out to be foolish later on.

4. I have had no difficulty in keeping my balance in walking.

5. I prefer an ordered and planned approach to life.

6. I frequently find myself worrying about something.

7. I am in just as good physical health as most of my friends.

8. I am not afraid of fire.

9. I feel that everyone should consider his own enjoyment and satisfaction before anyone else's.

10. When things get boring my mind sometimes shifts from the main topic under consideration.

11. Some people are so bossy that I feel like doing the opposite of what they request, even though I know they are right.

12. I often have difficulty understanding the actions of those around me.

13. I very much like horseback riding.

14. I think Lincoln was greater than Washington.

15. If I were an artist I would like to draw children.

16. I have strange and peculiar thoughts.

17. I go to church almost every week.

18. I feel unable to tell anyone all about myself.

19. I do many things which I regret afterwards (I regret things more or more often than others seem to).

20. Going along with all the demands of a superior is often a better approach than trying to tell him what I think.

21. Sometimes I enjoy hurting people I love.

22. When someone says silly or ignorant things about something I know about, I try to set him right.

23. Sometimes some unimportant thought will run through my mind and bother me for days.

24. I get mad easily and then get over it soon.

25. If I were an artist I would like to draw flowers.

26. I am easily downed in an argument.

27. My way of doing things is apt to be misunderstood by others.

28. Hesitation and prolonged evaluation are valuable techniques to use when making decisions.

29. I have a good appetite.

30. Everything is turning out just like the prophets of the Bible said it would.

50. I like to talk about sex.

51. I am afraid of finding myself in a closet or small closed space.

52. I feel sympathetic toward people who tend to hang on to their griefs and troubles.

53. I do not like to make long term promises because I have found that they may be hard to keep.

54. I am not certain of my ability or of the goals I should like to strive for.

55. Often I cross the street in order not to meet someone I see.

56. I have had blank spells in which my activities were interrupted and I did not know what was going on around me.

57. I feel that my ideas are often as good or better than my superior's and I like to express them.

58. My sleep is fitful and disturbed.

59. People think I know what I am talking about even though I may be really confused about a topic.

60. When I am with people I am bothered by hearing very queer things.

61. I like science.

62. I never attend a sexy show if I can avoid it.

63. On occasion I have disturbing worries, but that is only natural.

64. At times I hear so well it bothers me.

65. I brood a great deal.

66. I pray several times every week.

67. During the past few years I have been well most of the time.

68. Dirt frightens or disgusts me.

69. I tend to have the ability to foretell and be prepared for future events.

70. The man who had most to do with me when I was a child (such as my father, stepfather, etc.) was very strict with me.

71. Christ performed miracles such as changing water into wine.

72. I find no difficulty in applying my mind to an assigned topic.

73. I dream frequently about things that are best kept to myself.

74. I would certainly enjoy beating a crook at his own game.

75. I have never had a fainting spell.

76. I use concepts which refer to real things and experiences rather than those that just pop into my mind.

77. I have no trouble making a choice between two alternative courses of action.

78. My skin seems to be unusually sensitive to touch.

79. I never have problems with nervousness.

80. I have had very peculiar and strange experiences.

81. I do not mind handling a job all alone even if it means utter solitude for a while.

82. I feel tired a good deal of the time.

83. One or more members of my family is very nervous.

84. I can be friendly with people who do things which I consider wrong.

85. I have diarrhea once a month or more.

86. I have met problems so full of possibilities that I have been unable to make up my mind about them.

87. I like to cook.

88. I believe my sins are unpardonable.

89. At times I have fits of laughing and crying that I cannot control.

90. When I leave home I do not worry about whether the door is locked and the windows closed.

91. My plans have frequently seemed to be so full of difficulties that I have had to give them up.

92. My hands have not become clumsy or awkward.

93. I am attracted by members of the opposite sex.

94. I seldom worry about my health.

95. I have often been frightened in the middle of the night.

96. I do not mind having responsibilities no matter how big they may be.

97. I find it hard to keep my mind on a task or job.

98. Parts of my body often have feelings like burning, tingling, crawling, or like "going to sleep."

Appendix B

LEADERSHIP QUESTIONNAIRE

1. Name _____

2. Date of birth _____ 3. Sex _____

4. Date entered MSU _____ _____
term year

5. Veteran? (yes) (No)

6. Class Freshman Sophomore Junior Senior

7. Organization membership at MSU:

Organization(s)	Position (s) held
A.	
B.	
C.	
D.	
E.	
F.	
G.	
H.	
I.	

Appendix C

Intercorrelation matrix for items 1 to 33 of the ES scale by the Ss of criterion category P.

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
1																																	
2	138																																
3	023	005																															
4	103	037	138																														
5	032	090	136	165																													
6	085	193	247	247	195																												
7	000	000	000	000	000	000																											
8	088	180	255	227	084	211	000																										
9	134	077	193	134	170	121	000	099																									
10	071	095	206	310	114	059	000	061	264																								
11	168	066	072	313	184	175	000	085	064	216																							
12	116	081	098	116	187	129	000	099	095	080	226																						
13	081	193	150	247	177	204	000	211	129	059	175	021																					
14	052	133	049	223	253	287	000	190	097	454	116	058	287																				
15	141	121	032	076	238	052	000	127	037	098	199	160	052	097																			
17	088	217	111	088	141	022	000	075	470	061	085	186	211	190	127																		
17	110	160	059	053	143	225	000	138	133	037	114	133	127	014	392	138																	
18	175	090	136	032	016	041	000	084	187	158	184	170	160	009	227	141	205																
19	050	102	166	050	079	119	000	042	056	034	158	425	119	107	068	042	182	300															
20	203	357	039	203	148	196	000	065	028	140	233	144	082	030	056	151	203	123	280														
21	383	081	098	383	008	021	000	186	095	080	209	132	279	097	037	099	161	008	065	144													
22	310	095	206	071	158	059	000	061	264	049	226	080	059	082	202	061	037	114	034	122	080												
23	550	088	236	081	041	204	000	022	129	170	114	021	005	081	052	022	078	041	119	196	129	059											
24	179	154	095	004	092	121	000	161	120	130	067	120	121	161	114	059	173	092	263	056	120	130	100										
25	071	095	110	310	114	059	000	061	080	049	216	080	170	154	202	373	037	114	034	122	080	049	287	130									
26	310	095	016	310	114	170	000	373	080	049	005	080	170	154	202	061	037	114	034	401	609	049	170	130	049								
27	153	076	034	053	048	368	000	131	174	106	011	387	003	077	049	131	164	195	323	303	174	106	003	131	178	106							
28	067	156	096	067	103	170	000	009	191	070	261	343	059	116	074	009	071	103	211	174	039	070	160	018	162	070	142						
29	227	019	255	227	084	022	000	075	470	061	278	099	211	190	121	283	232	141	042	151	186	061	167	258	373	061	104	009					
30	158	268	061	336	063	157	000	237	260	109	089	064	157	100	147	033	313	065	248	395	270	109	265	111	138	355	031	196	033				
31	158	155	252	021	072	265	000	033	064	138	429	098	157	322	288	033	103	062	248	271	098	109	157	008	138	355	102	020	170	055			
32	188	038	119	004	171	100	000	049	286	130	067	120	121	180	175	467	043	040	091	071	047	124	101	100	124	124	280	094	049	008	111		
33	158	184	148	021	190	057	000	033	098	138	118	098	165	121	007	030	103	065	096	271	098	138	050	111	138	109	102	347	033	156	191	127	

Intercorrelation matrix for items 34 to 66 of the ES scale by the Ss of criterion category P.

Item	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
34																																	
35	096																																
36	097	144																															
37	085	062	158																														
38	122	230	005	032																													
39	393	123	160	079	114																												
40	218	063	013	280	140	148																											
41	000	000	000	000	000	000	000																										
42	056	082	040	091	124	223	071	000																									
43	303	020	131	074	106	489	122	000	268																								
44	557	150	016	107	154	253	030	000	048	051																							
45	071	072	040	091	377	040	308	000	023	053	066																						
46	122	230	005	034	039	114	122	000	130	106	154	130																					
47	176	333	168	382	310	032	203	000	179	153	119	004	071																				
48	303	153	240	323	107	048	020	000	143	079	306	280	178	053																			
49	148	042	160	017	158	124	123	000	171	246	131	040	114	032	099																		
50	173	063	208	085	140	123	043	000	071	020	030	071	122	013	161	393																	
51	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000																
52	056	236	174	091	124	040	308	000	023	006	066	145	130	188	131	092	056	000															
53	072	297	022	144	237	251	039	000	226	206	151	415	016	138	206	093	039	000	095														
54	161	153	109	323	178	342	161	000	006	079	051	006	106	258	232	195	303	000	131	034													
55	065	153	085	042	373	308	065	000	049	338	190	049	061	227	131	084	065	000	049	072	338												
56	122	089	226	699	049	114	140	000	130	106	154	130	049	310	178	158	122	000	124	016	178	051											
57	255	032	009	062	089	123	063	000	082	153	293	072	089	129	153	042	222	000	082	107	020	110	089										
58	085	062	151	024	034	079	085	000	263	074	107	091	034	050	074	079	085	000	091	144	074	042	034	062									
59	231	224	066	125	047	286	005	000	289	102	250	147	179	232	347	169	231	000	180	009	347	152	047	086	125								
60	176	102	153	050	310	165	013	000	004	153	052	179	071	173	153	032	013	000	188	183	053	227	071	129	050	069							
61	205	007	215	107	082	114	030	000	038	178	153	294	154	223	178	009	030	000	275	049	051	190	082	007	222	047	223						
62	065	153	085	042	016	308	065	000	258	131	005	049	061	227	131	141	151	000	049	111	104	075	061	110	042	152	088	005					
63	197	072	146	091	130	171	182	000	100	143	180	267	377	188	143	223	182	000	023	308	280	161	130	082	091	256	188	294	161				
64	096	032	009	383	230	123	314	000	072	020	137	072	089	333	153	042	063	000	225	107	325	417	230	032	062	086	333	137	153	236			
65	280	062	151	024	034	079	280	000	091	074	222	091	034	050	074	300	085	000	263	144	074	042	034	062	024	125	050	222	042	263	062		
66	149	241	115	166	206	021	149	000	113	034	049	013	016	138	153	136	072	000	201	065	153	111	016	028	144	104	023	250	072	095	163	144	

Intercorrelation matrix for items 67 to 98 of the ES scale by the Ss of criterion category P.

Item	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98
67																																
68	000																															
69	000	145																														
70	000	120	265																													
71	000	081	296	154																												
72	000	097	047	048	133																											
73	000	028	107	308	123	322																										
74	000	064	079	127	268	090	222																									
75	000	095	145	120	239	097	028	260																								
76	000	013	102	131	336	077	020	031	174																							
77	000	355	029	040	066	282	428	089	081	011																						
78	000	186	222	258	180	190	151	237	186	131	098																					
79	000	209	124	174	167	083	233	015	209	131	069	085																				
80	000	099	035	161	019	005	151	033	099	104	085	075	085																			
81	000	174	225	006	076	051	020	031	013	079	250	131	131	338																		
82	000	116	069	088	037	090	392	021	116	153	153	088	008	088	258																	
83	000	098	185	229	042	010	149	156	089	102	188	440	015	170	168	158																
84	000	063	086	072	119	007	069	101	146	020	008	153	125	153	153	129	001															
85	000	056	125	091	235	017	085	248	056	074	158	042	151	042	047	050	096	062														
86	000	300	319	071	193	054	005	133	004	104	314	152	006	035	020	259	079	244	125													
87	000	077	296	038	008	083	237	071	239	206	339	180	035	019	055	138	184	027	102	015												
88	000	056	125	091	102	107	085	096	456	074	158	042	158	042	322	482	096	062	024	125	102											
89	000	132	004	047	235	197	200	098	132	013	226	086	209	099	174	116	260	273	425	004	239	056										
90	000	428	011	043	045	115	021	313	014	200	358	138	057	323	042	053	108	203	131	182	263	131	161									
91	000	099	152	161	019	199	065	033	099	131	268	075	098	075	131	227	033	053	042	035	019	042	186	138								
92	000	099	035	258	019	005	065	033	099	104	085	075	989	131	088	033	110	242	152	019	042	186	047	075	075							
93	000	056	191	091	102	222	280	096	056	074	151	052	058	042	047	482	284	062	024	125	235	024	056	082	564	442						
94	000	470	222	258	180	190	151	237	470	131	085	642	286	075	131	099	237	110	152	180	142	099	138	075	075	042	304					
95	000	264	047	124	336	082	140	138	080	178	216	071	005	071	106	071	109	230	032	273	095	034	264	037	473	061	034	061				
96	000	095	004	120	077	058	144	064	095	386	209	099	081	187	013	116	064	146	056	300	235	056	132	133	099	470	056	099	264			
97	000	264	047	124	095	318	140	138	264	178	005	061	005	061	178	071	109	089	034	273	095	034	080	037	061	061	034	061	476	609		
98	000	132	145	213	081	213	081	213	028	260	132	174	081	186	064	186	200	134	098	273	047	145	081	056	095	281	186	099	056	099	080	

Intercorrelation matrix for items 1 to 33 of the ES scale by the Ss of criterion category CCa.

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
1																																	
2	022																																
3	085	012																															
4	088	077	014																														
5	073	277	123	299																													
6	255	276	060	225	186																												
7	075	058	223	066	141	156																											
8	047	052	163	131	017	182	090																										
9	047	074	163	131	017	182	090	011																									
10	108	236	014	095	037	099	066	299	299																								
11	381	203	084	182	153	486	233	098	219	128																							
12	155	076	023	212	120	207	112	364	217	025	152																						
13	116	036	214	041	104	180	187	005	005	041	012	176																					
14	009	094	169	211	405	036	254	110	013	055	070	121	469																				
15	032	007	129	008	039	196	120	096	188	008	100	199	081	056																			
16	459	204	178	008	149	196	120	046	047	008	203	075	228	160	075																		
17	025	036	225	041	105	364	243	005	361	041	165	176	062	023	228	081																	
18	094	052	016	050	057	313	079	222	351	115	294	196	045	113	064	054	045																
19	636	084	168	452	131	225	066	084	084	095	182	399	041	211	189	390	115	050															
20	038	086	151	099	013	050	068	199	055	099	155	053	088	129	089	019	096	076	225														
21	148	152	200	131	114	310	503	180	158	131	219	077	005	013	096	046	239	351	131	072													
22	092	020	077	231	208	008	056	112	112	082	065	139	044	136	148	148	054	084	082	177	112												
23	324	076	083	212	120	164	112	077	365	025	258	233	079	121	199	199	166	196	212	164	077	074											
24	161	073	008	038	122	127	163	300	168	052	167	178	096	101	015	078	009	168	018	024	157	073	049										
25	046	059	064	174	045	011	126	111	169	174	039	191	013	257	004	034	019	005	011	111	047	175	009	009									
26	474	163	100	231	175	193	056	112	133	082	122	288	124	043	058	471	124	004	544	193	112	070	288	157	004								
27	132	113	076	008	149	303	120	238	096	173	203	199	434	263	044	283	022	154	008	019	188	058	099	015	115	265							
28	040	203	266	128	132	120	196	024	219	027	036	046	165	237	002	305	077	107	027	211	024	112	152	151	041	112	100						
29	140	236	014	179	204	099	066	084	131	095	128	212	271	055	173	189	115	115	179	063	131	231	035	183	183	231	008	128					
30	204	236	388	115	044	216	248	037	093	215	014	029	045	113	154	045	325	286	115	021	166	004	029	115	101	192	064	294	215				
31	116	237	050	041	182	004	187	117	128	115	077	143	062	112	183	022	115	330	041	280	128	301	143	022	034	124	081	012	041	138			
32	219	181	021	022	005	150	134	137	003	022	188	138	161	062	214	101	064	181	022	251	033	030	214	153	075	166	126	006	320	334	034		
33	073	080	160	204	026	086	141	247	017	204	145	110	200	074	038	071	086	045	132	113	149	017	119	038	308	205	041	038	300	043	468	216	

Intercorrelation matrix for items 34 to 66 of the ES scale by the Ss of criterion category CCa.

Item	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
34																																	
35	020																																
36	134	200																															
37	094	079	125																														
38	094	283	178	022																													
39	250	372	036	094	094																												
40	215	224	075	099	225	100																											
41	103	122	038	032	032	134	091																										
42	207	117	130	186	120	189	046	048																									
43	003	077	013	063	063	137	017	090	156																								
44	214	075	047	084	084	214	038	380	032	338																							
45	288	036	036	069	325	163	054	098	102	125	012																						
46	111	093	050	175	026	111	117	038	081	334	099	081																					
47	030	036	036	325	325	098	071	189	220	035	126	192	003																				
48	177	076	096	251	089	177	070	116	274	162	015	011	138	119																			
49	006	152	029	137	163	103	037	196	020	024	203	155	133	075	147																		
50	305	225	051	186	186	009	143	171	095	216	032	220	081	133	071	517																	
51	134	112	038	699	133	134	141	046	048	207	120	098	826	184	116	019	484																
52	069	083	273	156	143	021	123	223	313	079	076	210	110	097	026	084	054	009															
53	207	099	142	186	186	009	143	084	004	032	284	104	182	337	132	160	270	048	035														
54	424	069	066	131	170	034	073	243	254	128	228	177	144	176	078	077	254	028	126	106													
55	094	175	036	325	325	033	195	098	133	035	123	092	003	244	119	040	220	184	020	102	060												
56	000	001	000	002	002	000	000	001	000	001	000	000	000	000	001	000	000	001	000	000	000	001											
57	177	006	032	302	074	066	088	164	054	056	109	082	013	084	086	098	078	164	296	166	110	082	000										
58	100	204	194	385	085	100	025	083	219	016	066	008	455	333	083	225	187	551	017	064	051	063	001	028									
59	200	158	118	163	163	020	138	196	198	145	305	040	103	270	151	212	249	019	979	149	100	270	000	012	096								
60	166	074	043	564	564	166	017	056	030	112	148	111	072	343	044	112	330	376	100	300	054	576	001	092	159	088							
61	250	096	232	038	038	092	074	215	103	108	132	126	194	054	161	278	006	009	133	366	207	131	000	177	100	091	030						
62	066	127	191	302	073	188	207	105	074	096	148	082	375	082	082	098	054	432	296	059	120	082	001	083	097	342	092	177					
63	239	172	056	266	084	239	039	120	032	046	088	280	030	012	131	100	282	130	076	177	183	412	000	109	086	100	265	101	020				
64	022	025	211	046	483	022	131	066	089	084	189	162	054	469	168	182	089	066	141	385	352	062	001	152	120	182	331	194	042	008			
65	401	155	009	427	052	091	073	075	006	047	192	060	033	208	270	180	006	268	085	173	116	393	001	081	280	241	191	246	004	032	188		
66	259	357	292	125	131	162	087	028	073	128	022	292	154	063	020	012	197	183	224	017	063	065	000	099	077	099	077	011	151	062	211	230	

Intercorrelation matrix for items 67 to 98 of the ES scale by the Ss of criterion category CCa.

Item	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98
67																																
68	000																															
69	000	253																														
70	000	396	054																													
71	000	148	027	136																												
72	000	100	032	025	089																											
73	000	299	118	305	012	251																										
74	000	109	170	203	064	076	128																									
75	000	092	081	065	012	112	167	014																								
76	000	042	068	048	008	099	320	115	042																							
77	000	032	008	130	151	135	036	489	167	102																						
78	000	135	142	086	066	295	187	132	172	120	063																					
79	000	151	012	217	113	086	281	044	152	084	481	029																				
80	000	206	172	071	015	190	177	009	058	168	086	211	045																			
81	000	056	042	216	046	055	032	137	626	131	110	016	199	042																		
82	000	356	055	137	032	185	246	055	137	144	293	135	022	270	047																	
83	000	088	123	046	260	013	215	257	123	131	075	025	115	145	246	073																
84	000	172	085	006	032	255	064	204	137	140	151	135	167	049	047	103	244															
85	000	047	156	186	266	109	094	010	066	046	187	158	195	089	052	063	099	052														
86	000	120	313	195	125	096	034	045	287	271	112	051	036	078	128	116	104	306	170													
87	000	077	102	060	099	088	220	052	152	077	181	029	026	147	174	022	081	022	195	136												
88	000	147	143	186	084	109	940	214	066	046	178	058	195	251	061	052	099	052	022	077	114											
89	000	074	156	036	084	204	094	104	066	046	152	058	114	251	016	052	099	022	177	118	022	022										
90	000	212	038	016	022	272	161	045	104	196	333	340	328	078	215	166	008	257	133	062	146	170	133									
91	000	191	242	219	086	259	044	132	098	120	063	042	105	211	016	072	305	072	058	079	029	058	058	051								
92	000	042	168	089	008	099	022	115	142	096	055	120	177	184	140	299	108	046	041	077	046	046	041	110	108							
93	000	074	165	186	084	109	094	104	066	046	178	058	195	089	063	052	099	052	022	133	114	022	022	170	058	046						
94	000	331	076	071	333	294	043	009	173	008	004	211	058	098	024	270	070	049	089	078	058	078	089	122	083	008	151					
95	000	130	077	049	048	008	177	004	250	082	222	241	163	244	778	191	208	111	039	232	163	039	039	054	159	082	039	244				
96	000	020	027	032	164	089	101	049	082	008	160	066	218	015	096	132	183	296	184	081	204	284	284	232	237	008	084	115	058			
97	000	028	112	219	068	124	187	144	022	120	193	042	029	064	016	072	065	135	058	311	029	059	058	079	233	339	058	083	102	237		
98	000	074	143	120	084	109	094	104	556	046	125	058	195	251	352	427	225	427	022	131	195	022	022	170	385	056	022	251	564	266	058	

Intercorrelation matrix for items 1 to 33 of the ES scale by the Ss of criterion category CCb.

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
1																																	
2	062																																
3	066	203																															
4	062	050	245																														
5	040	043	165	043																													
6	240	194	014	258	028																												
7	563	035	142	035	129	135																											
8	000	000	000	000	000	000	000																										
9	279	125	171	125	006	258	279	000																									
10	062	050	246	475	185	258	035	000	138																								
11	093	000	048	000	146	096	156	000	112	224																							
12	336	176	047	109	094	298	322	000	298	109	121																						
13	027	285	221	176	048	113	199	000	022	055	196	006																					
14	066	022	057	022	165	094	142	000	171	246	144	197	075																				
15	029	142	045	106	230	114	099	000	106	142	000	173	062	061																			
16	531	117	108	117	076	452	299	000	389	117	174	190	068	008	184																		
17	277	000	144	224	049	096	156	000	112	224	048	364	000	048	106	058																	
18	080	117	458	117	194	335	082	000	156	117	058	338	290	008	074	152	406																
19	372	050	022	050	185	032	699	000	138	050	000	176	285	022	106	156	000	117															
20	029	142	272	142	200	228	099	000	106	142	211	096	047	045	050	193	000	184	106														
21	415	228	039	091	198	354	064	000	091	091	272	149	180	234	043	284	000	119	091	344													
22	102	082	039	082	004	021	058	000	033	273	074	178	015	405	093	146	074	013	082	233	150												
23	145	156	108	107	042	017	082	000	020	117	058	190	307	125	074	010	174	152	117	055	119	192											
24	279	138	059	125	109	258	279	000	344	125	112	014	137	059	017	389	112	020	138	018	251	033	117										
25	081	117	108	156	042	101	072	000	117	156	174	106	051	008	312	152	174	152	117	202	047	166	131	156									
26	282	062	120	062	148	240	043	000	155	066	093	101	027	066	167	081	277	306	062	029	151	102	481	155	306								
27	214	092	012	150	078	580	233	000	472	150	258	331	207	091	033	278	052	153	092	082	351	087	099	351	153	014							
28	045	133	112	133	160	078	262	000	176	133	163	401	021	003	017	085	163	217	375	223	089	219	085	049	079	165	304						
29	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000				
30	101	109	290	109	277	175	076	000	014	109	121	081	256	168	038	042	000	042	176	230	149	176	106	014	190	101	200	013	000				
31	336	271	165	185	087	224	189	000	109	043	049	094	152	225	200	076	049	161	043	307	079	153	042	109	042	336	287	061	000	094			
32	207	067	079	167	094	057	117	000	050	067	050	145	278	121	032	147	050	095	176	252	034	033	268	183	062	207	121	000	000	094	094		
33	029	142	061	106	123	091	099	000	106	142	106	038	379	267	050	074	211	184	142	067	108	070	202	230	202	029	082	103	000	038	123	299	

Intercorrelation matrix for items 34 to 66 of the ES scale by the Ss of criterion category CCb.

Item	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
34																																	
35	078																																
36	042	152																															
37	082	070	189																														
38	117	100	185	035																													
39	047	183	079	064	091																												
40	188	088	048	123	176	100																											
41	000	001	001	003	002	001	001																										
42	010	078	042	082	117	119	171	001																									
43	166	033	053	058	082	060	166	001	092																								
44	217	224	281	193	133	066	021	000	179	283																							
45	006	054	218	276	109	198	131	000	106	009	013																						
46	156	100	043	035	050	091	085	000	117	263	121	019																					
47	248	000	079	064	091	222	040	000	213	270	221	198	228																				
48	190	054	218	322	109	198	119	001	106	119	152	235	176	140																			
49	290	207	052	199	055	240	111	000	171	166	021	119	176	040	256																		
50	179	460	171	093	193	066	244	000	085	111	261	401	133	066	089	331																	
51	228	905	102	151	063	099	088	001	424	133	193	157	073	099	157	247	360																
52	216	067	094	210	167	020	132	001	216	030	015	109	067	020	018	076	051	097															
53	000	181	034	111	079	144	139	000	246	104	039	300	138	144	143	069	153	032	106														
54	117	050	006	279	125	091	208	001	117	140	049	014	125	251	114	137	176	390	167	079													
55	145	372	140	143	062	113	163	001	081	184	165	101	062	151	135	163	066	040	014	000	062												
56	000	001	001	003	002	001	001	000	001	001	000	000	000	000	001	000	000	001	001	000	001	001											
57	190	054	341	063	109	025	006	000	042	196	401	011	176	125	074	131	013	175	145	343	014	135	000										
58	081	124	148	043	062	113	163	001	145	102	045	101	062	151	163	218	005	190	179	169	062	077	001	135									
59	000	090	343	221	158	144	347	000	000	104	268	068	079	000	043	035	038	057	000	179	040	169	000	429	196								
60	299	070	189	024	035	064	123	003	299	085	262	322	035	064	066	123	262	051	210	111	279	043	001	322	043	111							
61	184	142	200	247	354	344	062	000	055	419	102	173	106	195	038	047	117	154	032	112	142	167	000	038	176	000	099						
62	028	145	102	151	308	133	088	001	028	131	009	256	076	173	157	080	167	105	097	115	200	090	001	049	090	230	481	458					
63	027	023	287	105	092	126	313	000	224	087	304	331	092	273	194	101	070	217	069	037	133	196	000	068	014	082	233	196	042				
64	145	124	040	043	062	151	163	001	081	102	165	135	162	151	135	027	165	090	207	000	062	077	001	135	077	196	043	176	090	186			
65	306	124	040	043	262	113	027	001	306	102	045	045	162	151	101	218	165	225	327	196	179	077	001	135	282	196	043	029	086	077	077		
66	174	064	243	156	224	272	098	000	054	221	054	234	000	136	000	196	054	000	050	101	224	277	000	243	093	000	186	211	000	258	093	093	

Intercorrelation matrix for items 67 to 98 of the ES scale by the Ss of criterion category CCb.

Item	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98
67																																
68	322																															
69	172	076																														
70	111	086	169																													
71	221	172	372	250																												
72	129	030	128	034	275																											
73	210	018	022	016	000	398																										
74	172	067	231	135	068	067	121																									
75	082	190	008	000	246	194	286	125																								
76	076	235	047	172	172	030	145	168	016																							
77	135	035	083	204	102	266	043	207	134	070																						
78	563	336	066	196	000	040	179	129	080	180	084																					
79	170	197	231	271	135	128	022	039	125	076	207	066																				
80	064	025	098	000	289	078	122	098	047	025	107	045	098																			
81	299	042	225	123	123	042	095	108	010	042	101	081	108	213																		
82	481	049	357	115	287	228	097	194	028	049	047	229	031	099	226																	
83	105	194	012	037	146	287	253	091	099	020	149	014	091	021	350	042																
84	064	198	098	144	144	198	162	098	119	025	079	151	039	222	213	133	315															
85	425	009	039	260	052	004	033	019	346	009	127	469	187	016	166	382	072	066														
86	117	109	079	000	000	389	170	022	147	145	052	079	022	264	147	266	361	020	186													
87	190	006	074	035	173	148	176	075	051	006	184	163	024	180	188	088	101	240	155	176												
88	025	076	172	221	221	189	221	172	082	322	135	043	142	064	082	481	233	064	058	210	123											
89	035	109	246	079	079	271	167	022	156	109	258	062	022	228	156	689	150	091	263	030	176	030										
90	189	030	420	034	343	087	094	225	076	135	028	148	067	060	161	228	237	060	004	007	252	129	271									
91	043	101	305	000	000	336	014	120	081	035	053	077	120	113	306	225	014	113	184	114	027	043	372	040								
92	349	109	022	045	226	239	067	150	078	109	129	124	150	183	234	073	023	000	033	333	044	070	100	152	124							
93	043	101	120	196	196	290	207	120	281	135	035	077	242	131	081	050	186	113	102	207	163	043	062	166	077	124						
94	058	196	039	104	052	146	033	109	013	009	170	184	187	060	192	131	087	151	035	186	115	425	082	146	102	165	184					
95	035	176	022	079	316	043	167	022	428	109	032	162	203	091	156	308	150	003	263	067	066	076	035	475	043	372	200	076				
96	051	157	194	115	115	228	073	194	170	256	057	290	031	131	170	171	134	133	119	097	088	041	073	063	090	073	090	131	073			
97	043	135	120	000	196	336	372	120	145	101	134	077	305	113	145	190	441	113	102	104	218	043	062	040	042	120	077	102	062	090		
98	058	196	039	104	052	004	274	039	346	078	128	102	039	150	131	131	246	150	092	033	288	058	236	004	184	033	012	092	607	133	102	

Intercorrelation matrix for items 1 to 33 of the ES scale by the Ss of criterion category NL.

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
1																																	
2	055																																
3	052	014																															
4	114	055	071																														
5	000	063	017	044																													
6	162	126	149	088	152																												
7	079	035	229	043	122	122																											
8	047	012	095	104	256	162	263																										
9	073	012	010	104	064	064	063	010																									
10	050	055	071	062	088	044	043	090	090																								
11	112	115	091	029	067	067	047	056	141	240																							
12	110	193	015	011	024	024	095	123	092	136	140																						
13	052	038	185	200	043	043	050	085	085	329	091	200																					
14	171	076	235	293	000	224	023	044	044	033	072	067	114																				
15	049	046	066	088	183	091	067	129	129	096	069	093	023	181																			
16	110	122	015	305	097	097	095	023	123	011	095	024	229	066	009																		
17	055	095	048	182	063	252	139	081	105	199	272	089	075	164	134	122																	
18	114	025	067	037	088	110	118	151	054	070	047	140	192	224	012	140	089																
19	149	112	145	125	051	204	087	077	043	229	085	150	006	079	199	321	112	199															
20	068	063	070	048	146	104	033	070	062	079	290	315	193	168	206	335	085	068	024														
21	395	034	032	114	000	243	079	073	047	214	195	071	211	248	049	210	024	096	041	046													
22	178	103	196	179	044	220	188	151	248	077	021	140	131	287	080	214	089	133	196	122	096												
23	162	063	171	088	174	044	122	033	033	176	134	049	107	248	183	024	189	110	102	084	081	218											
24	006	037	126	077	000	218	053	112	049	077	204	077	126	248	120	196	096	120	028	095	142	218	053										
25	092	181	187	114	081	081	079	312	073	214	054	110	052	060	277	020	055	068	054	010	092	142	068	081									
26	009	025	001	108	140	128	075	034	158	108	031	136	081	017	419	042	057	297	074	205	114	006	042	028	218								
27	010	058	019	174	042	209	033	115	070	079	162	036	114	130	057	455	063	068	042	022	088	059	195	146	088	043							
28	243	126	043	176	022	147	122	256	064	088	076	049	221	062	000	024	063	142	255	277	000	109	242	022	081	140	230						
29	006	142	196	077	109	218	253	112	112	177	020	048	126	063	033	070	248	110	028	046	042	187	101	109	142	147	159	109					
30	162	122	015	158	124	190	095	029	092	011	065	024	157	003	009	105	193	081	068	305	071	084	086	170	071	163	136	049	070				
31	259	035	110	072	063	126	139	081	174	072	014	120	014	224	046	089	148	025	035	084	081	036	037	000	131	025	179	189	248	118			
32	085	024	129	146	090	119	002	003	207	142	144	084	081	089	178	084	045	114	046	076	085	057	114	262	004	302	076	048	182	244	114		
33	017	255	069	033	186	186	233	226	044	093	199	003	053	057	008	136	116	090	097	060	041	224	248	017	017	010	064	144	142	016	041	041	

Intercorrelation matrix for items 34 to 66 of the ES scale by the Ss of criterion category NL.

Item	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
34																																	
35	134																																
36	149	169																															
37	110	058	148																														
38	174	006	170	101																													
39	075	066	044	022	085																												
40	062	083	170	253	145	107																											
41	097	047	166	034	044	092	110																										
42	070	058	271	068	132	250	152	190																									
43	153	100	016	124	029	268	123	230	283																								
44	099	095	100	120	012	239	052	097	077	063																							
45	026	130	125	194	122	154	083	041	109	061	171																						
46	124	013	057	094	028	253	276	041	215	061	173	205																					
47	225	005	058	012	191	105	230	064	104	022	081	162	156																				
48	224	058	031	138	073	211	140	034	055	012	110	091	094	147																			
49	027	130	163	120	105	110	187	197	077	207	127	126	222	081	120																		
50	137	156	146	138	197	127	914	161	083	132	110	146	164	261	138	464																	
51	139	067	126	146	136	150	119	121	080	118	039	058	058	091	085	139	130																
52	011	037	064	055	132	117	063	190	085	051	316	109	003	104	158	054	050	080															
53	051	069	112	063	056	171	028	080	071	120	103	118	091	033	180	244	091	114	063														
54	329	071	069	076	065	069	037	113	082	138	029	112	024	038	189	088	157	186	018	143													
55	124	030	044	094	187	246	111	041	109	056	074	113	113	177	094	026	054	058	003	014	026												
56	097	047	089	034	044	092	134	015	078	064	151	041	041	164	034	151	161	121	078	181	131	041											
57	010	109	090	012	081	188	199	163	027	108	081	177	177	022	012	081	115	091	051	047	003	061	064										
58	039	067	126	048	207	050	191	021	110	118	039	058	228	118	048	139	130	030	110	126	161	058	021	109									
59	065	146	029	044	106	170	010	127	036	058	005	063	063	129	044	124	058	166	092	060	051	130	127	129	181								
60	025	083	143	215	077	013	050	026	021	060	171	164	072	160	060	025	135	037	021	141	156	072	026	112	137	062							
61	103	012	078	071	054	067	070	083	026	135	089	127	079	017	191	089	093	076	043	182	013	285	083	017	076	033	007						
62	092	085	045	044	108	032	042	050	082	017	077	002	002	017	044	077	118	071	009	093	053	002	050	083	174	100	316	017					
63	093	022	065	030	102	129	092	069	005	057	049	081	081	106	060	083	059	099	217	060	008	142	069	025	089	144	122	003	141				
64	069	120	009	313	112	019	072	393	143	336	248	067	067	038	086	142	089	053	030	092	081	104	038	163	053	117	187	101	165	057			
65	222	058	148	138	101	022	140	434	314	259	005	094	094	147	138	110	094	048	068	063	260	091	034	124	048	292	060	071	115	030	112		
66	011	054	191	102	186	036	171	094	097	098	195	063	036	192	013	072	203	044	097	124	356	036	094	047	044	146	128	110	190	028	079	217	

Intercorrelation matrix for items 67 to 98 of the ES scale by the Ss of criterion category NL.

Item	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98
67																																
68	000																															
69	000	261																														
70	000	071	081																													
71	000	175	043	031																												
72	000	094	090	003	334																											
73	000	193	014	201	066	060																										
74	000	043	013	098	008	005	120																									
75	000	080	017	129	045	112	089	195																								
76	000	054	113	192	161	006	154	037	208																							
77	000	016	068	035	108	228	146	148	005	107																						
78	000	431	238	123	265	135	073	264	021	043	115																					
79	000	131	025	089	129	046	024	031	161	190	024	105																				
80	000	099	182	071	145	064	099	216	134	170	113	178	073																			
81	000	041	036	107	066	006	141	180	003	014	170	043	036	189																		
82	000	110	278	105	031	113	110	098	031	121	174	445	159	157	064																	
83	000	041	083	140	060	120	141	064	020	154	155	062	197	036	021	069																
84	000	137	119	235	010	079	137	109	202	165	050	083	039	050	169	064	128															
85	000	079	119	195	055	052	097	161	071	128	033	063	039	058	087	095	044	078														
86	000	030	077	082	136	146	047	081	125	166	333	037	247	111	101	263	101	021	018													
87	000	001	079	190	252	036	158	091	017	065	061	150	100	103	065	051	238	155	146	061												
88	000	277	159	117	007	044	098	056	088	246	113	367	025	072	108	220	166	069	037	236	107											
89	000	609	289	021	204	220	167	260	115	137	003	772	101	276	002	244	013	002	048	028	102	489										
90	000	166	195	106	078	130	166	058	005	050	262	162	003	113	050	313	034	244	143	029	014	032	222									
91	000	110	096	110	307	017	092	120	137	041	146	073	133	226	137	201	196	149	079	124	003	098	119	088								
92	000	114	042	136	069	063	009	008	076	076	043	213	178	015	121	230	175	121	161	082	050	296	184	038	095							
93	000	028	079	043	057	190	028	024	271	050	211	122	073	205	170	043	036	069	058	111	189	172	095	113	228	247						
94	000	026	148	047	041	049	026	002	328	059	096	173	195	206	034	226	151	310	138	236	185	301	151	206	170	194	184					
95	000	204	197	158	051	214	114	018	102	183	205	298	199	122	029	011	063	029	043	025	166	251	409	300	050	051	083	039				
96	000	081	022	194	129	124	162	103	146	026	209	224	126	034	204	122	212	178	061	165	082	302	158	167	243	228	234	131	219			
97	000	268	148	087	037	273	226	255	012	126	172	402	235	048	126	174	161	083	083	086	035	261	294	055	286	094	039	147	198	210		
98	000	221	060	043	163	034	056	138	017	004	149	577	134	054	091	211	097	083	091	090	263	233	529	065	221	059	177	015	319	149	195	

Appendix D

Difference matrix for items 1 to 33 of the ES scale between the Ss of criterion categories P and CCa .

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
1																																	
2	116																																
3	401	007																															
4	491	040	152																														
5	041	367	279	464																													
6	340	063	307	022	381																												
7	075	058	223	066	141	156																											
8	135	232	092	358	101	029	090																										
9	087	151	030	265	187	203	090	088																									
10	037	331	220	405	077	040	066	360	035																								
11	213	137	156	495	031	311	233	183	283	088																							
12	271	005	075	328	067	145	112	463	122	105	074																						
13	197	157	064	288	281	385	187	207	124	018	163	155																					
14	053	039	120	434	152	241	254	080	110	209	175	179	746																				
15	109	128	097	068	277	248	120	223	151	106	079	359	133	143																			
16	547	013	067	096	008	174	120	121	424	069	288	111	439	030	202																		
17	085	196	284	012	247	589	243	143	228	004	051	043	189	037	164	219																	
18	071	038	120	082	073	272	079	138	438	043	110	026	205	122	153	295	250																
19	686	186	002	502	210	106	066	126	139	061	024	026	160	318	257	412	297	350															
20	165	443	190	104	161	046	068	134	027	041	078	187	006	159	145	170	107	047	505														
21	531	133	102	514	122	331	503	366	063	041	428	055	274	110	133	147	400	359	074	072													
22	402	115	129	302	050	067	056	051	376	033	291	059	113	054	350	087	091	070	048	299	032												
23	074	012	153	293	079	368	112	055	493	195	144	212	064	202	147	221	244	237	331	032	052	015											
24	228	315	178	004	054	001	127	323	180	298	015	047	299	247	013	034	151	083	094	074	096	027	173										
25	025	154	080	136	159	070	126	050	249	223	187	111	339	167	055	377	071	023	029	111	031	096	112	121									
26	164	068	084	079	061	023	056	485	213	033	107	368	294	111	144	532	087	118	578	594	721	021	458	027	053								
27	285	189	042	045	197	065	120	107	078	067	192	187	431	186	093	414	186	041	315	284	362	164	196	116	063	371							
28	027	047	170	061	235	040	196	015	028	043	225	297	224	353	076	314	006	004	184	386	063	042	312	133	213	042	052						
29	087	255	269	048	288	121	066	159	501	034	140	311	060	245	052	094	117	256	221	214	317	292	142	331	556	292	096	119					
30	046	032	327	221	018	059	148	274	167	324	103	035	202	103	035	202	013	007	012	012	221	133	415	004	239	163	033	491	248				
31	042	082	302	062	120	269	187	084	064	023	372	241	095	110	471	011	012	392	207	009	226	192	014	014	104	231	183	008	211	063			
32	031	143	098	018	176	050	134	088	283	108	244	018	040	242	039	366	107	221	069	322	050	094	204	053	049	290	154	100	271	326	077		
33	085	264	308	183	217	143	241	234	115	066	036	002	364	195	045	038	017	110	228	158	247	155	069	073	170	096	234	309	277	199	277	343	
Sums	5798	4516	4759	6638	5300	5674	4419	5594	6092	3813	5648	4796	6913	5867	4797	6450	4889	5147	6946	5753	7390	4278	5651	4044	4549	6964	5557	4815	6790	5275	4735	4815	5397

Difference matrix for items 34 to 66 of the ES scale between the Ss of criterion categories P and CCa.

Item	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
34																																	
35	076																																
36	231	344																															
37	009	017	033																														
38	028	053	183	012																													
39	143	249	196	173	020																												
40	003	287	062	379	085	048																											
41	103	112	038	032	032	134	091																										
42	263	199	170	277	244	034	025	048																									
43	300	057	144	011	143	352	105	090	112																								
44	343	075	063	023	070	039	009	380	080	289																							
45	217	036	076	160	052	121	362	098	079	268	078																						
46	011	323	155	209	023	003	005	038	049	440	055	049																					
47	143	297	132	157	015	062	132	098	041	118	027	096	068																				
48	126	226	164	072	017	129	090	116	131	083	291	269	216	066																			
49	154	194	131	058	005	227	160	196	151	222	072	195	247	107	048																		
50	132	288	157	271	046	132	100	171	024	236	002	291	041	146	232	124																	
51	134	112	038	699	032	134	141	046	048	207	120	098	826	184	116	019	048																
52	213	153	099	247	267	019	185	223	190	085	142	355	020	093	105	008	110	009															
53	135	396	164	330	051	242	182	048	222	238	434	313	065	475	338	067	231	048	060														
54	263	084	043	454	008	308	212	243	248	207	177	165	248	082	154	118	557	028	005	072													
55	029	023	121	367	048	341	130	098	182	373	067	043	058	017	250	044	155	184	029	174	278												
56	122	090	226	697	051	114	140	001	130	107	154	130	107	154	130	049	310	177	158	122	001	062											
57	078	026	041	364	015	189	025	164	136	209	184	154	076	047	321	140	500	164	378	273	030	028	089										
58	015	142	345	409	024	021	110	083	044	090	041	083	489	383	009	146	093	551	108	098	125	205	035	034									
59	031	072	184	288	116	086	137	196	497	247	055	187	076	038	196	043	018	019	359	240	447	118	047	098	029								
60	010	028	196	614	254	001	004	056	027	041	096	068	143	170	197	084	317	376	288	147	107	349	072	221	209	219							
61	045	104	017	345	176	042	245	103	156	310	278	200	109	062	109	003	021	103	091	256	080	157	082	170	322	138	253						
62	131	280	276	344	103	496	272	105	204	227	153	131	418	309	213	239	205	432	247	170	016	007	062	143	339	494	180	172					
63	042	244	202	357	046	068	221	120	068	189	224	014	407	200	274	123	100	130	053	031	053	576	130	191	177	356	453	395	141				
64	118	007	220	429	253	145	283	066	161	104	326	010	045	136	015	224	023	066	366	492	027	355	229	184	058	096	102	057	111	244			
65	121	217	160	451	018	170	207	075	097	121	418	069	067	258	344	480	091	268	178	007	190	435	035	242	304	366	241	024	046	295	046		
66	408	116	177	291	085	141	062	028	060	162	028	060	162	027	305	170	201	173	124	269	183	425	048	216	164	016	127	067	115	135	279	160	
Sums	4177	4927	4788	8579	2385	4579	4499	3432	4397	5787	4792	4772	5198	4670	5267	4311	5253	5564	5234	6163	5467	5467	3956	5041	5188	5608	5597	4813	6714	6403	5277	6201	5134

Difference matrix for items 67 to 98 of the ES scale between the Ss of criterion categories P and CCa.

Item	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98
67																																
68	000																															
69	000	108																														
70	000	516	252																													
71	000	067	326	018																												
72	000	197	015	083	044																											
73	000	327	011	613	111	071																										
74	000	045	249	330	332	066	092																									
75	000	187	326	476	327	015	139	246																								
76	000	029	066	379	328	176	300	146	216																							
77	000	387	021	090	085	053	392	400	248	113																						
78	000	051	020	172	114	449	338	369	358	011	161																					
79	000	058	112	043	280	003	514	029	057	047	112	056																				
80	000	305	137	190	004	185	328	024	157	064	011	286	040																			
81	000	118	267	210	030	106	152	006	613	210	360	147	330	334																		
82	000	472	124	051	005	105	146	076	253	293	140	047	014	182	211																	
83	000	186	308	275	302	003	066	099	025	029	193	415	130	315	410	085																
84	000	235	001	066	087	262	160	305	283	160	160	288	292	202	106	232	325															
85	000	018	281	277	031	002	009	352	010	028	020	016	346	047	011	002	003	010														
86	000	180	632	124	068	150	029	088	291	373	202	101	102	213	108	375	025	530	295													
87	000	000	398	022	091	075	017	019	087	283	520	151	009	166	019	116	265	005	297	021												
88	000	018	018	277	018	002	009	310	010	028	020	016	037	293	386	534	003	010	002	295	012											
89	000	058	052	233	319	301	294	202	066	059	351	244	095	350	111	064	359	325	403	166	125	034										
90	000	640	049	027	067	387	170	268	090	004	691	478	403	254	208	219	100	054	000	244	117	301	030									
91	000	092	394	380	067	060	021	165	197	011	205	117	007	286	147	155	272	081	016	044	048	016	128	087								
92	000	057	203	347	011	094	087	082	141	199	140	045	175	243	215	228	266	002	004	111	096	004	232	088	185							
93	000	018	035	277	018	331	374	008	010	028	329	016	037	047	011	534	347	010	002	006	349	002	034	012	622	004						
94	000	139	149	329	153	484	108	228	297	123	089	431	326	173	155	358	167	061	047	074	238	047	010	260	008	067	293					
95	000	394	124	025	484	090	306	142	330	260	006	482	158	305	484	262	099	039	005	505	068	005	303	091	114	021	005	305				
96	000	115	031	152	087	147	043	109	013	378	049	033	299	171	109	248	247	442	028	381	031	028	048	008	336	462	028	114	206			
97	000	292	159	095	009	194	047	282	286	298	199	103	034	125	162	143	056	046	024	038	124	024	022	116	294	400	024	022	578	372		
98	000	058	002	093	003	322	066	364	688	128	206	244	259	065	152	293	127	154	034	014	276	034	117	111	199	053	034	350	644	398	022	
Sums	0000	5367	4870	6422	3886	4472	5340	5433	6442	4767	5953	5759	4404	5502	5888	5967	5502	4933	2620	5785	4045	2793	5135	5574	4754	4262	3845	5605	6840	5113	4590	5510

Difference matrix for items 1 to 33 of the ES scale between the Ss of criterion categories P and CCb.

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
1																																	
2	200																																
3	043	208																															
4	041	012	108																														
5	072	133	301	208																													
6	325	001	233	505	223																												
7	563	035	124	035	129	135																											
8	088	180	255	227	084	211	000																										
9	145	202	364	259	176	279	279	099																									
10	009	145	040	165	071	199	035	061	126																								
11	075	066	024	313	038	079	156	085	048	008																							
12	452	257	145	007	281	169	322	099	203	029	105																						
13	108	092	371	423	029	317	199	211	107	114	371	015																					
14	118	111	106	201	088	370	142	190	268	092	028	139	208																				
15	170	263	078	030	008	067	099	127	143	044	199	013	010	158																			
16	619	334	219	029	065	430	299	075	081	056	259	004	143	198	057																		
17	117	160	085	171	192	129	156	138	021	187	066	497	127	062	286	196																	
18	246	027	322	149	210	294	082	084	031	275	126	168	450	001	153	293	201																
19	422	052	188	000	106	151	699	042	194	016	158	249	166	085	174	198	182	417															
20	174	499	313	345	052	032	099	065	078	282	022	044	035	085	106	335	203	061	174														
21	032	309	137	474	190	375	064	186	004	011	481	281	459	331	006	383	161	127	035	200													
22	412	177	245	011	162	080	058	061	297	312	300	098	074	487	109	227	037	101	048	111	070												
23	395	244	128	036	083	187	082	022	109	053	056	169	312	044	126	032	106	193	002	161	248	251											
24	100	292	036	121	017	137	279	161	224	005	045	106	016	102	132	340	061	112	125	038	131	097	017										
25	152	212	124	154	156	170	082	061	197	203	042	026	221	162	110	221	212	266	083	080	023	216	418	026									
26	028	157	136	372	262	070	043	373	075	013	088	181	197	220	378	142	314	420	028	372	458	053	251	021	355								
27	367	016	046	203	030	214	233	131	646	044	247	055	204	168	082	409	112	042	231	221	489	019	102	220	025	120							
28	112	289	208	066	263	082	262	009	015	203	098	058	080	119	091	094	092	114	164	048	128	289	245	031	017	235	152						
29	227	019	255	227	084	022	000	075	470	061	268	099	211	190	121	283	232	141	042	151	186	060	167	258	373	061	104	009					
30	057	377	229	445	339	018	076	237	246	218	032	017	413	068	185	009	313	107	072	164	111	387	159	197	052	244	231	210	033				
31	178	126	087	164	149	041	189	033	173	181	478	004	005	097	488	109	152	099	205	578	019	262	199	117	180	019	185	081	170	019			
32	019	105	198	163	077	043	117	049	236	197	117	025	399	059	207	614	007	135	076	181	257	191	258	083	150	331	318	215	049	026	017		
33	129	042	209	127	067	034	099	033	204	004	012	136	114	288	057	107	108	249	046	204	206	068	152	341	064	080	184	450	033	018	068	426	
Sums	6195	5342	5583	5791	4345	5622	5190	3752	5999	3459	4490	4453	6201	4985	4277	6860	5083	5696	4830	5513	6472	5271	5007	3888	4833	6107	5850	4529	4682	5219	4872	5245	4359

Difference matrix for items 34 to 66 of the ES scale between the Ss of criterion categories P and CCb.

Item	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
34																																	
35	174																																
36	055	296																															
37	033	008	347																														
38	005	330	180	001																													
39	440	060	081	015	023																												
40	030	025	135	403	316	248																											
41	000	001	001	003	002	001	001																										
42	046	160	002	009	241	104	100	001																									
43	137	053	022	016	024	429	288	001	460																								
44	340	126	297	200	021	187	009	000	227	232																							
45	035	126	178	015	486	158	439	000	129	152	053																						
46	278	330	048	001	001	023	407	000	013	369	275	021																					
47	460	333	247	546	401	190	037	000	392	423	102	194	299																				
48	113	207	468	000	003	246	099	001	037	070	181	045	002	096																			
49	142	349	108	278	103	364	234	000	000	412	152	159	062	072	157																		
50	006	523	037	008	273	057	201	000	156	096	291	472	011	053	450	080																	
51	028	508	102	051	073	099	088	001	424	131	193	151	073	099	151	247	360																
52	160	169	268	301	291	020	176	001	193	039	039	254	197	168	113	268	161	097															
53	072	478	056	033	156	107	178	000	020	102	189	115	175	282	247	024	114	230	201														
54	044	103	115	044	303	251	369	001	123	061	002	020	019	007	218	058	127	390	036	045													
55	210	219	125	001	435	421	098	001	032	154	025	052	001	076	004	079	401	540	063	072	276												
56	122	090	227	696	051	115	139	000	131	107	154	130	049	310	177	158	122	001	123	106	117	062											
57	065	086	350	014	020	148	057	000	124	043	108	153	265	104	079	089	209	157	227	236	034	025	089										
58	166	062	097	019	028	034	248	001	408	028	152	192	028	201	410	139	130	090	270	340	136	035	035	073									
59	231	134	409	346	205	430	352	000	289	206	018	061	258	232	304	204	193	057	180	288	387	348	047	343	071								
60	475	172	036	026	345	101	136	003	303	095	314	143	036	237	077	155	249	051	398	295	226	270	074	451	007	180							
61	021	149	015	354	272	458	032	000	007	241	050	121	260	417	216	038	013	154	307	161	091	014	082	045	398	047	124						
62	037	298	187	009	369	441	153	001	230	262	014	207	012	360	026	221	327	105	048	004	196	015	062	159	048	382	569	149					
63	227	095	143	014	222	145	496	000	124	056	484	064	285	085	051	324	112	217	192	345	147	125	130	151	105	438	421	198	119				
64	241	156	031	426	292	028	249	001	009	082	028	207	027	182	288	015	102	190	432	107	263	494	229	167	015	282	376	039	243	050			
65	026	062	191	019	028	034	307	001	397	028	177	044	028	201	175	518	080	225	109	340	353	035	035	073	306	321	007	193	048	449	015		
66	323	177	128	010	018	251	051	000	071	187	103	230	016	002	153	060	126	000	251	166	377	166	377	215	051	104	179	039	072	253	070	051	

Suma	4712	6059	4982	4207	5518	5709	6101	0024	4962	5006	4743	4806	3868	6808	4401	5269	5540	5183	5652	5192	4899	4774	3956	4359	4323	7347	6530	4605	5273	5967	5236	4876	3916

Difference matrix for items 67 to 98 of the ES scale between the Ss of criterion categories P and CCb.

Item	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98
67																																
68	322																															
69	172	069																														
70	111	206	425																													
71	221	253	076	404																												
72	129	067	081	014	142																											
73	210	046	129	202	123	076																										
74	172	012	310	008	200	077	341																									
75	082	095	137	120	485	097	240	385																								
76	076	248	055	041	164	047	125	199	068																							
77	135	408	054	244	036	016	471	296	215	081																						
78	563	150	156	454	180	150	330	117	105	232	232																					
79	172	012	355	097	302	211	211	024	084	207	138	019																				
80	064	074	063	161	308	074	273	131	052	129	112	490	013																			
81	299	216	000	117	047	009	075	139	003	037	149	212	023	551																		
82	481	165	288	303	324	062	295	215	144	202	106	313	023	187	032																	
83	105	292	197	266	188	277	104	065	197	098	267	426	106	191	186	200																
84	064	261	185	072	025	205	258	003	265	005	070	002	164	069	366	004	416															
85	425	065	086	169	183	103	118	139	402	083	285	511	036	102	240	432	168	122														
86	117	409	398	071	193	452	165	111	151	043	257	027	044	299	127	525	440	244	311													
87	199	083	122	003	165	231	413	146	188	212	523	343	011	199	234	226	083	213	117	161												
88	025	020	297	313	323	296	295	268	026	396	023	001	300	022	405	001	329	002	034	335	021											
89	035	023	242	126	156	368	033	076	288	122	484	248	231	327	330	805	410	364	162	296	063	021										
90	189	458	431	009	388	202	115	088	062	353	386	010	008	383	203	175	129	263	127	189	011	002	432									
91	043	200	153	161	019	137	079	087	180	004	321	002	022	038	437	002	019	266	226	021	046	001	186	178								
92	349	208	013	303	207	244	002	183	177	005	214	199	248	180	365	161	056	110	075	485	025	028	286	199	049							
93	043	157	071	105	298	451	487	216	137	061	204	035	410	071	155	572	434	051	078	082	072	019	006	154	641	082						
94	058	274	183	362	232	336	184	128	483	140	255	458	081	135	061	219	224	040	090	034	195	467	017	008	027	090	226					
95	035	088	025	045	020	039	307	160	508	287	184	001	208	030	262	379	259	321	297	206	271	001	211	006	001	261	038	021				
96	051	252	190	005	038	170	217	258	265	130	162	009	050	319	183	287	198	013	063	203	323	537	059	070	009	397	034	230	337			
97	043	399	073	124	291	018	232	258	409	077	139	016	300	052	323	019	305	024	068	287	313	009	018	077	343	063	043	041	538	699		
98	058	328	106	109	133	217	246	299	478	004	208	288	025	336	213	003	344	423	148	178	207	002	168	285	002	132	046	191	688	263	022	
Sums	5048	5860	5141	5150	6124	4998	6402	5111	6528	3931	6675	6279	4135	5363	6008	7150	7079	4889	5465	6861	5428	4819	6593	5590	3900	5324	5479	5590	6034	6021	5623	6150

Difference matrix for items 1 to 33 of the ES scale between the Ss of criterion categories P and NL.

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
1																																	
2	193																																
3	075	009																															
4	011	092	067																														
5	032	027	029	011																													
6	247	319	098	335	043																												
7	079	039	229	043	122	122																											
8	041	168	340	123	340	051	063																										
9	061	089	183	030	234	085	063	109																									
10	121	040	135	372	202	103	043	029	354																								
11	280	181	163	342	251	242	074	029	205	024																							
12	226	274	113	127	163	105	095	222	187	056	086																						
13	133	145	335	447	034	161	050	126	044	270	084	221																					
14	119	209	186	130	253	163	023	146	053	187	044	124	401																				
15	190	167	034	012	421	143	067	002	092	002	130	253	075	084																			
16	198	095	126	393	044	075	095	198	347	172	150	162	440	124	136																		
17	055	255	011	129	206	027	129	057	238	236	158	222	052	178	526	016																	
18	179	115	069	069	104	151	118	235	133	328	137	030	032	233	239	281	294																
19	199	214	313	075	028	085	087	028	099	063	216	275	113	028	087	363	070	181															
20	271	294	031	155	002	300	033	005	190	219	057	171	111	198	150	116	261	055	256														
21	012	105	230	497	008	264	079	113	142	294	014	061	490	151	012	209	185	104	015	212													
22	316	132	332	006	158	159	053	054	215	028	022	154	185	166	322	257	032	234	006	181	062												
23	072	015	040	089	084	424	118	129	119	133	135	119	126	368	132	236	157	174	215	074	225	160											
24	017	091	266	192	266	077	122	193	900	046	201	071	228	409	297	073	362	018	161	140	039	088	056										
25	163	086	171	424	033	140	079	373	153	263	270	190	222	214	075	353	092	046	088	132	172	093	355	049									
26	301	120	017	418	026	498	075	407	078	059	025	216	089	171	217	103	020	411	208	196	495	055	212	158	276								
27	163	134	025	121	006	159	033	016	244	027	151	250	111	053	008	586	227	127	079	325	262	165	192	277	190	149							
28	310	282	053	109	081	014	112	247	255	018	194	294	038	178	074	015	008	257	044	446	039	039	402	004	243	210	078						
29	233	161	059	304	025	196	253	037	582	016	248	051	085	127	154	453	016	151	014	105	328	148	268	367	515	208	045	118					
30	320	146	046	178	086	351	095	329	352	098	154	088	314	103	156	072	120	016	184	079	331	157	331	281	067	219	067	148	203				
31	417	120	362	093	125	139	138	114	110	210	443	220	143	546	242	056	251	087	213	455	279	072	196	008	271	330	077	209	418	057			
32	103	062	010	150	019	219	102	046	493	012	201	036	040	289	003	383	088	154	137	147	038	181	124	162	120	178	356	046	133	252	003		
33	175	439	217	054	004	129	023	259	142	045	081	095	218	064	001	169	087	155	017	162	038	179	174	359	121	092	112	285	115	298	207	168	
Sums	5312	4818	4374	5498	3468	5324	2877	4626	5769	4105	4922	5057	5563	5722	4503	6396	4775	4917	4261	5529	5505	4408	5755	5066	5930	5928	4815	4860	6132	5698	6612	4455	4680

Difference matrix for items 34 to 66 of the ES scale between the Ss of criterion categories P and NL.

Item	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
34																																	
35	230																																
36	246	313																															
37	025	120	306																														
38	296	236	165	067																													
39	318	057	204	101	029																												
40	166	146	157	533	285	255																											
41	097	037	166	034	044	092	110																										
42	021	024	230	159	256	027	121	190																									
43	150	080	115	198	135	228	001	230	015																								
44	652	196	116	227	142	487	082	097	029	114																							
45	097	202	185	003	499	114	225	041	132	082	105																						
46	246	217	062	060	077	139	398	041	084	045	081	335																					
47	401	328	227	494	401	137	027	064	283	131	038	176	127																				
48	527	095	281	184	179	259	160	035	088	091	416	371	272	200																			
49	475	172	103	199	263	014	310	097	248	039	104	066	336	039	219																		
50	310	219	062	223	319	252	029	161	012	052	080	117	268	248	023	053																	
51	139	067	126	048	073	050	019	221	080	118	039	058	058	091	048	139	130																
52	045	273	110	036	256	157	371	190	062	057	250	254	127	084	310	148	006	080															
53	123	366	134	081	181	080	067	080	150	086	137	433	075	171	387	141	052	114	032														
54	168	224	040	399	113	246	198	113	088	059	080	126	130	120	421	283	146	186	113	177													
55	059	283	129	052	195	062	176	041	158	282	117	162	452	404	037	048	119	058	042	058	122												
56	025	042	137	733	005	022	006	015	052	042	305	089	008	374	202	007	283	021	202	167	309	020											
57	245	077	081	050	008	065	082	064	055	271	212	249	088	107	165	123	337	091	133	064	017	049	025										
58	124	005	277	024	241	129	276	021	373	192	146	033	262	168	433	262	168	026	064	045	030	019	405	235	016								
59	116	078	037	081	059	465	005	127	325	044	245	210	242	103	391	045	289	166	088	051	096	282	080	043	306								
60	151	185	010	265	387	152	063	026	026	213	119	015	001	113	093	057	122	037	209	324	003	299	045	017	013	131							
61	308	005	303	036	136	181	100	083	074	313	064	167	233	230	369	080	033	067	232	231	038	474	165	010	155	080	230						
62	027	068	040	086	169	276	023	050	340	114	082	051	059	244	175	064	269	071	040	204	051	073	011	193	216	052	404	022					
63	290	094	211	061	028	300	090	069	105	086	135	348	458	294	017	130	123	099	240	258	272	303	061	107	008	112	066	264	021				
64	027	152	000	072	342	142	486	393	071	356	111	005	156	371	239	100	152	053	195	015	244	521	268	195	009	031	146	036	012	179			
65	504	120	003	162	067	101	420	434	405	333	217	003	060	097	212	410	009	048	195	081	334	133	000	186	024	417	010	293	073	292	174		
66	138	187	306	064	020	015	012	094	084	132	146	076	052	330	166	208	285	044	298	059	203	147	078	019	100	042	151	140	118	067	242	361	
Sums	6446	4908	4882	5184	5763	5156	5348	3366	4368	4394	5371	5129	4850	6741	6667	4510	4828	2458	4864	5083	5354	4994	3821	3447	3979	4839	4082	5163	3698	5178	5495	6178	4384

Difference matrix for items 67 to 98 of the ES scale between the Ss of criterion categories P and NL.

Item	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98
67																																
68	000																															
69	000	116																														
70	000	191	337																													
71	000	094	253	185																												
72	000	191	043	051	467																											
73	000	221	093	107	189	382																										
74	000	021	092	029	276	015	100																									
75	000	175	122	249	284	209	161	065																								
76	000	041	011	323	175	083	034	005	034																							
77	000	287	039	005	174	054	282	029	086	159																						
78	000	245	016	135	085	325	224	483	207	174	213																					
79	000	076	099	263	316	007	209	056	048	240	055	020																				
80	000	198	147	090	164	098	250	249	233	274	198	253	012																			
81	000	133	189	101	142	045	061	149	016	065	080	174	092	149																		
82	000	226	356	293	068	293	282	077	085	132	021	533	167	245	194																	
83	000	139	268	089	018	112	190	092	078	048	273	348	210	206	143	089																
84	000	200	207	163	129	072	233	210	348	145	059	110	164	203	318	193	229															
85	000	023	243	004	180	259	006	409	015	202	125	021	190	016	013	045	140	025														
86	000	330	326	153	057	200	042	214	121	268	017	115	313	067	001	522	022	235	143													
87	000	080	217	152	260	047	395	162	222	271	173	330	135	084	010	189	054	128	045	046												
88	000	333	034	027	095	151	013	040	032	320	045	409	183	030	431	262	070	131	013	361	209											
89	000	741	293	026	439	117	376	358	017	124	229	586	099	375	172	360	247	275	473	032	341	545										
90	000	262	184	063	123	015	187	371	009	240	096	024	078	210	008	262	074	041	012	157	249	999	385									
91	000	011	248	271	288	182	027	153	236	090	122	148	231	301	006	026	163	004	037	159	022	056	167	050								
92	000	213	007	122	088	058	056	041	032	028	128	128	285	060	010	318	208	011	203	068	069	338	002	009	020							
93	000	028	270	134	159	412	308	072	327	024	362	080	231	247	096	439	212	131	034	014	424	048	038	069	592	298						
94	000	496	074	171	139	239	125	239	125	072	011	469	109	281	165	350	076	420	180	084	005	061	250	068	245	169	126					
95	000	050	144	034	387	136	254	156	022	005	011	359	204	183	135	082	046	201	009	248	071	285	145	263	323	122	049	100				
96	000	176	018	074	052	066	018	039	051	360	000	323	207	220	217	238	276	324	117	125	277	358	290	034	342	442	022	230	045			
97	000	004	195	037	058	045	166	087	242	062	177	465	240	145	052	245	052	123	049	187	130	295	374	018	329	155	005	208	278	399		
98	000	353	205	256	082	247	028	398	115	170	230	391	070	132	291	077	001	190	034	235	344	289	434	216	035	158	121	114	399	381	275	
Sums	0000	5654	4886	4134	5426	4621	5010	4677	4033	4189	3740	7553	4599	5329	3658	6669	4173	5232	3265	4891	5141	5561	8301	3886	4884	3997	5363	5418	4746	5631	5113	6171

Difference matrix for items 1 to 33 of the ES scale between the Ss-of criterion categories CCa and CCb.

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
1																																	
2	084																																
3	019	191																															
4	450	027	260																														
5	113	234	042	256																													
6	015	082	074	483	158																												
7	638	093	081	031	012	021																											
8	047	052	163	131	017	182	090																										
9	232	051	334	006	011	076	369	011																									
10	046	186	260	570	148	159	031	299	161																								
11	288	203	132	182	007	390	077	098	331	096																							
12	181	252	070	321	214	025	434	364	081	134	031																						
13	089	249	435	135	152	067	012	005	017	096	208	170																					
14	075	072	226	233	240	119	112	110	158	301	204	318	564																				
15	061	135	174	098	269	181	021	096	294	150	100	372	143	005																			
16	072	321	286	125	073	252	419	046	343	125	029	115	296	168	259																		
17	252	036	369	183	055	460	399	005	249	183	117	540	062	025	182	023																	
18	175	065	442	067	137	022	161	222	507	232	236	142	245	121	010	002	451																
19	264	134	190	502	316	257	765	084	054	045	182	223	326	233	083	114	115	067															
20	009	056	121	241	213	078	167	199	051	241	056	149	051	084	039	165	096	108	331														
21	463	176	239	040	312	044	467	180	067	040	053	227	184	221	139	238	239	232	040	272													
22	010	062	116	313	212	013	002	112	079	345	009	039	039	541	241	313	128	171	000	410	138												
23	469	232	025	329	162	181	030	077	384	142	200	043	376	246	273	189	350	044	329	219	196	266											
24	328	023	132	117	071	136	406	162	044	293	060	153	315	155	119	374	190	029	030	036	227	124	190										
25	127	058	444	018	003	090	042	111	052	018	135	085	118	005	055	156	140	243	112	191	064	119	306	147									
26	192	225	220	293	323	047	013	112	288	020	019	187	097	109	234	390	401	302	606	222	039	032	207	002	302								
27	082	205	088	158	227	277	353	238	788	023	055	132	237	354	011	005	074	001	084	101	127	145	298	336	038	241							
28	085	336	154	005	028	042	458	024	043	160	127	355	144	234	015	220	086	110	348	434	065	331	067	102	230	277	204						
29	140	236	014	179	204	099	066	044	131	095	128	212	271	055	173	189	115	115	179	063	131	025	025	183	183	231	008	128					
30	103	345	088	224	321	041	072	037	079	106	135	052	211	044	192	003	327	244	061	251	315	182	077	101	089	091	264	307	215				
31	220	034	215	226	269	228	376	117	237	072	126	237	090	113	017	098	164	491	002	587	207	454	185	131	076	212	368	073	041	044			
32	012	248	100	145	089	093	017	137	047	089	138	007	439	183	235	238	114	086	145	503	307	003	054	030	101	041	164	115	320	352	060		
33	044	222	099	310	149	177	042	247	089	062	048	148	479	093	088	145	125	139	274	046	041	087	083	268	106	176	041	141	300	081	345	083	
Sums	5485	4925	5403	6658	5037	4568	6377	3859	5444	4928	4200	6011	6303	5732	4475	5801	6253	5619	6495	5780	5930	5267	6254	5014	3564	6161	5507	5448	4744	5063	6115	4716	4778

Difference matrix for items 34 to 66 of the ES scale between the Ss of criterion categories CCa and CCb.

Item	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
34																																	
35	098																																
36	176	048																															
37	012	009	314																														
38	023	383	363	013																													
39	297	191	115	030	003																												
40	027	302	073	024	401	200																											
41	103	113	037	035	034	135	099																										
42	217	039	172	268	003	070	125	047																									
43	163	110	166	005	019	077	183	091	348																								
44	003	051	234	009	049	148	018	380	147	521																							
45	182	090	254	007	216	037	077	098	208	116	025																						
46	267	007	107	210	024	020	402	038	036	071	220	028																					
47	317	036	115	389	416	128	169	098	433	305	075	290	231																				
48	013	019	314	071	020	375	189	115	380	153	110	224	214	030																			
49	296	155	023	336	108	137	074	196	151	190	224	036	309	035	109																		
50	126	235	120	279	310	075	101	171	180	332	293	181	052	199	218	204																	
51	162	620	140	750	041	233	053	047	376	076	073	059	899	085	273	228	312																
52	053	016	367	054	024	001	009	222	003	046	181	101	177	075	008	092	051	088															
53	207	082	108	297	107	135	004	048	242	136	244	198	077	193	089	091	117	278	141														
54	307	019	072	410	295	057	581	242	371	268	179	185	267	427	064	060	430	362	041	027													
55	239	197	004	368	387	080	032	099	214	219	042	009	059	099	254	123	246	356	034	102	002												
56	000	000	001	001	000	001	001	000	001	000	000	000	000	000	000	000	000	000	000	001	000	000											
57	013	060	309	378	035	041	082	164	012	252	292	001	189	047	242	229	291	321	151	509	004	053	000										
58	181	080	342	428	004	013	138	084	364	118	110	109	517	182	419	007	223	641	162	242	011	240	000	107									
59	200	062	225	058	321	344	215	196	198	041	037	126	182	270	108	237	211	076	179	428	060	466	000	441	100								
60	465	144	232	588	599	102	140	059	330	054	410	211	107	407	120	325	068	427	119	441	333	619	002	230	202	399							
61	066	045	032	009	448	416	297	103	163	551	229	267	151	355	325	041	008	041	398	094	011	143	000	215	076	091	129						
62	094	018	069	353	382	055	119	106	026	035	139	338	430	051	329	018	122	537	199	174	080	008	000	016	387	112	389	023					
63	266	149	363	371	176	113	274	120	192	133	260	050	122	285	325	201	212	347	145	214	050	601	000	040	072	082	032	296	022				
64	123	149	251	003	545	173	032	077	170	186	354	197	008	318	303	209	076	024	066	385	290	139	000	017	043	378	274	018	132	194			
65	095	279	031	470	010	204	100	076	300	149	241	025	095	057	029	038	171	043	287	333	163	470	000	315	002	045	234	217	094	154	031		
66	085	293	049	031	093	110	011	028	131	349	076	535	154	199	020	185	153	083	174	118	161	330	000	342	016	011	105	149	210	488	209	211	

Sums	4876	4109	5226	6580	5861	4116	4533	3442	5916	5458	5374	4480	5670	6320	5372	4586	5767	8161	3655	5863	5829	6228	0007	5408	5620	5909	8197	5390	4972	6350	5364	4969	5198

Difference matrix for items 67 to 98 of the ES scale between the Ss of criterion categories CCa and CCb.

Item	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98
67																																
68	322																															
69	172	177																														
70	111	310	323																													
71	221	320	399	386																												
72	129	130	096	059	186																											
73	210	281	140	411	012	147																										
74	172	033	061	338	132	143	249																									
75	082	282	189	356	358	082	101	139																								
76	076	277	121	420	164	129	175	053	148																							
77	135	021	075	334	049	069	079	696	033	032																						
78	563	201	176	282	066	299	009	252	253	221	071																					
79	172	046	243	054	022	214	303	005	027	160	026	037																				
80	064	231	074	071	305	111	055	107	105	193	101	204	053																			
81	299	098	267	093	077	097	227	145	616	173	211	065	307	237																		
82	481	307	412	252	319	053	159	139	100	091	236	370	009	170	179																	
83	105	106	111	009	114	274	038	035	222	079	074	011	024	124	596	115																
84	064	026	183	138	112	057	098	302	018	175	230	286	128	271	270	226	091															
85	425	083	195	446	215	105	127	213	412	055	305	527	382	149	229	434	171	112														
86	117	229	234	195	025	382	136	123	140	416	055	128	086	019	150	465	286	916	016													
87	199	083	276	025	074	156	396	127	102	071	003	192	002	033	262	110	182	218	180	140												
88	025	002	315	035	305	298	305	052	016	368	043	015	337	315	019	533	332	012	036	040	009											
89	035	035	090	107	163	076	173	127	222	063	133	004	136	023	219	741	051	039	285	130	062	013										
90	189	182	382	018	321	185	255	180	028	349	305	488	395	138	511	395	229	317	127	055	106	299	402									
91	053	292	547	219	086	077	058	242	017	015	116	119	015	324	290	153	291	185	242	075	002	115	430	090								
92	349	067	190	044	218	338	089	265	036	204	074	244	073	351	150	067	322	108	079	374	121	024	054	111	234							
93	043	175	036	382	280	120	113	224	147	089	125	019	447	204	144	038	087	061	080	076	277	021	040	166	019	078						
94	058	135	134	033	385	158	076	100	186	017	166	027	245	038	216	139	017	101	046	108	043	514	007	268	019	157	067					
95	035	306	099	070	464	051	001	018	178	027	190	383	366	335	222	117	358	282	302	299	339	005	514	097	213	282	023	326				
96	051	137	221	147	049	317	174	149	242	248	113	024	249	148	017	039	049	429	035	178	292	565	011	062	327	065	006	116	131			
97	043	107	232	219	282	212	185	024	123	221	060	119	334	177	161	162	249	022	044	325	189	015	004	039	049	463	019	019	040	327		
98	058	270	104	016	136	105	180	065	210	132	002	044	234	401	365	296	471	477	114	164	483	036	285	174	210	079	080	159	044	135	044	
Sums	5048	5271	6274	5903	6343	4746	4861	4808	5189	4942	4172	5689	5103	5018	6728	6991	5389	5414	6170	5134	4754	4907	4664	6763	5016	5309	3506	4070	5945	5120	4509	5664

Difference matrix for items 1 to 33 of the ES scale between the Ss of criterion categories CCa and NL.

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
1																																	
2	077																																
3	137	002																															
4	502	132	085																														
5	073	340	230	343																													
6	093	402	209	313	338																												
7	004	019	452	023	019	034																											
8	094	064	248	235	239	022	027																										
9	026	062	153	235	047	118	027	021																									
10	158	291	085	033	125	143	023	389	389																								
11	493	318	007	153	220	553	307	154	078	112																							
12	045	269	038	201	096	250	017	241	309	161	012																						
13	064	012	399	159	147	223	237	080	080	288	079	376																					
14	162	170	066	304	405	088	231	066	057	022	132	055	355																				
15	081	039	063	080	144	105	053	225	059	104	031	106	058	237																			
16	349	082	193	297	052	099	025	077	077	003	138	051	001	094	066																		
17	030	059	273	141	041	616	382	086	466	240	107	265	137	141	262	203																	
18	108	077	051	013	031	423	197	373	405	285	247	056	237	111	086	014	044																
19	487	028	313	577	182	021	021	154	041	124	240	249	047	290	170	049	227	169															
20	106	149	221	051	159	254	035	129	217	178	135	368	105	039	295	054	154	008	249														
21	028	332	017	114	066	582	253	205	345	414	006	216	261	145	064	215	255	090	140	140													
22	086	017	203	308	208	226	003	000	000	161	005	269	213	072	112	028	344	123	304	054	118												
23	146	027	113	382	164	056	006	074	612	062	279	093	062	166	279	015	087	063	016	042	173	175											
24	211	224	098	096	212	078	005	130	268	344	186	118	071	152	284	039	111	101	066	057	061	117	066										
25	138	240	251	288	126	070	047	423	096	040	093	301	117	047	020	024	021	023	059	021	203	189	243	047									
26	465	188	107	339	035	221	019	078	291	026	082	152	205	060	361	429	067	293	370	398	226	076	246	185	214								
27	122	055	067	166	191	094	153	123	166	094	041	163	320	133	101	172	041	086	226	041	010	001	004	161	027	222							
28	283	329	223	048	154	054	074	232	283	061	031	003	186	175	002	329	014	261	228	064	024	003	090	129	040	252	130						
29	146	094	210	256	313	317	319	196	019	018	108	260	145	118	206	349	133	104	207	017	011	144	126	074	041	084	051	237					
30	366	114	373	043	068	410	053	055	185	226	051	953	112	116	163	060	132	204	051	336	095	052	095	285	172	056	100	245	045				
31	375	202	060	031	245	130	826	198	046	187	091	021	048	336	229	067	263	305	006	464	053	264	182	022	167	099	260	201	207	120			
32	134	205	108	168	195	269	236	134	210	120	054	054	080	047	036	017	019	967	068	174	088	087	328	109	071	468	202	054	138	578	080		
33	090	175	091	237	212	272	164	473	227	111	045	107	147	131	046	207	070	045	211	004	209	024	105	286	291	188	031	024	156	089	484	175	
Sums	6194	4490	5461	6256	5468	6568	4120	5290	5436	4792	5260	4709	4865	4879	4264	4050	5271	5048	5300	4788	5561	3860	4628	4393	4150	6502	3854	4459	4860	5104	5769	4774	4927

Difference matrix for items 34 to 66 of the ES scale between the Ss-ofjcriterion categories CCa and NL.

Item	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
34																																	
35	154																																
36	015	031																															
37	016	137	270																														
38	268	289	248	079																													
39	175	306	008	116	009																												
40	163	141	094	143	370	207																											
41	200	065	128	002	012	042	201																										
42	284	175	401	118	012	061	146	142																									
43	150	023	029	187	092	124	106	320	127																								
44	309	121	053	204	072	448	091	477	109	175																							
45	314	166	109	025	447	007	137	057	211	186	183																						
46	235	106	093	269	054	142	393	003	134	395	026	286																					
47	258	031	094	337	516	199	159	034	324	013	065	080	059																				
48	401	137	127	113	162	388	070	150	219	174	125	102	046	266																			
49	021	022	134	257	268	213	150	099	097	183	176	129	089	156	267																		
50	442	069	095	048	365	120	129	332	012	184	078	174	227	394	209	071																	
51	005	045	164	747	031	184	159	025	032	089	159	040	884	275	164	158	178																
52	258	120	209	211	011	138	186	033	128	028	292	101	107	009	205	138	104	071															
53	258	020	030	249	130	162	115	128	072	152	286	220	172	304	048	084	179	162	028														
54	095	140	003	055	105	062	410	130	336	266	257	291	118	038	267	165	411	214	108	249													
55	030	305	008	419	147	279	306	057	024	091	050	205	110	421	213	014	274	242	023	116	156												
56	097	048	089	036	046	096	134	016	078	065	151	049	041	064	035	151	161	033	078	083	131	042											
57	167	103	122	314	007	254	107	228	081	052	028	095	164	060	156	017	163	255	245	209	012	021	064										
58	139	127	068	433	265	150	166	063	229	102	105	050	227	215	035	086	048	581	127	307	110	221	022	063									
59	135	006	147	207	057	379	142	233	163	213	300	023	166	141	195	088	307	185	271	189	251	400	127	141	277								
60	141	157	186	249	641	153	067	030	052	172	023	047	144	286	104	137	194	412	079	479	110	648	027	204	196	350							
61	353	109	320	309	040	139	145	186	082	003	215	221	124	178	478	083	054	036	323	025	118	318	080	160	167	058	023						
62	158	212	236	258	186	220	249	055	136	112	071	080	359	065	038	175	064	503	287	034	067	080	051	050	123	442	224	194					
63	332	150	009	296	018	368	131	051	037	103	089	362	051	095	291	007	223	229	293	117	175	273	069	084	185	344	387	131	120				
64	091	145	220	357	595	003	203	459	232	252	437	005	121	507	254	324	178	013	171	477	271	166	039	011	067	065	044	093	123	065			
65	624	097	157	289	049	069	213	509	308	202	211	066	127	355	132	070	100	316	017	074	144	302	035	056	328	051	251	317	119	002	220		
66	270	303	483	227	055	126	074	066	024	030	173	229	007	084	016	139	127	107	419	017	094	146	033	157	077	048	020	202	037	037	202	521	
Sums	6559	4060	4381	6988	5646	5347	5519	4523	4586	4400	5569	4706	5600	6126	5588	4113	5604	6730	4526	5267	5604	5978	2332	3839	5315	6200	6296	5130	5111	5288	6245	6332	4558

Difference matrix for items 67 to 98 of the ES scale between the Ss of criterion categories CCa and NL.

Item	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98
67																																
68	000																															
69	000	008																														
70	000	325	135																													
71	000	027	070	167																												
72	000	006	058	022	423																											
73	000	106	104	506	078	313																										
74	000	066	157	301	056	081	008																									
75	000	012	164	227	057	224	022	181																								
76	000	012	055	056	153	093	266	151	250																							
77	000	100	060	095	259	107	110	371	162	272																						
78	000	296	004	037	190	124	114	114	151	163	042																					
79	000	018	013	306	036	010	305	075	009	193	057	076																				
80	000	107	010	000	160	283	078	224	076	338	209	033	028																			
81	000	015	078	109	112	061	091	143	629	145	280	027	238	165																		
82	000	246	232	242	063	188	136	153	168	161	119	580	181	113	017																	
83	000	047	040	186	320	115	256	007	103	077	080	067	080	109	267	004																
84	000	035	204	229	042	334	073	095	065	305	101	178	128	001	212	039	096															
85	000	055	038	281	211	261	015	057	005	174	145	005	156	031	024	043	143	035														
86	000	150	306	277	011	050	013	126	412	105	219	014	211	289	107	147	003	285	152													
87	000	080	181	130	351	028	378	143	135	012	347	179	126	250	009	073	319	133	342	025												
88	000	351	016	303	077	153	004	270	022	292	065	247	220	323	045	272	067	121	015	066	221											
89	000	683	445	207	120	184	261	156	049	183	122	830	004	025	061	296	112	050	026	198	216	511										
90	000	378	233	090	056	402	327	103	099	246	595	502	325	035	200	481	026	013	012	087	132	202	355									
91	000	081	146	109	221	242	048	012	039	079	083	031	238	015	153	129	109	077	021	203	026	040	077	037								
92	000	072	210	225	077	036	031	123	109	171	012	333	110	132	205	090	474	013	207	043	027	342	230	079	205							
93	000	046	235	143	141	081	066	080	337	004	033	064	268	294	107	095	135	121	036	020	075	050	072	057	030	293						
94	000	357	075	158	292	245	017	011	155	051	100	038	217	108	010	008	231	359	227	158	243	014	240	328	253	102	167					
95	000	344	020	009	097	226	052	014	252	265	017	123	362	122	349	180	145	162	004	257	003	290	448	354	109	143	044	205				
96	000	061	049	226	035	213	061	148	064	018	049	290	092	049	108	010	029	118	145	246	246	386	242	042	006	020	050	116	161			
97	000	296	036	132	049	149	213	369	034	246	022	362	206	020	110	102	004	139	025	225	006	319	352	134	035	245	019	230	300	027		
98	000	295	203	163	079	075	038	034	573	042	024	635	329	197	443	216	228	344	069	221	068	255	551	105	164	105	155	236	245	117	253	
Sums	0000	4625	3588	5396	4039	4887	4090	3830	4885	4578	4267	6046	4617	3876	4520	4784	3779	4137	2910	4626	4504	5737	7306	6035	3018	4515	3318	4941	5402	3424	4689	6362

Difference matrix for items 1 to 33 of the ES scale between the Ss of criterion categories CCb and NL.

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
1																																	
2	007																																
3	118	217																															
4	052	105	175																														
5	040	106	272	087																													
6	078	320	135	170	180																												
7	642	074	371	008	007	013																											
8	047	012	085	104	256	160	063																										
9	206	113	181	229	058	194	342	010																									
10	112	105	175	537	273	302	008	090	228																								
11	205	115	139	029	203	163	230	056	253	016																							
12	226	017	032	120	118	275	517	123	397	027	019																						
13	025	237	036	024	005	156	249	085	063	384	287	206																					
14	237	098	292	071	165	207	119	044	215	279	072	263	189																				
15	020	096	111	018	413	076	032	129	235	046	069	266	085	242																			
16	421	239	093	422	021	355	394	123	262	128	109	166	297	074	193																		
17	222	095	096	042	014	156	017	081	217	423	224	275	075	116	240	180																	
18	067	142	391	080	106	445	036	151	102	053	011	198	482	232	086	012	495																
19	223	162	123	075	134	236	786	070	095	079	058	026	279	057	087	165	112	236															
20	097	205	342	190	054	332	132	070	268	063	079	219	156	123	256	219	058	116	082														
21	020	204	093	023	198	111	015	073	138	305	467	220	031	482	006	174	025	023	050	412													
22	096	045	087	005	004	239	005	112	082	340	278	252	111	673	213	030	005	133	054	292	008												
23	323	259	088	053	002	237	036	151	228	080	079	050	438	412	006	204	263	019	313	177	023	091											
24	117	201	230	213	283	214	501	032	312	051	246	035	244	307	165	413	301	130	036	102	170	185	073										
25	011	298	295	270	123	020	003	212	044	058	228	216	001	052	032	132	119	220	171	212	139	308	063	075									
26	273	037	119	048	288	268	032	034	003	046	063	035	108	049	595	039	334	009	236	166	037	108	039	183	033								
27	204	170	021	324	036	371	200	115	402	071	096	295	093	221	090	177	115	085	152	060	227	146	294	597	064	029							
28	198	007	069	043	082	066	385	256	240	221	096	352	042	059	017	109	100	371	120	494	089	328	157	027	260	025	074						
29	006	142	196	077	109	218	253	112	112	077	020	048	126	063	033	170	248	010	028	046	142	087	101	109	142	147	059	109					
30	263	231	275	267	253	369	019	092	106	120	186	105	009	171	029	063	193	123	112	085	220	130	172	184	261	035	164	062	170				
31	595	236	274	247	024	098	050	081	283	029	035	216	138	559	256	164	099	186	008	123	260	190	003	109	091	311	108	128	248	076			
32	122	043	208	313	284	176	219	003	247	209	083	061	379	230	210	231	095	019	213	328	219	090	382	079	030	509	038	169	132	226	020		
33	046	397	008	073	073	095	122	226	062	049	093	041	332	224	058	062	195	094	063	052	168	111	022	018	184	012	072	165	144	180	139	258	
Sums	5319	4715	5348	4504	4381	6464	5679	3258	5930	4984	4318	5308	5342	6467	4399	5842	5229	4863	4641	5610	4771	4818	4838	5742	4424	4315	5051	5049	3734	4751	5276	5866	3839

Difference matrix for items 34 to 66 of the ES scale between the Ss of criterion categories CCb and NL.

Item	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66
34																																	
35	056																																
36	091	017																															
37	028	128	041																														
38	291	094	015	066																													
39	122	117	123	086	006																												
40	136	171	022	130	031	007																											
41	097	048	165	037	046	093	111																										
42	067	136	229	150	015	131	021	189																									
43	013	133	137	182	111	201	289	229	475																								
44	312	070	181	213	121	300	073	097	256	346																							
45	132	076	363	018	013	044	214	041	003	070	158																						
46	032	113	014	059	078	162	009	041	098	324	194	314																					
47	059	005	021	052	100	327	010	064	109	292	140	370	172																				
48	414	112	187	184	182	013	259	035	051	021	235	326	270	296																			
49	317	177	111	079	160	350	076	097	248	373	048	093	398	121	376																		
50	316	304	025	231	046	195	230	161	168	148	371	355	279	195	427	133																	
51	167	575	024	003	010	049	106	022	344	013	232	099	015	190	109	386	090																
52	205	104	158	265	035	137	195	189	131	018	211	000	070	084	197	122	155	017															
53	051	112	078	048	023	027	111	080	170	016	052	418	249	111	137	175	062	116	169														
54	212	121	075	355	190	005	171	112	055	002	078	106	149	113	203	225	019	576	149	222													
55	269	502	004	051	240	359	274	042	190	128	092	214	051	328	041	137	520	598	011	014	154												
56	097	048	090	037	046	093	133	915	079	065	151	041	141	064	035	151	161	022	079	183	132	042											
57	180	163	431	064	028	213	025	064	069	304	320	096	353	003	086	212	128	066	094	300	017	074	064										
58	042	057	274	005	269	163	028	022	035	220	006	159	290	033	385	079	175	060	280	065	099	019	022	044									
59	065	056	372	275	264	035	357	127	036	162	263	149	016	129	087	159	096	109	092	239	291	066	127	300	327								
60	324	013	056	239	042	051	073	029	278	118	433	158	037	124	016	098	127	014	189	080	223	029	029	434	006	049							
61	287	054	288	318	008	277	132	083	081	554	014	046	027	177	153	042	046	087	075	070	129	461	083	055	243	033	106						
62	064	230	147	095	200	165	130	051	110	148	068	258	170	119	201	157	058	034	088	208	157	088	051	034	264	330	165	171					
63	066	001	352	075	194	255	405	069	229	030	349	412	173	379	034	194	011	118	148	097	125	328	069	044	113	326	355	166	098				
64	214	004	031	354	050	170	235	392	062	438	083	202	129	189	049	115	254	037	092	019	027	039	039	028	024	313	230	075	255	129			
65	530	182	188	181	039	135	113	533	008	361	040	041	032	298	037	108	071	273	304	249	019	169	035	249	330	096	017	100	024	156	189		
66	185	010	434	248	038	236	063	094	155	309	249	307	037	328	013	268	159	044	047	224	480	313	094	196	049	146	028	101	190	286	172	310	
Sums	5541	4089	4734	4297	3051	4647	4340	4275	4358	6240	5756	5295	4296	4999	5170	5785	5716	4605	4264	4209	5053	5835	3318	4748	4195	5482	4110	4642	4417	5786	4837	5338	5932

Difference matrix for items 67 to 98 of the ES scale between the Ss of criterion categories CCb and NL.

Item	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98
67																																
68	322																															
69	172	185																														
70	111	015	088																													
71	221	347	329	219																												
72	129	124	038	037	609																											
73	210	175	036	095	077	458																										
74	172	033	218	037	076	062	241																									
75	082	270	025	129	201	306	079	320																								
76	076	289	066	374	011	036	091	204	102																							
77	135	121	015	239	210	038	189	325	129	240																						
78	563	095	172	319	265	175	106	366	102	058	019																					
79	172	064	246	360	014	204	003	070	036	033	083	039																				
80	064	024	084	071	144	172	023	118	181	145	310	237	025																			
81	299	083	189	016	189	036	136	288	013	028	069	038	069	402																		
82	481	061	644	010	257	231	013	292	059	070	127	220	190	058	162																	
83	105	153	071	177	206	389	294	027	119	146	006	078	104	015	329	112																
84	064	061	021	091	154	277	025	207	083	150	129	108	000	272	048	197	187															
85	425	088	157	165	003	156	112	270	417	119	160	532	227	118	253	477	028	147														
86	117	079	072	082	136	252	123	103	372	311	274	142	269	375	126	003	462	001	168													
87	199	003	095	155	425	184	018	016	034	059	350	013	124	283	253	037	137	085	162	115												
88	025	353	331	338	228	145	308	228	006	076	022	410	117	008	026	261	399	133	021	026	230											
89	035	718	535	100	283	251	334	282	271	246	255	834	132	048	158	445	163	089	311	328	278	524										
90	189	196	615	072	265	217	072	283	071	103	290	014	070	173	211	087	230	304	139	032	238	097	047									
91	043	211	401	110	307	319	106	240	056	094	199	150	253	339	443	024	182	262	263	138	024	055	353	128								
92	349	005	020	181	295	302	058	142	145	033	086	089	037	168	355	157	142	121	128	417	094	366	284	190	029							
93	043	129	119	239	139	039	179	144	190	085	158	045	179	318	251	133	222	182	044	096	352	029	032	223	049	371						
94	058	222	109	191	093	097	059	111	341	068	266	011	028	146	226	131	248	460	273	050	200	528	233	060	272	259	100					
95	035	038	119	079	367	175	053	004	530	292	173	360	004	213	127	297	213	120	306	042	342	386	066	257	322	139	021	121				
96	051	076	172	079	014	104	235	297	316	230	162	314	157	099	034	049	078	311	180	068	046	179	331	104	333	045	056	000	292			
97	043	403	268	087	233	063	398	345	157	025	038	481	540	197	271	264	253	147	019	100	138	304	356	095	014	218	038	249	260	300		
98	058	025	099	147	215	033	218	099	363	174	022	679	095	204	078	080	343	233	183	057	551	291	266	069	037	026	075	077	289	018	297	
Sums	5048	5068	5721	4403	6520	5658	4513	5620	5505	4014	4839	7034	3954	5134	5206	5628	5628	4659	6051	4936	5285	6250	8488	5141	5756	5261	4280	5286	5942	4630	6646	5401