

CODING MANUAL FOR CONCEPTUAL/INTEGRATIVE COMPLEXITY¹

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Overview

This manual advances comprehensive and detailed criteria for assessing the integrative complexity of verbal protocols obtained in both experimental and archival settings. Integrative complexity is defined in terms of two cognitive structural variables: **differentiation** and **integration**. Differentiation refers to the perception of different dimensions and/or the taking of different perspectives when considering an issue. Integration refers to the development of conceptual connections among differentiated dimensions of the stimulus and/or among differentiated perspectives about the stimulus. It follows that some degree of differentiation is a necessary although not a sufficient condition for integration.

Integrative complexity scoring proceeds on a 1–7 scale. Scores of 1 indicate no evidence of either differentiation or integration. The author relies on unidimensional, value-laden, and evaluatively consistent rules for processing information. Scores of 3 indicate moderate or even high differentiation but no integration. The author relies on at least two distinct dimensions of judgment, but fails to consider possible conceptual connections between these dimensions. Scores of 5 indicate moderate to high differentiation and moderate integration. The author notes the existence of conceptual connections between differentiated dimensions of judgment. These integrative cognitions can take a variety of forms: the identification of a superordinate category linking two concepts, insights into the shared attributes of differentiated dimensions, the recognition of conflicting goals or value trade-offs, the specification of interactive effects or causes for an event, and the elaboration of possible reasons why reasonable people view the same event in different ways. Scores of 7 indicate high differentiation and high integration. A general principle provides a conceptual framework for understanding specific interactions among differentiated dimensions. This type of systemic analysis yields second-order integration principles that place in context, and perhaps reveal, limits on the generalizability of integration rules that operate at the scale value of 5. Scores of 2, 4, and 6 represent transitional levels in conceptual

¹This Manual is based on previous versions developed by research teams at the University of British Columbia and the University of California (Berkeley). The order of authors is alphabetical.

structure. Here the dimensions of differentiation and integration are implicit and emergent rather than explicit and fully articulated.

The following progressively more complex examples of economic reasoning illustrate these different levels of conceptual structure:

Score of 1:

The author perceives only one variable or process at work in determining prices of a commodity:

“Handcrafted furniture is expensive because there are few skilled artisans willing to work at this time-consuming craft.”

Score of 3:

The author recognizes that two independent causal variables – the availability of skilled artisans and the distribution of aesthetic preferences in the general population – affect the price of a commodity:

“Handcrafted furniture is expensive in part because there are few skilled artisans and in part because most people do not have the good taste to appreciate high quality work.”

Score of 5:

The author is aware of how independent causal processes interact to determine the price of a commodity:

“The market value of handcrafted furniture is determined jointly by the willingness of suppliers to produce such products at varying prices and the willingness of buyers to purchase such products at varying prices. In technical terms, price is the intersection of the supply and demand curves.”

In this case, we have an unusually precise, mathematical specification of the integration rule that links the differentiated causal processes.

Score of 7:

The author is aware not only of the operation of multiple causal forces, but also of complex linkages or interdependencies among those forces:

“The market value of handcrafted furniture is determined jointly by the willingness of suppliers to produce such products at varying prices and the willingness of buyers to purchase such products at varying prices. In technical terms, price is the intersection of the supply and demand curves. Many factors affect exactly where that intersection point lies. For example, in periods of economic recession, demand falls sharply because people turn to less aesthetically appealing, but more functional, forms of furniture. Many artisans are thrown out of work. In periods of prosperity, the opposite pattern of preferences emerges. The result may be a costly bidding war for handcrafted furniture. However, markets usually do return to equilibrium – either as a result of shortages pushing prices up and making it more profitable for artisans to return to work or as a result of high prices forcing buyers out of the market and reducing aggregate demand.”

In this example, we have not only a precise statement of the integration rule that links differentiated causal processes, but also precise statements of second-order integration rules that specify:

(a) how the operation of the original integration rule depends on general macroeconomic conditions; (b) why markets – as a result of buyer-seller feedback loops – usually eventually return to equilibrium.

Naturally, most material that is scored for complexity does not fit into a straightforward hierarchical sequence (such as the above) in which each scale value can be neatly nested within the next higher scale value. The assessment of differentiation and integration is usually a much more complex enterprise. Furthermore, an increment in content does not always imply a corresponding increment in structural complexity. It is possible to speak at great length and remain structurally simple, and it is also possible to be pithily complex.

Integrative complexity coding is difficult, in large part, because it does not rely on simple “content-counting rules” of the sort that some other content analytic approaches employ (e.g., Axelrod, 1976; Hermann, 1980). Assessing integrative complexity requires the judgment of trained coders, who may have to make subtle inferences about the intended meaning of speakers. Coders often make difficult judgments concerning whether differentiation or integration exists in particular statements.

For example, it is frequently difficult to say whether a qualification to an absolute rule has been sufficiently worked out to constitute an alternative or fully differentiated perspective. Passages may fall in the fuzzy boundary zone between scale values. Such cases frequently lead to the assignment of the “transition scores” 2, 4, or 6, indicating implicit as opposed to explicit differentiation or integration. It is not unusual for well-trained coders to disagree over score assignments for boundary-zone cases, although the disagreements should rarely exceed 1 point.

Coders must keep in mind several important aspects of the integrative complexity coding system. First, the system focuses on structure rather than content. There is no built-in bias for or against any particular position. One can advance simple or complex arguments for any of a variety of viewpoints – for example, in favor of or in opposition to abortion, capital punishment, higher military spending, higher taxes, state control of the economy, the artistic status of computer-colored film, abolition of the Olympics, papal infallibility, and so on. The integrative complexity of a person’s thoughts on an issue is determined not by the specific beliefs he or she endorses, but by the conceptual structure underlying the positions taken.

Second, it is essential not to allow the coder’s personal preferences or biases on an issue influence the conceptual assessment of a statement. Passages that take controversial moral or political stands may often challenge a coder’s objectivity. In such cases, coders may be tempted to score passages with which they agree more highly than passages with which they disagree. Coders should keep in mind that the conceptual structure of the reasoning, and not the content, is being assessed here².

Third, and as a corollary to the above point, the coder should not assume that it is always “better” to be more complex. Being complex in one’s thinking is no guarantee of being correct. Indeed, it is not hard to identify examples of statements that are highly complex and, in hindsight, “obviously wrong” (e.g., some of the arguments of those who favoured the appeasement of Nazi Germany prior to 1939). It is also not hard to identify examples of highly complex arguments that, given contemporary norms, are “obviously

² Researchers may, however, want to take additional precautions, such as ensuring that coders with different political preferences agree in their complexity score assignments and following double-blind scoring procedures in which coders are kept unaware of both the hypotheses being tested and the sources of the texts being analyzed. Coder bias is as serious a potential threat to the validity of archival research designs as experimenter expectancy is to laboratory designs.

immoral” (e.g., the arguments of anti-abolitionists in pre-Civil War America; the arguments of 19th century classical economic theorists against public assistance for starving children). The integrative complexity coding system does not rest on assumptions concerning the logical, pragmatic or ethical superiority of any particular school of thought.

A variety of approaches exist for the generation (or the designation) of material that may be coded for integrative complexity. In essence, these approaches fall along a continuum of experimenter control and range from high (i.e., the Paragraph Completion Test – PCT) to low (archival documents).

The PCT was the method of choice in the early years of complexity research. For the PCT people were asked to complete six sentence stems (i.e., write six paragraphs) addressing important domains of the decision-making environment (e.g., “When I am criticized . . .” “When I don’t know what to do . . .” “Rules . . .”). Typically 1-2 minutes were allocated per completion. Subsequent variations on these instructions modified the specific topics, as well as the number of paragraphs to be written, and lengthened the amount of time allowed per stem.

A significant variation was the provision of a single topic on which people were asked to write an essay. For example, de Vries and Walker (1987) had participants write an essay on capital punishment and de Vries (1988) had individuals respond to the question “Who am I?”. Tasks of this sort, when material is being generated, require instructions that ensure the respondents evaluate the materials on which they are writing and do not merely provide descriptive accounts, which are unscorable.

Researchers must be vigilant when selecting samples of interview data (e.g., de Vries, 1988) and archival documents (e.g., Suedfeld & Rank, 1976; Tetlock, 1981), because these materials often contain unscorable descriptive paragraphs. In spite of this, unscorable paragraphs represent only a small fraction of the total (e.g., less than 1% in de Vries’s 1988 study).

Equally important, the range of research applications has expanded enormously. Assessment of cognitive structure is no longer confined to paper-and-pencil tests administered under controlled conditions to college undergraduates. Researchers have developed coding procedures for inferring cognitive structure that can now be applied to a wide array of both archival records and free-response protocols obtained in experiments. Research to date has examined the writings and speeches of revolutionary leaders (Suedfeld & Rank, 1976), diplomatic communications in international

crises (Raphael, 1982; Suedfeld & Tetlock, 1977; Suedfeld, Tetlock, & Ramirez, 1977; Tetlock, 1985), experimental thought protocols in studies of attitude change and social perception (Tetlock, 1983; Tetlock & Kim, 1987), magazine editorials (Suedfeld, 1985), Supreme Court opinions (Tetlock, Bernzweig, & Gallant, 1985), senatorial speeches (Tetlock, Hannum, & Micheletti, 1984), interviews with members of the British House of Commons (Tetlock, 1984), personal letters (Porter & Suedfeld, 1981; Suedfeld & Piedrahita, 1984), and policy statements by U.S. Presidents (Tetlock, 1981), First Secretaries of the Communist Party of the Soviet Union (Tetlock, 1985; Tetlock & McGuire, 1984; Tetlock & Boettger, 1988), and Canadian Prime Ministers (Ballard, 1983).

Comparisons of data-generating techniques such as PCT, essays, or guided interviews show only minor variations in mean complexity scores. In general, higher complexity scores are found in material that has been generated after some thought or planning has taken place and under conditions of little or no time constraint. Lower complexity scores are found in material that was generated with little prior thought and under strict time-limiting conditions. Written accounts tend to have higher scores than verbal material (i.e., transcriptions of interviews).

In the scoring of prepared speeches, the question of who actually wrote the material – and therefore, of whose complexity is being assessed – appears to pose a problem for the validity of the score. However, there is reason to believe that (at least in the case of important speeches) “ghost-written” materials are not accepted for presentation unless they reflect the complexity of the speaker. For example, Ballard (unpublished Master’s thesis) found no difference in mean complexity between prepared and spontaneous speeches given by Canadian Prime Ministers. Thus, the problem may not be as serious as has been feared. Nevertheless, it is obviously preferable to score passages known to have been really written by the purported source (unless the goal is to obtain a score for an identified group – e.g., the Cabinet, advisors to the President, etc. – rather than an individual).

Evidence for age and sex differences in integrative complexity is mixed. Porter and Suedfeld (1981) and de Vries and Walker (1988) found increases in complexity across the life-span (but only up to a point) and over various age groups. De Vries (1988), however, found older participants to be more simplistic than younger participants. Each sex has been found to be higher in complexity in one or more studies (for example, males: Suedfeld & Piedrahita, 1984; females: Hunt & Dopyesa, 1966) and no sex differences have

been found in still others (de Vries & Walker, 1988; Russell & Sondilonds, 1973).

Implicit in the idea that verbal material can be scored for integrative complexity is the assumption that the source/author is linguistically competent. Otherwise, people who lack the ability to express themselves adequately in whatever language they are using may receive an invalid complexity score. Scores of English translations, incidentally, do not differ from the scores assigned to the same passage in the original language.

In integrative complexity the basic scoring unit refers to a section of material that focuses on one idea. Usually, but not always, this scorable unit consists of a single paragraph. Occasionally in the original material a large paragraph may be broken into two or more scorable units, with each having a single idea. On the other hand, several paragraphs in the original material may be collapsed into one scorable unit. Throughout the manual we refer to the scorable unit as a paragraph.

The first step in sampling paragraphs from archival material is to identify the complete pool of available and scorable paragraphs (see Unscorables section). From this pool at least five paragraphs should then be randomly chosen. The mean of these five scores represents the complexity score typically used in analyses. In the case of experimentally generated material, individuals should be instructed to generate at least five paragraphs so that the mean of the five can be calculated to determine the individual's score.

We have found that mean complexity scores vary not only as a function of situational variables, but also as a function of the type of population from which the samples are selected. For example, we found the mean complexity score in random college samples to be approximately 2. This differs in specialized samples: e.g., the mean complexity score was closer to 4 in materials from U.S. Supreme Court justices.

Paragraphs should be scored in random order such that all material from one source or one person is not scored sequentially. Names, gender, condition (in the case of experimental materials), and people or place names (in the case of archival materials) should be deleted from the paragraphs.

The person who is coding the data set should be familiar with the topics expressed in the paragraphs but need not be an expert. This is especially relevant when coding archival material of an historical or political nature when knowledge of certain people and events may allow the coder to see different perspectives than would be obvious to a naïve coder.

The basic qualification for becoming a trained complexity coder is to reach a correlation of at least .85 with an expert coder, although we recommend that prospective coders should reach a percentage agreement of 85% in order to be considered qualified coders themselves³. These criteria have been difficult to meet without repeated practice and feedback from trained coders over a period of time. Learning to score texts for integrative complexity has traditionally occurred in lengthy workshop training sessions lasting several days and involving detailed examination of problematic cases and group discussion of scoring decisions. This manual is designed to enable people to score integrative complexity by presenting detailed criteria for assigning each value on the 7-point scale. Although it is a good idea to discuss the issues raised in the **Manual** with other researchers and to compare the scores assigned by prospective coders to given paragraphs, we hope that the **Manual** is sufficiently self-explanatory to permit new scorers to reach high levels of reliability without prolonged workshops.

If an adequate level of agreement is not reached by the time the prospective coder has finished the practice materials, the authors of the **Manual** can provide further samples. Learning to score integrative complexity is itself a complex task, and should be approached with the understanding that considerable time and energy will have to be devoted in order to achieve an acceptable level of inter-judge reliability. We are happy to assist prospective coders who wish to calibrate themselves against our test materials. We are also interested in reactions that readers have to this **Manual**, and invite comments and suggestions.

General Format of the Manual

With the exception of the section on Unscorable Texts, the discussion of each scale score follows a common format.

First, a general explanation of the score is given, identifying its unique characteristics.

This is followed by the presentation of the Critical Indicator of that score, which is the aspect of conceptualization or argument that **MUST** be identifiable in a passage for it to receive that score.

³ The percentage agreement index is in one critical respect a much stricter reliability standard than the correlation index. It is possible to have a perfect correlation (+1.0) and zero percent agreement. The correlation coefficient measures the degree to which independent coders change their score assignments in the same direction and to the same degree across paragraphs. Two coders could be perfectly positively correlated but never actually agree (e.g., scores of (2,3), (3,4), (5,6), (1,2) across 4 paragraphs for 2 coders). Perfect percent agreement, on the other hand, also means perfect correlational agreement: e.g., scores of (2,2), (3,3), (5,5), (1,1) across 4 paragraphs for 2 coders.

Next, Specific Indicators are presented and described, with at least one example for each drawn from a variety of archival sources. Specific Indicators are a general guideline as to the types of passages that receive the particular score; however, it should be clear that these examples are not all-inclusive, and that the score can occasionally be assigned to materials that do not fit under any of the Specific Indicators.

For the lower scores (1-3), Content Flags are presented next. These are specific words or phrases that should alert the coder to the possibility that a particular score may be appropriate. They must NOT be used to justify that score in and of themselves, since any individual word can be incorporated in a paragraph of any level of complexity. For this reason, Content Flags are not given for higher-level scores (4-7), where excessive reliance on them is especially likely to be misleading.

Last, there is a Prototypical Example. Each of these deals with the same topic, the question of mandatory retirement for older workers. The topic is discussed in the different examples at different levels of complexity to demonstrate the independence of complexity from topic. In each case, a detailed explanation is given as to why the passage receives the particular score.

UNSCORABLE TEXTS

The identification and deletion of unscorable statements prior to selecting the final sample ensures the efficient use of the expert coder's time. Individuals who select the statements to be scored need not be reliable coders themselves, but should at a minimum understand this section on "Unscorables". Such knowledge will prevent the sample from being overloaded with unscorable material. Despite screening precautions, it should be realized that some statements in the sample will inevitably be judged unscorable. In coding, such paragraphs should be marked "X" and deleted from further data analyses.

General Explanation

The main characteristic of an unscorable paragraph is that the author's rule structure for drawing inferences or making decisions is not evident. There are many reasons why the underlying rule structure might be obscure. We outline these reasons below.

Specific Indicators

1. Clichés:

A paragraph is unscorable if it consists solely of cryptic or glib remarks (e.g., Who cares? So what?) or of clichés (e.g., A stitch in time saves nine; A penny saved is a penny earned). The coder must distinguish, however, between clichés with no conceptual substance (Unscorable) and pointed remarks which often indicate that the author is relying on an absolute or categorical rule structure (Score 1). Coders should study the context in which the remark appears to judge whether or not it is scorable.

2. Satire and Sarcasm

When there is considerable ambiguity about either the object or thrust of a satirical passage, the passage is deemed unscorable. Expert knowledge – of the historical context and intent of the author – can, of course, reduce such ambiguity to permit complexity coding under some circumstances. The role such expert knowledge has played in the coding process must be made clear in justifying the assigned score.

3. Quotations

Scoring a paragraph that consists primarily of quotations may shed more light on the rule structure of the quotation than on that of the paragraph being scored. Such paragraphs should generally not be scored if one's goal is to draw inferences about the conceptual

structure of the author of the paragraph and not the source of the quotations. The key exception to this methodological rule is when the author comments on the quotations in sufficient detail to reveal the nature of his or her own thinking on the issue.

4. Definitions

If a paragraph consists only of a definition of an event, object, idea, procedure, etc., it is unscorable (e.g., “A bachelor is an unmarried man”). Note, however, that definitions which stray beyond the literal meaning of concepts quickly become scorable (e.g., “A bachelor is a sly old fish, too cunning for the hook”, or “A bachelor is an incomplete animal who resembles the odd half of a pair of scissors”). These latter “definitions” have a large component of evaluation and interpretation, and can be scored. (Both would receive a scale value of 1).

5. Descriptions

When a paragraph is purely descriptive (i.e., it merely reports the occurrence of events and provides minimal clues concerning the author’s perspective on those events), that paragraph is considered unscorable. Thus, a statement such as the following would be judged unscorable: “Mr. Reagan and Mr. Gorbachev met for four hours in Reykjavik and engaged in detailed discussion of a number of issues of mutual concern, including reductions in intermediate-range nuclear forces in Europe and Asia, and in reductions in strategic nuclear forces. They also discussed a number of regional conflicts.”

There is, it should be stressed, no neat, non-arbitrary line that divides description on the one hand from evaluation and interpretation on the other. The above statement, for example, becomes scorable by merely inserting a few key terms (e.g., “Mr. Reagan and Mr. Gorbachev engaged in detailed, sometimes acrimonious but often constructive discussions”). The revised statement is scorable because it offers a differentiated assessment of the discussions between the two leaders and does not merely mechanically recite a list of issues that were discussed. When research staff responsible for screening statements are in doubt over whether a passage is purely descriptive (and some doubt is inevitable in this philosophically treacherous territory), they should include the statement in the sample for complexity coding.

6. Breakdowns in Understanding

Any paragraph that the reader cannot understand obviously cannot be scored. Breakdowns in understanding may arise for many

reasons. As an extreme example, coders may have difficulty understanding the responses of the mentally incompetent or deranged (e.g., “word salad” responses in interviews with schizophrenics). Coders may also decide to categorize a passage as unscorable if it requires a great deal of special knowledge which they do not possess (e.g., material drawn from *Finnegan’s Wake* or from scientific papers), or if it cannot be adequately understood out of context or without references to other parts of the document. If necessary, such materials may be made scorable by modifying the traditional reliance on the paragraph as the fundamental unit of analysis.

These judgments sometimes hinge on fine distinctions. It is often important to pose questions of the following sort: How does one determine whether a passage is truly lacking in conceptual structure rather than being the result of some subtle, extremely idiosyncratic “private language”? How does one decide that a particular group of coders possesses sufficient expertise to assess the conceptual structure underlying a given body of material? And how does one judge whether taking a given passage out of context is so misleading that the passage should not be scored? For many practical measurement purposes, the answers will be fairly obvious: literate, well-educated coders familiar with the cultural, historical and intellectual context will quite readily agree on what is and is not scorable. Controversial cases will, however, arise. In such cases, particularly when eliminating the material as unscorable would seriously hamper the research, it is especially important to be explicit about the preconceptions and background knowledge that the coders bring to the task.

7. Scorer Uncertainty

Occasionally the coder cannot decide which of two scores to assign to a paragraph. If the mathematical difference between them is 2 or greater, the paragraph should be categorized as unscorable and discarded. If the difference is less than 2, other qualified coders should be consulted. If no consensus is reached, the mean of the two possible scores can be assigned or the paragraph may be discarded.

SCORE OF 1

General Explanation

There is no sign of either conceptual differentiation or integration at this scoring level. The author relies, without qualification, on a simple, one-dimensional rule for interpreting events or making choices.

Critical Indicator

Only one way of looking at the world is considered legitimate. The author either implies or explicitly states that there is one and only one reasonable approach to an issue. This position is typically expressed in the form of an absolute or categorical rule. These absolute rules are often, although not necessarily always, highly evaluative (e.g., Only an immoral imbecile would believe...). The end result of the application of an absolute rule is, however, always the same: the imposition of a dichotomous category structure (right vs. wrong, socialist vs. capitalist, determinism vs. free will) on the world, with little or no room for ambiguity or shades of gray.

Specific Indicators

There are numerous specific indicators of an integratively simple rule structure. Although not all of these indicators need to be present in any given passage, at least one of these indicators is usually present to justify assigning a scale value of 1 to a passage.

1. Compartmentalization

A common characteristic of a score of 1 is the evaluation of stimuli in an all-or-none fashion, without consideration of possible exceptions to, or qualifications of, the evaluative rule. Information is rigidly compartmentalized and, depending on the compartment into which it has been placed, included or excluded from consideration.

(a) Categorical rejection of perspectives or dimensions

The author implicitly or explicitly denies that reasonable others could disagree, or that an issue has aspects or dimensions that the author has not considered. Note that the author may go on at great length and provide detailed descriptions, explanations or examples of the preferred rule. This additional content does not, however, justify a higher score. The author is elaborating on a dominant theme, not introducing alternative perspectives or dimensions.

The real reason why we are not competing effectively with the Japanese is the erosion of the work ethic in America.

American workers do not take as much pride as they used to in the products they create in the plants and factories of this country. We hear too many stories of sloppy workmanship, absenteeism, drug addiction, alcoholism and bad morale on the production lines and in the ranks of management. We won't be able to compete effectively until we regain the old-fashioned sense of pride in a job well-done. Anyone who tells you something different just doesn't understand the world of business.

Soviet agriculture is a disaster and for an obvious reason. Fifty years ago they collectivized all their farms and made farmers work not for themselves but for the government. Individual incentives were lost. Farmers had to work for the glory of the state. And ever since, the Soviets have not been able to produce enough food to feed their people. This dismal performance will continue as long as the leaders in the Kremlin remain committed to the silly notion that people will work as hard for others as for themselves.

Comrades have been led astray by those who proselytize silly utopian fantasies. These hare-brained schemes may take many forms Menshevism, Trotskyism, and Bukharinism. Supporters of the dictatorship of the proletariat must ever be on their guard against such seditious doctrines.

One form of rejecting alternative perspectives or dimensions is to deny the existence of value trade-offs. The author implicitly or explicitly denies that an issue requires making difficult choices that involve sacrificing one value or set of interests in order to satisfy another value or set of interests.

Abortion is cold-blooded murder. There is no possible justification for this barbaric act. Abortion threatens the moral and Christian character of this nation. There is no civil right to murder one's children. Take action now. Support this constitutional amendment to end the slaughter of innocents.

(b) Setting up and knocking down a “straw man”

The author acknowledges the existence of different ways of looking at the world but dismisses them without serious consideration or qualification. This type of pseudo-differentiation

often takes the form of setting up and then immediately knocking down a “straw man” position.

The Reagan administration wants the world to believe that the Strategic Defense Initiative (SDI) is purely a research program motivated by the noblest of motives, namely to make the world safe from the specter of nuclear war. In promoting this ridiculous fiction, the Reagan administration is testing the gullibility of world opinion. No serious observer of the nuclear balance of terror doubts that the SDI is the first step toward a global ballistic missile defense system – a blatant bid for nuclear hegemony by the United States.

(c) Inclusion-exclusion rules

People frequently rely on inclusion-exclusion rules in processing social information. These rules take the following logical form: If “X” then “Y”, and if “not X” then “not Y”. It is rare for all of these relationships to be explicitly stated; coders can test whether an inclusion-exclusion rule has been used by asking themselves whether they can predict the consequence of “not X” from knowledge of “X” or whether they can predict the causes of “not Y” from knowledge of “Y”.

When I am criticized, if I know the criticizer has good intentions then I will not feel hurt.

In the example above, knowing that the criticizer has good intentions is “X” and not feeling hurt is “Y”. It is clearly implied that “not X” will lead to “not Y”: i.e., if the critic is not seen as having good intentions, the author will feel hurt.

Simple inclusion-exclusion rules preclude the possibility of interactions, complex conditionals, or subtle gradations of response to ambiguous or difficult-to-classify stimuli. For example, how does one react to well-intentioned but tactlessly phrased criticism, or to criticism that may be malicious but nevertheless valid and potentially helpful? There are no shades of grey in assessing the “goodness” of another’s intentions; only two cause-effect combinations are possible, depending on whether the state of the world is “X” or “not X”.

2. Dominance of a Single Evaluative Rule

Many statements distinguish a variety of specific issues or events, only to lump these issues or events together in a single

overall evaluative category. The value judgments of the author permeate and dominate the discussion of specifics. Evaluative dominance of this sort can take many forms: lengthy lists of the costs of rejected options and the benefits of preferred options, protracted discussion of the vices of one's opponents and the virtues of one's allies ("My opponent is an opportunistic, deceitful, and malicious rascal"; "Comrade Brezhnev has selflessly, thoughtfully, and courageously guided our Party through many difficult times.")

(a) Lack of response differentiation

Although two or more dimensions of a problem are distinguished, the author does not respond in a differentiated manner to these attributes. Rather, only one response is given to a broad range of stimuli. This lack of response differentiation may arise from diverse causes and coders should refrain from moral or functional judgments. For example, an individual may decide that, given the enormous cognitive and emotional demands on his or her time, it is just impossible to respond in a differentiated manner to the various forms of need witnessed every day. Alternatively, the lack of response differentiation may arise from commitment to a religious or political ideology (e.g., "There are many forms of heresy or revisionism – all must be exterminated.") or from post-decisional bolstering (e.g., "indeed, this candidate's strengths are all that the program needs, and her weaknesses are so small that even to note them would be petty and mean-spirited.") In the latter case, the author is unwilling to acknowledge the positive attributes of rejected alternatives or the negative attributes of the chosen alternative.

As a traveler I got a glimpse of the misery that prevailed in the world. Poverty, hunger, mental illness – they were the inevitable result of life in this world. And as there was nothing I could do about it, I did not worry.

(b) Lists

Although the author discusses a number of dimensions of or perspectives on an issue, these attributes are used as illustrations of a particular evaluative viewpoint or as evidence designed to confirm or support a particular claim. In such a case, the dimensions or perspectives function as alternatives that operate in isolation and as such are functionally equivalent to lists or catalogues rather than to differentiated dimensions. In such instances, the passage receives a score of 1.

It is the loss of confidence that comes through disillusionment, through the broken pledges, the shattered ideals, the lost visions, the vanished faiths.

Coders should keep in mind that not all lists are automatically given a score of 1. Some may best be viewed as definitions or descriptions (see section on Unscorable statements). Some lists may also warrant scores greater than 1; for instance, if they contain qualifications or more than one perspective or dimension (for details, see description under Score of 3).

3. Conflict Avoidance

Cognitive strategies such as compartmentalization, isolation of alternatives, and discounting of alternative perspectives facilitate the avoidance or reduction of ambiguity, complexity, and conflict. This function of integratively simple processing strategies is sometimes plainly stated in the text.

If Bohr is right, the world is governed by processes that – at the most fundamental level – are random and probabilistic. This approach to theory-building in physics is an intellectual dead-end, tantamount to intellectual surrender. We must never give up the struggle to find simple, elegant laws that impose order on chaos.

Interpretation of the Scriptures must not be left to the judgments of the individual theologian. Only by subjecting individual judgment to institutional discipline can we avoid a hopeless proliferation of perspectives and ultimate destruction of the authority of the Church.

4. Prescriptive Generalizations

The author offers far-reaching advice on how people should think, feel, or act, with no recognition that this advice might need to be qualified in particular circumstances or that following this advice too closely or single-mindedly might have serious costs.

Renunciation of thinking is a declaration of spiritual bankruptcy. Where there is no longer a conviction that men can get to know the truth by their own thinking, skepticism begins. Those who work to make our age skeptical in this way, do so in the expectation that, as a result of denouncing all hope of self-discovered truth, men will end by accepting

as truth what is forced upon them by authority and by propaganda.

Women should always obtain an education before deciding whether or not to have babies. Women should go to school and then apply for jobs. There are plenty of things to do in the world. Men keep busy and later make time for women, so women can do the same.

I am convinced that anybody who gives anybody else advice ought to spend 40 days in the desert both before and after.

5. Temporal Sequencing

Many paragraphs deal with a variety of different events or issues that are treated in a temporally discrete manner. Such event sequences may be causal (“A causes B”) or simply temporal (“Our plan is first to do X, then Y”). The number of events or attributes listed in such cases does not affect score assignment: “A causes B, which causes C” is still scored 1. The point is that causal or temporal sequencing is not sufficient evidence for inferring conceptual differentiation and assigning a higher score.

I used to be so confident and now I often worry about not doing well. I believe this is for several reasons but the fact remains that I am often discouraged.

Coders should be aware that not all temporal sequences automatically warrant a score of 1. Some responses may be best viewed as definitions or descriptions (see section on Unscorable statements). Other responses may be sufficiently differentiated to warrant a score higher than 1 (for details, see section on Score of 3).

NOTE: Content Flags

The presence of one or more content flags alerts the coder to the possibility that the passage meets the criteria for a particular score. In using such flags as an aid in scoring, bear in mind that they do not in themselves justify any particular score. In many cases, it will be appropriate to assign a score of 1 to paragraphs that contain none of the “content flags”, and in many other cases, it will be appropriate to assign higher scores to paragraphs that contain several of these content flags. In short, the mere presence of the words listed below is neither a necessary nor a sufficient condition for assigning a score of 1. Integrative complexity coding cannot be

reduced to a simple word count or word co-occurrence count content analysis system. It requires the judgmental process of linguistically competent human beings – a judgmental process that is extraordinarily difficult to capture, for example, in existing Artificial Intelligence programs.⁴ Content flags for the score of 1 are words or phrases connoting categorical, all-or-none thinking. Common examples include:

Absolutely, all, always, certainly, constantly, convinced, definitely, entirely, forever, impossible, indisputable, irrefutable, irreversible, never, solely, surely, unconditionally, undoubtedly, unquestionably.

Prototypical Example of a Score of 1

A prototypical example is included as an illustration of how the indicators described above may occur within a single passage. A prototypical example will be given for each scoring level; the examples will show how structure can vary within the same issue.

Enforced retirement at 65 years is most certainly beneficial to the workings of our society. We must realize that work is the job of the young, and that the elderly should leave their work positions in order to make room for the next generation. The elderly must resign themselves to “let go” of their family domination and employment in order that the new generation may explore its ideas and promote growth. Some would argue that the elderly have much to contribute because they have lived through so much, but this is clearly wrong. With the rapid rate of technological change, the elderly are the least able to adapt to the new conditions.

Explanation of Score: The rationale for assigning a score of 1 is as follows: although the author mentions two possible effects of enforced retirement (creation of opportunities for the new generation and the superior ability of the young to adapt to change), each of these effects is dealt with in isolation. They are both related to the topic of the elderly in society; however, they do not offer alternate

⁴For this reason, we are pessimistic about the prospects for efforts to operationalize the method in Artificial Intelligence programs, although we sympathize with the epistemological objective. It would be a major advance if the coding rules and requisite background knowledge for assessing integrative complexity could be specified so precisely that computer programs could measure the integrative complexity of texts.

perceptions of that issue. The favoured view, mandatory retirement at 65 and making room for the new generation, is expressed in very certain terms. No qualifications or gradations are apparent. The author notes that “some would argue” differently. However, this alternative view is quickly dismissed as “clearly wrong”. The favoured view is seen as entirely right, and the alternative functions as a “straw man”. Through these mechanisms, conflict that may result from differentiation is warded off; resolution is achieved by ignoring or denying potential trade-offs created by the problem. The author uses such content flag words as “we must”, “the elderly must”, “most certainly beneficial”, and “clearly wrong”.

SCORE OF 2

General Explanation

In a statement assigned a score of 1, the author ignores or rejects alternative perspectives on an issue. In a statement assigned a score of 2, the author recognizes the potential for looking at the same issue in different ways or along different dimensions. Differentiations are, however, emergent rather than fully developed. The author may, for example, qualify a normative rule or causal generalization, or display an awareness of alternative futures. The author may also discuss past events in a way that suggests, but does not develop, new interpretations. On the whole, this scale value represents a transition level between the categorical structure of the score of 1 and the differentiated structure of the score of 3.

Critical Indicator

The critical indicator for a score of 2 is the potential or conditional acceptance of different perspectives or dimensions. The author does not explicitly develop the alternate dimension or perspective; nor is it necessary that it be explicitly stated or named. Simple qualification, without elaboration, is sufficient evidence for a score of 2.

Specific Indicators

1. Conditional Acceptance of Other Perspectives or Dimensions

The author implies or states that acceptance of a position or policy proposal need not be all-or-none, but a matter of degree that, in turn, hinges on the degree to which a particular condition or goal has been satisfied.

In regard to my own death, when it comes, I really think that my attitude will be influenced by circumstances. I don't want to die now because there are some obligations I want to fulfill but the day may come when I welcome death.

2. Conditional Statements

Instead of stating an absolute rule and then supplying the condition for its acceptance, the conditions for acceptance are left open-ended.

Whether death be an enemy or a friend depends on what kind of death you have. If you have lived a full life I would think that death would be the natural culmination of this journey.

3. Conditions for a Hypothetical Outcome

An author considers possible outcomes that may arise in hypothetical states of the world. By recognizing the conditional nature of the projected event sequence, the author demonstrates at least an implicit awareness of alternative pasts, presents, or futures. The author engages, in brief, in counterfactual reasoning.

Two things I have thought about probably from reading so much science fiction. Unless there were incredible changes in many areas I can't imagine anything much worse than living forever or knowing in advance the exact moment when you will die.

4. Exception to the Rule

The author qualifies a generalization or stated perspective or dimension.

The letter said that he loved life but that this was not really living. He said that my mother, his friend, was calling him to her side. He hoped that we would forgive him.

5. Emerging Recognition of Alternate Perspectives or Dimensions

The author mentions that others may hold perspectives different from his or her own, but does not specify exactly how these perspectives are different. Or the author recognizes that an issue has several components or dimensions but does not elaborate on them.

I read that Haas has married Jarmila, which doesn't surprise me, for I always expected great things from Haas. But the world will be surprised. Do you know anything more about it?

I will not compromise my stand on what I believe in, but I am always prepared to listen to another point of view, and, if necessary, will agree to disagree.

6. Increased Tolerance for Ambiguity

The author is comfortable with, or at least willing to tolerate, a degree of open-endedness or uncertainty in judging events or in making plans.

It would be fine to see you Sunday the 19th at 9 a.m., or later in the forenoon. But you have many unavoidable tasks for the immediate future – and I want to be sure that you do not overburden yourself. My eagerness to see you will not grant less. We can have our talk at some later and more convenient date. Take very good care of yourself.

NOTE: Content Flags

Conjunctions such as “but”, “nevertheless”, “while”, “however”, and “though”, and qualifier adjectives and adverbs (e.g., “probably”, “almost”, “usually”) may indicate a score of 2.

Prototypical Example of a Score of 2

Enforced retirement at 65 is probably beneficial to our society. To be sure, it is difficult to force the resignation of long-time employees in order to make room for the upcoming generation. We should, however, give highest priority to creating opportunities for the new generation to explore their ideas. This need may be especially critical in view of the requirements of running a modern economy. More than ever, our country appears to require new ideas and fresh perspectives.

Explanation of Score: The author posits that mandatory retirement is “probably” beneficial. The view is thus expressed with a qualification. While the emphasis is on the importance of providing opportunities for new ideas, it is recognized that the needs of both the young and the elderly must be considered. However, the latter aspect (the difficulty of forcing older employees to resign) is not

elaborated. Increased tolerance for ambiguity is evident in the author's reluctance to accept that a simple solution must or can be found for a complex problem. The score of 2 is further justified by the qualifications that the need "may" be especially critical now, and that the country "appears to need" new ideas more than ever.

SCORE OF 3

General Explanation

The crucial aspect of a score of 3 is the clear specification of at least two distinct ways of dealing with the same information or stimulus. The author recognizes that these different perspectives or dimensions can be held in mind simultaneously. The author may also specify conditions under which these perspectives or dimensions are applicable. However, there is no evidence of conceptual integration. Differentiation is the key element of a score of 3.

Critical Indicator

The critical indicator for a score of 3 is the recognition of alternative perspectives or different dimensions, and the acceptance of these as being relevant, legitimate, justifiable, valid, etc.

Specific Indicators

At least one of the following indicators is usually evident for a score of 3.

1. Multiple Alternatives

(a) Multiple perspectives

One form of differentiation involves recognizing that "reasonable persons" can view the same problem or issue in different ways (the "truth" is not all on one side). Although the speaker may hold one viewpoint, he or she recognizes that others disagree and feels no need to disparage those who disagree.

Dear Sir,

I do not insist at all on speedy publication of this story, but do request you to inform me as soon as possible whether you can take it at all. Since you wish to avoid installments, finding room for my story must make problems; of course I realize that. If I nevertheless do not withdraw it of my own accord, my reason is solely that I am especially eager to see it published. But if it is completely out of the question, I could offer you another story, that I also have ready and that

comes to only some thirty typewritten pages, so that it would be less dubious a matter, at least in regard to its size.

(b) Multiple dimensions

Differentiation can also take the form of recognizing more than one dimension of an event, situation, issue, person or object.

I hope the gentle reader will excuse me from dwelling on Particulars, which however insignificant they may appear to grovelling vulgar minds, yet will certainly help a Philosopher to enlarge his thoughts and imagination, and apply them to the Benefit of Publick as well as Private Life, which was my sole design in presenting this and other accounts of my travel to the world.

(c) Multiple perspectives and multiple dimensions

On rare occasions, a statement will contain both multiple perspectives and multiple dimensions.

Do you see into what a scrape poor Furnivall's incontinence of tongue (in the witness-box!) has brought him? So can a man be really in the right, as to feeling, and the wrong, as to the expression of it. I was myself annoyed at the man – applying to Lady Martin for money, in virtue of her friendship for me – at the pretended instigation of Dr. Furnivall! He was naturally angry, but played into the fellow's hands by folly enough.

All aspects of my professional preparation and training through the years have meant a wider knowledge of people, needs, behaviour as well as honing my skills and developing personal confidence, enjoyment of challenges, and feelings of being able to make a contribution to the community. Such education and work also resulted in a disciplined life style!

CAUTION: The scorer must be confident that there are clearly two or more perspectives or dimensions to assign a score of 3. Sometimes the author may recognize two different views but only develop one of them. This would indicate the emergence of another perspective, which is given a score of 2. In other cases, the author may mention several characteristics of an issue but not elaborate any two of them to the point where they can be seen as distinct dimensions. This would be a list, and be assigned a score of 1.

In short, the scorer must feel certain that the author has clearly delineated two categories or rule structures in order to express the two (or more) perspectives or dimensions.

The score of 3 is given because of the evidence that differentiation exists, and is not related to the actual number of perspectives or dimensions that are differentiated. Including more than two alternatives does NOT increase the score.

This week Quebec voters passed judgement on the “showing” of Mr. Bourassa’s government. The result was a brutal rejection of the Harvard-trained economist – who lost even his own seat in the provincial parliament – and a decisive victory for the Parti Quebecois, which is dedicated to establishing Quebec as an independent nation, dismantling Canada as it now exists. It was thus a heavy blow also for Canada’s Prime Minister, Pierre Elliott Trudeau, himself a Quebecer, and for the cause of Canadian federalism.

2. Alternatives and Conditions for Application

An author engages in complex conditional reasoning. The author specifies the conditions under which two or more alternative outcomes are acceptable or likely to occur.

When I am criticized I may feel embarrassed if there are strangers around or I may feel neutral if those who are around are my friends. It also depends on who criticizes me and why I’m being criticized.

3. Probability Statements

Another way of expressing differentiation is through conditional statements that specify independent causes or determinants of the likelihood of some event.

The chance of reconciling the two groups is slim. It seems increasingly likely that the strikers can hold out indefinitely. It is in their best interests to do so at this time. On the other hand, management has been very conservative in its negotiations. It is possible that they are willing to be a lot more flexible but that it is to their advantage to “bluff” for a while.

4. Temporal Perspectives

There are more or less differentiated ways of thinking through time. Not all temporal sequences should be treated as lists or simple concatenations of causes and effects. To justify a score of 3, the author must recognize how new perspectives or approaches can grow out of old ones, or recognize that although perspectives on a problem have changed, neither the earlier nor the later perspective can be simply dismissed as wrong (e.g., statements of the form, "I once was a sinner and a fool, but now I am good and wise" are scored 1). The original perspective is continued from the past and is maintained when the new way of viewing is introduced. In brief, the author must demonstrate sensitivity to the impact of experience on perception.

Cher Monsieur,

I was very touched by the friendly way you discussed my opinion of Sainte-Beuve, and I should have thanked you immediately if a prolonged attack of asthma had not rendered me incapable of making the slightest move these last few days. I was all the more touched by your kindness because since the misfortune which has struck you [the addressee's wife had died recently], since I have heard of your moving sorrow which is so like the ones I have known, you are now as close to my heart, if I may say so, as in the past you were to my mind. I do not believe that it is a strain on you for me to speak of your bereavement again, for there is no more ridiculous custom than the one that makes you express sympathy once and for all on a given day to a person whose sorrow will endure as long as his life. Such grief, felt in such a way is always "present", it is never too late to talk about it, never repetitious to mention it again.

Even as a child he was the impresario of the school yard; the skill he displays today in his quick wit and the command of his audience hearkens us back to those early days. I still see before me the way he led our dinner-table talk at the outrageous age of 3; so now when I see him captivating a group of hundreds I have to smile, and I remember that little boy with his tousled hair and his conversation flying out to whomever would listen to his delight.

5. Increased Tolerance for Ambiguity

A score of 3 denotes greater flexibility than any lower score. Increased tolerance for ambiguity or conflict is shown when the author considers a number of parallel or contradictory perspectives or dimensions. A different perspective is no longer automatically wrong, bad, or identified with a disliked out-group. And good-bad or right-wrong judgments no longer require taking the all-or-nothing stances characteristic of the scale value of 1. The author recognizes that two views may operate simultaneously and that reasonable persons might favor either side. There is a reaction against absolutism in general. However, avoid mistaking a “straw man” structure (see Score of 1) for the elaboration of two perspectives.

The 1939-1946 war deprived many women in the younger age group in that period. The man I probably would have married did not survive. Since then, I decided not to marry just for the sake of being married. While aware of happy family experiences and relationships I have missed I have had a great variety of other pleasures and responsibilities, and I consider I have made a reasonably satisfactory adjustment with an adequate serenity.

I see myself as a watcher, a listener who aspires to understand (probably too much so) all of what I see and hear. I'm a people person who also demands a lot of time alone. In my solitary times, I think about almost every aspect of everything. I'm argumentative but also possess a good sense of humor to rescue myself when I've become too much the devil's advocate. I'm not psychic so I can only hope and not know if I've sufficiently answered the question of who I am.

NOTE: Content Flags

All of the content flags characteristic of a score of 2 are also diagnostic of a score of 3. The same key words appear to signal both implicit and explicit differentiation. Additional content flags, specific to a score of 3, include “alternatively”, “either-or”, “on the other hand”, and “meanwhile”.

Prototypical Example of a Score of 3

Enforced retirement has recently engaged the interest of the popular press. Some think that the elderly should give up their jobs in order to make room for the younger generation.

Such an action would bring fresh vision to business and give our society the new ideas we clearly need. On the other hand, there are those who think that the experience of the elderly is potentially our society's deepest resource, and that their hard-won knowledge can help business to adapt to these changing times. Of course, we rarely see either vision or wisdom in its pure form; each school of thought tends to ignore a bit of the other's perspective.

Explanation of Score: The author presents two perspectives on the enforced retirement debate: one favors it in order to introduce fresh ideas in business, the other questions it because it ignores the wisdom and accumulated experience that the elderly provide. Although the two views differ, neither is favored over the other; the thinking is differentiated and sensitive to the advantages of each position. The passage implies under what conditions each alternative is preferred – one under conditions of need for new ideas, the other under the impact of change. The author is comfortable with the ambiguity that an appreciation of each position brings. All in all, the author avoids dichotomous thinking, quick answers and simple solutions, which are characteristic of a score of 1.

This example contains several qualifications, which are indicators of a score of 2. However, the paragraph must receive the highest score for which critical indicators are present: in this case, 3. Note that the general rule of assigning the highest justifiable score holds for all scoring.

SCORE OF 4

General Explanation

At the earlier levels, the major element determining a specific score was the presence or absence of differentiation. In the score of 4, we seek signs of the emergence of the second major scoring element, integration. That is, we begin to find indications of the ability to integrate different and sometimes conflicting alternatives. Conceptual integration is not clearly apparent at this level, however. Instead, the integration of alternatives is implicit.

A score of 4 must show two features. First, there must be a clear representation of alternatives. Second, there must be an implicit recognition of a dynamic relationship between or among them. The recognition of this relationship signifies the emergence of integration, although at this level it is expressed in a tentative and

often uncertain manner. The clear description of the relationship is often withheld until further information is received.

In summary, there is only a suggestion that interaction exists between the alternatives; there is no overt statement specifying the nature of this interaction.

Critical Indicator

The author must indicate that multiple perspectives or dimensions exist, and also that they could interact.

Specific Indicators

At least one of the following indicators will be found in a paragraph for a score of 4 to be assigned.

1. Withholding Judgement

When an author notes that further information is needed before one can make explicit statements about the relationship between various alternatives, the paragraph is given a score of 4.

Who am I? This is a difficult question to answer for it is one that I have not thought about enough in the past, unfortunately, to give an overall impression as to "what" I am. Perhaps this reflects upon my overall personality and the way I am, for as I change as a person I regret not reflecting as to the significant events and daily trials that have molded me to be who I am over the years. These events and the people that have come and gone have made my life what it is.

2. Tension Between Alternatives

Occasionally, the manner in which alternatives are presented suggests that tension exists between or among them. It should be noted that the tension referred to here is not necessarily a negative factor, but is simply an indication that a dynamic relationship exists between the alternative perceptions or dimensions.

The recognition of tension may occur through a single clear-cut statement. For example, the author may state that resolution of a problem will be difficult because two groups hold different, somewhat contradictory views. This statement with respect to resolution implies that both groups are dependent on each other or must respect the other's standpoint, and will probably have to compromise – or, in other words, integrate their differing perceptions. In other paragraphs, tension between alternatives may not be stated so

explicitly. A single statement that tension is present cannot always be found.

I have very treasured memories of Grandmother but for some strange reason I didn't feel a strong sense of loss at this time. I have had some guilt feelings about this. The nearest I can come to my attitude is that I felt that it was time for Grandma to die.

3. Integration Expressed Probabilistically

Sometimes the recognition that alternatives can be integrated is expressed through a probability statement. Therefore, although probability statements such as "it is likely that", "it seems possible", "they will probably", are compatible with scores of 2 or higher, they may be used to alert the scorer to a possible score of 4. Of course, the probability statement must be supported by text that meets the requirements outlined in the general explanation.

When I am seeking advice or opinions I often consult both my friends and my family who provide me with different and sometimes conflicting ideas. The likelihood of reconciling these viewpoints with my own depends on the nature of the situation.

4. Integration Expressed as a Superordinate Statement

Sometimes a superordinate statement is given from which the two alternatives have been generated. It is usually the introductory statement in the paragraph. In this case, a broad statement encompasses the multiple perspectives or dimensions. This statement may also be presented as a single conclusion derived from the two (or more) alternatives.

The sense of being the last of my family to survive is lonely and sad. I am now the "older generation". I am, however, beginning to feel comfortable in that role. I can even tolerate the thought that I will die some day. Now that I see my children's lives seem stable, that they have each found the person they want to spend the rest of their lives with, and that they are themselves developing families of their own, I have a sense of my job having been completed. My only remaining concern would be my husband's welfare. And yet I know that his attachment to our children and theirs to him, would not permit him to be completely abandoned.

I like to seek the help of the people around me. Sometimes I gain a lot of valuable information this way and sometimes it is more confusing. Even if I do become a little more confused at first, it is worth seeking advice. Information, like doubt, holds possibilities.

Prototypical Example of a Score of 4

A prototypical example illustrating several of the critical indicators of a score of 4 paragraph is given below. This sample deals with the same issue as in the prototypical examples for the other scores.

For society fully to benefit from its members' skills and to survive the "technological revolution", a new philosophy must develop which unites the youth and the elderly of the nation. The technological skills of the young are important if we are to keep pace with the other industrialized countries. However, we have important social decision-making ahead of us if we are to improve our quality of life in the long term. Our future success depends upon our ability to realize the potential of our citizens, whether they be young or old.

Explanation of Score: The paragraph begins with a superordinate statement that a "new philosophy" must be developed. This philosophy is aimed at uniting the skills of old and young. Keeping pace technologically and improving the quality of life are the two alternatives, and it is recognized that both of these goals cannot be maximized simultaneously. It is implied that our future success depends upon some type of integration of the two age groups, but there is no clear indication how this might occur.

SCORE OF 5

General Explanation

A score of 5 indicates the explicit expression of integration. The score of 4 was the transition point between an expression solely defined by differentiation and one where evidence of integration appears. Whereas 4 signifies the emergence of integration expressed in a tentative or uncertain manner, a score of 5 indicates that integration is clearly evident. Types of integration that emerge include mutual influence, negotiation, causal attributions, and synthesis.

Critical Indicator

The critical indicator of a score of 5 is that alternative perspectives or dimensions are not only held in focus simultaneously but also are viewed interactively. The author is able to see that multiple alternatives are all to some degree legitimate, and combines them to produce a result that none of the alternatives could have produced alone.

With the wisdom of hindsight we can see now that they were more deeply Chinese than purely Marxist, that national goals took precedence over ideological theories, despite the internationalist vocabulary they used at the height of the Soviet-China alliance in the 1950's. The kind of Communism that developed in China at enormous cost in human lives and personal liberty was the product both of China's deep poverty and of the lessons Chou and his comrades learned during their long struggle from the time Chiang Kai-shek almost destroyed them in the 1920's to their conquest of mainland China in 1949.

Specific Indicators

There are several ways in which the effects of simultaneous consideration of alternatives may be expressed.

1. Mutual Influence and Interdependence

Sometimes, two or more alternatives are shown to be in a dynamic relationship, in which each perspective affects and is affected by the other. The author must clearly recognize the reciprocity of the relationship for the passage to be scored a 5. A relationship in which one alternative affects the other without consequence to itself is a one-way relationship and cannot be scored as a 5.

I like to seek the advice of the people around me. In talking with people I not only gain access to their opinions and ideas but I am also allowed to reanalyze my doubts. With time, this fusion of my reanalysis with other's ideas can often lead to a new approach to my initial conflict. Often this type of interchange can also help my advisors to clarify their own opinions on some important issues.

2. Negotiation

Trade-off reasoning takes place when it is recognized that two alternative goals cannot be maximized simultaneously. The author realizes that a “give and take” strategy must be used and that trade-offs must be made by both sides in order to reach a resolution, and outlines a strategy that could be used or explicitly describes the trade-offs that could be made to reach a resolution. Note that the mere unelaborated mention of words such as “trade-offs” or suggestions that cooperation or negotiation is necessary in order to settle a dispute would justify a score no higher than 4. The author is able to tolerate ambiguity and does not force a speedy resolution. Negotiation may take place between parties:

There has, of course, been a mass intervention of the Chinese Communists in Korea. In the present situation, those who have their own forces engaged (and this applies, of course, particularly to the United States whose intrepid men are bearing the brunt of the fight) are obviously entitled to have full consideration given to the use of every available means of supporting the ground forces fighting under the United Nations Command. This is natural and inevitable. But, before a decision of such immense and awful consequence for all of us is taken, there should surely be consultation through the U.N., particularly with the governments principally concerned. One of those would be the Canadian Government, which has from the beginning been a partner in the tripartite development of atomic energy.

Or it may occur within one party as a compromise between two or more conflicting goals or values:

Proposals to limit hospital costs provoke much anger and concern. On the one hand, most people are unwilling to settle for anything less than “state-of-the-art” medical care. On the other hand, there are limits on the amount of money that people can or are willing to spend. An appropriate compromise is to limit cost increases to the rate of inflation.

3. Causal Attributions

Integration can be expressed in explicit attempts to explain why “reasonable persons” view an issue in different ways. A unifying statement is used to explain two contradictory but valid perspectives or dimensions; a higher-order (i.e., hierarchical) concept is developed

that specifies the common element in alternative perspectives and explains the reasons why both can be valid. This is the development of comparison rules. To reason that behaviors or viewpoints are dependent on the situations is a variation on this idea.

Some view abortion as a civil liberties issue – the woman’s right to choose to give birth. Others view abortion as the murder of helpless infants. Which perspective one takes depends on one’s view about when the developing organism within the mother becomes a human being.

4. Synthesis

The generation of a novel product is evidence of integration. This product may be explicitly related to the two alternatives in the paragraph, or the relationship may only be implied. The novel product may be expressed as an insight, a new policy, or the unexpected result of the interaction of the two dimensions.

Concepts without factual content are empty. Data without concepts are blind. By their union only can new knowledge be produced.

Two alternatives implicitly combined can also produce a novel product, in this case a useful insight:

I took such care of it that it lived and the leg grew well and as strong as ever; but by nursing it so long, it grew tame and fed upon the little green at my door, and would not go away. This was the first time that I entertained a thought of breeding up some tame creatures that I might have food when my powder and shot was all spent.

The two dimensions in the above paragraph, the animal’s survival and the animal’s tameness, are combined by the author to create an insight: the notion of breeding animals to ensure his future meat supply.

Note: Content flags are not appropriate for integrative statements, because in most cases specific words or phrases can be incorporated in simple as well as complex thoughts. However, such terms as “interplay”, “interaction”, “interdependency”, “mutual(ity)”, “compromise”, “equilibrium”, “balancing”, and “trade-offs” are compatible with the score of 5.

Prototypical Example of a Score of 5

For society to benefit fully from its members' skills and to survive the "technological revolution", a new philosophy must develop which unites the youth and elderly of the nation. The technological skills of the young are important if we are to keep pace with the other industrialized countries. However, we have important social decision-making ahead of us if we are to improve our quality of life in the long term. Thus, we must be concerned equally with developing technology as with developing a plan for its use. It is in this latter area that the elderly, with first-hand knowledge of history, must be consulted. With this philosophy in mind we are faced with the economic challenge of employing both young and senior citizens.

Explanation of Score: In the statement, "we must be concerned equally with developing new technology as with developing a plan for its use", mutual influence can be most clearly seen. It is recognized that both age groups must make their distinctive contributions if this ideal is to be fulfilled. Fulfillment of this ideal would include at least partial satisfaction of the two stated goals: remaining technologically sophisticated and improving the quality of life over the long term. In considering these two factors, the technological and the social, the author produces the insight that we are facing an economic challenge.

SCORE OF 6

General Explanation

In general, the score of 6 involves a high-level interaction indicating that the author is working with multiple levels of schemata. The alternatives at this level are dynamic: they are expressed as plans, processes, or courses of action made up of several moving parts, and as such we may often refer to them as systems or networks. One of the indicators of a score of 6 is the specific explanation of both the "moving parts" within a system and also how those parts affect each other or the system.

At this level alternatives are readily accepted, compared or contrasted, and integrated so as to present at least one outcome. Global overviews or organizational principles (temporal, causal, ideological) are often presented. The emergence of this type of principle is the second main indicator of the score of 6.

Critical Indicator

For a paragraph to be given a score of 6, the author must be working across several levels of schemata and at least one of the indicators noted above must be explicitly delineated. Thus, there may be an explicitly presented global overview with only an implicit indication of the specific dynamics of the alternatives. Conversely, there may be explicitly stated details about the dynamic interaction between alternatives and only an implicit communication of the global overview.

Specific Indicators

Specific indicators for the score of 6 include:

1. Comparison of Outcomes

The author is aware of two alternative courses of action and is able to compare their outcomes with regard to long-term implications. In comparing alternatives, the author may favor one over the other; but each is reasonably considered. Alternatives and outcomes may be actual or hypothetical.

One form of self expression is influenced by our interpersonal relationships and experiences. My relations with my parents and friends have made me value honesty and intimacy. Another child's upbringing may have made independence a central concern. Unfortunately some children's social environment fosters mistrust and fear of rejection. By adulthood, if not earlier, we have all created a style of expressing ourselves, each subtly different, because of our varying backgrounds, which alter the paths we follow through life.

Explanation of Score: In the first sentence the author expresses a global overview of factors influencing self-expression. Different circumstances leading to the creation of various styles of expression are then compared. Multiple levels of interactive schemata are present: the types of upbringing; styles of expressing ourselves; and paths we follow through life.

2. Systemic Analysis

Any case in which the author describes how an existing relationship, network, or system can be affected by changes in an internal or external variable, may be scorable as a 6. The effect that

the active variable has on the system is often discussed in terms of the accommodation that the system makes to it at various hierarchical levels.

As for myself, I do not fear death, nor do I look forward to it. There is no appropriate time for death; if one conceives life as a dialectic, one realizes that issues are never settled once and for all. When every item on my list is completed a new list of items is generated. Relationships are never fulfilled; the deeper a relationship becomes the more nurturance and care it generates. In fact I'm not exactly in agreement with the choice points of Erikson's last stage – integrity versus despair. While despair is certainly the negative outcome, I'm uncertain that integrity – or acceptance of one's life as "good" – is the desirable resolution. For me, death simply means that the eternal struggle has ended.

Explanation of Score: The author gives the specifics but no global statement in describing a conceptualization of the relationship between life and death. Life and death are seen as unified opposites, a dialectic. Within this system issues and relationships are seen as ever-changing. New inputs generate new feelings. The author can see places in which this system is commensurate with Erikson's hierarchy of stages and places where the two systems may differ.

3. Hypothesis Testing

Hypothesis testing is a systematic information search method. It can be seen in paragraphs in which the two dynamic alternatives (i.e., systems) are delineated but the relationship between them remains somewhat limited or static. The author's understanding of the relationship is expressed through an explicit hypothesis about how the system would accommodate some new information, action, or change over time. In a sense, the author is reality testing. That is, the author sets values on several variables within the system and then predicts how the system would react to the introduction of a new variable. If the predicted outcome occurs, the author can assume that the variables were set realistically. As in previous examples, outcomes may occur on more than one level.

There are many factors which I am not in a position to weigh. But there does appear to be at least a possibility that a

suspension of such air strikes against North Vietnam, at the right time, might provide the Hanoi authorities with an opportunity, if they wish to take it, to inject some flexibility into their policy without appearing to do so as the direct result of military pressure. If such a suspension took place for a limited time, then the rate of incidents in South Vietnam would provide a fairly accurate way of measuring its usefulness and the desirability of continuing it. I am not, of course, proposing any compromise on points of principle, nor any weakening of resistance to aggression in South Vietnam. Indeed, resistance may require increased military strength to be used against the armed and attacking Communists. I merely suggest that a measured and announced pause in one field of military action at the right time might facilitate the development of diplomatic resources which cannot easily be applied to the problem under existing circumstances. It could, at the least, expose the intransigence of the North Vietnamese Government.

Explanation of Score: This paragraph gives a very specific account of system strategy, through which a broad perspective is implied. An hypothesis, and a way of testing it empirically, are both specified.

Prototypical Example of a Score of 6

Their experiences with war and depression during the thirties created in many members of our parents' generation a drive to create some form of security for the future that was not available for them to enjoy in earlier years. By continuously building upon their gradually increasing assets while still maintaining the conservative lifestyles they had been pressed to follow during hard times, they created economic stability for themselves. This economic stability, enjoyed by many approaching old age, lends greater power to seniors' increasingly vocal demands for an improved quality of life for the elderly. Their offspring, not having faced the same hardships as their parents, have had opportunity and cause to be somewhat reflective about issues pertaining to the quality of life in general, including the plight of the elderly.

Explanation of Score: One of the dynamic alternatives in this paragraph is the system that represents the outlook of "our parents" on the position of the aged: a drive for security leading to increased assets, and eventually economic stability, giving them greater power

to express their demands. The motivating forces characterizing “their offspring” arise from clearly different sources but are, nevertheless, accepted as representing a legitimate perspective. In fact, the interests of the elderly (i.e., improved quality of life for the aged) are subsumed within the interests of the next generation (i.e., improved quality of life in general). The author sees the specific moving parts of each of these ideologically compatible interests, and that they interact to some extent, but no global outcome is explicitly stated.

SCORE OF 7

General Explanation

The unique characteristic of a score of 7 is the presence of an overarching principle or perspective pertaining to the nature (not merely the existence) of the relationship or connectedness between alternatives. In a score of 7, these alternatives are clearly delineated and are described in reasonable detail. How each alternative may be seen to be part of some overarching view, or how some overarching view encompasses these alternatives, is made evident.

Critical Indicators

1. An overarching viewpoint is presented, which contains an explanation of the organizing principles (e.g., temporal, causal, theoretical) of the problem or concept.
2. There is a discussion of the ways in which levels of the problem or concept interact and thus demonstrate the validity of the overarching perspective. The description of the ways in which levels of the system interact must be both specific and dynamic, demonstrating how each level is affected by the other.

While these indicators are distinct, they are inextricably linked. The global overview encompasses the components of a system, and in fact may have developed as a result of the author’s simultaneous consideration of these levels or components.

Specific Indicators

The paragraphs below are examples of ways in which the critical indicators are often expressed.

1. Hierarchical Integration

A highly integrative level of complexity shows the presence of two or more organizing principles, which are themselves integrations and which are then synthesized to form an overarching view. One

form of a hierarchical structure, then, is an integration of integrations combined with the presence of detailed examples of the working out of that perspective. Principles or concepts that offer an explanation for a particular event, problem or theory are needed for this level of complexity. Explanations that offer only a description of the situations in which alternatives occur are only moderately integrative, and are not coded as a level 7 response. The emphasis here is on hierarchical concepts that explain the occurrence of the issues being addressed.

Here an overarching perspective is linked with the presence of less abstract perspectives which demonstrate how the principle or insight works out.

Some view abortion as a civil liberties issue; others see abortion as murder. How you view abortion depends on a complicated mixture of legal, moral, philosophical and perhaps scientific judgments. For example, is there a constitutional right to abortion? If there is, what criteria should be used to determine when human life begins? And, a question that must be answered before any of the others can be, who possesses the authority to resolve these issues?

Explanation of Score: There are two differentiated perspectives on the issue of abortion: a personal moral perspective and a civil liberties perspective. The overarching principle which integrates these perspectives is the realization that one's view is determined by a complex blending of legal, moral, philosophical, or scientific judgments. Individual questions that introduce the hierarchical nature of the enquiry are then advanced. These demonstrate how the principle works out in actual inquiry.

2. Comparison of Outcomes

The author takes a global view of the events in the situation and relates these events to an organizing principle. At the same time, the specific nature or dynamics of at least one of the events is outlined in some detail. The possible outcomes of events are compared and related to this global view.

As is the case of the many movements led by our party over the last years and more, there are always shortcomings among great achievements. So there are always at least two ways to approach the resolution to these inherent

shortcomings. The outstanding contradiction with which we are now faced in our work is the tension and strain in various quarters caused by disproportions. Due to the party's achievements both in development and investment, resources are finally available. Now we must concern ourselves with the intricacies of distribution. The development of unequal distribution has affected the social and working relationships between citified workers and their rural peasant counterparts. The rural workers are hesitant to maintain long work hours when they perceive that the citified workers benefit more than they do themselves. The citified workers believe that the rural life is far easier than their own and that the government farm subsidies are a waste of funds that could be better used in industrializing the cities. Further, within the cities themselves we even have disruption among the various strata there, between merchants and workers, between land-owners and renters. Likewise, the various strata among the peasants are at odds with one another. This is a political problem. The key to whether we can mobilize the broad masses to continue the great leap forward into the future that our party wishes to achieve is the extent to which we can ensure, by whatever means we now develop, the fair distribution of resources. If we are not able to establish an equitable system, and to convince the various strata among the population that this has been achieved, hostility and competition will continue to grow. Disproportionate distribution of resources is a problem which can be solved with a well-planned strategy, but hostility among the people is a problem which may change the entire face of our country.

Explanation of Score: The author takes a global view of the multiple controversies in this example, relating them all to the disproportionate distribution of resources. At the same time, the specific nature of the controversies is outlined (e.g., between urban and rural workers, among several city strata). Notice that it is not necessary for every part of the system to be delineated; for example, no specific statement is made concerning the friction that is developing among the peasant strata. The author also sees the distribution system as related to two organizing principles: although equitable distribution of resources is basically an economic problem, it will also have political ramifications. Two possible outcomes are

presented, both dependent on the party's ability to distribute resources fairly.

3. Systemic Analysis

In general, this type of highly integrative passage explores specific complex interactions within a complex system, using an overarching global view as a way of uniting these observations. The author begins by taking a global view of the problem and then provides examples for the particular interpretation. The effect of one action on other levels throughout the system is then clearly explained. The general and specific consequences of this "ripple effect" are delineated.

Social relationships permeate every aspect of our lives: our family and friends, our culture, and our global community. The family is the primary source of the development of our social bonds. This extends to new and different people as we make and remake friendships throughout life. The unique experiences that we take away from our varied relationships influence our form of self-expression which is, itself, a component of our social interactions with family and friends and with our extended community.

Explanation of Score: The author makes clear reference to multiple, specific, embedded levels of "our lives" within the context of an overarching global network of social relationships. The varied relationships we have with others in these family, friendship, cultural, and global community spheres have an impact on our "self expression" which, as a consequence, influences the interactions we have in these social spheres. This dynamic, rippling effect is the hallmark of systemic analysis in the score of 7.

4. Complex Trade-offs among Conflicting Goals

The author is able to step back from the situation sufficiently to engage in a cost-benefit analysis of several conflicting goals or strategies and includes an explanation for making comparisons among them.

Saudi Arabia seeks to maximize the benefits it can gain from its massive oil reserves. It attempts to keep prices high, but not so high that demand for oil drops off steeply or that Western economies are seriously damaged, thus hurting Saudi investments. The Saudis also recognize the

destabilizing effects that too much money can have on their own economy and political system. Saudi oil policy may look inconsistent to outsiders, but the appearance is misleading. Long-term profit-maximization requires juggling many balls.

Explanation of Score: The author approaches the analysis of Saudi oil policy from the broad perspective of cost-benefit analysis: how can Saudi benefits be maximized, given the constraints of the national and international system? A second broad perspective recognizes the juggling of trade-offs that long-term profit maximization requires. The author specifically differentiates conflicting policy objectives (high prices, maintaining high demand, international economic stability, and domestic stability) and describes interactions (trade-offs) among these objectives. Complex interactions among these dimensions are described by the destabilizing effects of the oil policy and the appearance of policy inconsistency to outsiders.

Prototypical Example of a Score of 7

We must view this problem from the very broad perspective which involves the kind of society we see ourselves to be and the kind of society we strive to be. Do I assume correctly that we are, and that we want to be, civilized? It may be that our heavy emphasis on individualism, productivity and self-sufficiency has resulted in a view of the elderly as basically useless members of society. On a larger scale, should this opinion prevail, we could hardly have a view of ourselves as belonging to an integrated and harmonious community. At a more specific level of intergroup relations, if this attitude flourishes, the older segment of the community may feel forced to exert their increasing economic and social power to the detriment of others in society, such as younger individuals in need of their employment positions. This would only contribute to an adversarial relationship (albeit reversed), where resources are still not distributed with social and economic equity among a heterogeneous population. We must all take our fair share of responsibility for the state we live in. Our treatment of all individuals, regardless of age, depicts the state of our society; a civilized community treats all its members in a civilized manner.

Explanation of Score: The paragraph begins with a statement indicating that it is necessary to approach the problem of generational integration from the more global perspective of how we see our society in general, taking into account that our current view may not reflect our ideal view. The author outlines possible causes or contributors to our view of the elderly as useless members of society and the implications of seeing ourselves as civilized. Basically, through examining two possible scenarios at the specific level of intergroup relations and interpreting the implications of each for the long-term, global goal (a civilized society), it is made clear that hostile intergroup relations are more likely to lead to an uncivilized society than to a civilized one. The author recognizes that the causal links are not, in fact, heading toward the proposed goal and outlines some general principles to follow in order to correct this situation.

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