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AN EXPLORATORY STUDY USING THE OBSERVATIONAL SYSTEM FOR THE ANALYSIS OF PRIMARY READING LESSONS AT THE FOURTH GRADE LEVEL

by

HEATHER JUNE ANDERSON

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

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FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled "An Exploratory Study Using the Observational System for the Analysis of Primary Reading Lessons at the Fourth Grade Level," submitted by Heather June Anderson in partial fulfilment of the requirements for the degree of Master of Education.

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Date October 10, 1978

ABSTRACT

The purpose of the study was to determine what changes in the procedures, categories, and ground rules of the Observational System for the Analysis of Primary Reading Lessons (OSAPRL)(Browne, 1974). would be required to modify the instrument for use at the upper elementary level.

Another purpose of the study was to determine if the single category of the OSAPRL which covered reading comprehension questions could be sub-categorized, within the system, in order to account for the kinds of questions teachers ask during the reading lesson. This involved using a procedure which Flanders (1970) described as subscripting and which Browne had suggested could be used in adapting the OSAPRL.

The final purpose of the study was to report on the patterns of teacher-pupil verbal interaction that were observed using the OSAPRL. Conclusions about what was observed are included in the study as are some of the implications they suggest. However, given the limitations of the OSAPRL, such conclusions and implications are very tentative and are mainly presented in order to highlight the kinds of information about teaching that might be elicited should more observational studies be carried out.

The basic data for the study consisted of audio-tapes collected in four fourth grade reading classes in the Greater Edmonton area, during four consecutive visits. Data analysis was facilitated by the use of a University of Alberta computer program.

The findings of the study prompted suggestions for refinements and modifications of the OSAPRL. The subdivision of the comprehension category proved manageable although some questioning strategies are used more than others. The findings also suggest that teachers do exhibit some common behaviors but some idiosyncratic behavior patterns as well. There was considerable evidence that teachers tend to lecture about reading and that reading lesson time is taken up with varying degrees of non-reading centred activities.

The study concludes with some suggestions for further research into the development of an appropriate reading observational system and how it may be used to further our knowledge of different aspects of the teaching of reading under natural classroom conditions.

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CHAPTER 1

INTRODUCTION

Teaching is more than talking but it would appear that the predominant instructional behavior of the teacher is talk (Amidon and Hough, 1967). Research suggests that verbal interaction is going on in the classroom sixty percent of the time and for nearly three-quarters of that time it is the teacher who is talking (Flanders, 1965).

The examination of teacher-pupil verbal communication is the basis of verbal interaction research. The type and nature of teacher-pupil talk constitutes the categories for different systems of interaction analysis. Representative "bits" are selected from the ongoing verbal interaction and an image of teaching-learning is built up. Flanders (1970) stated:

> It <u>is</u> the tiny bits of behavior that constitute teaching. To know what teaching is impels us to take the little bits into account and use them to display a conception of the teaching that is taking place. To know what teaching <u>is</u> plunges us into a subjective problem; to know what teaching acts occur is by definition an objective problem. It may take years of research and development before we can synthesize the subjective and objective elements, but there can be no escape from confronting the question (p. 24).

The question of what teaching is needs to be confronted specifically in the teaching of reading. The ability to read reflectively, to apply the ideas from reading to our perception of other events is probably more important today than it ever was. Society, in one way or another, castigates an individual who cannot read or read reflectively, and it is the teacher who is being recognized as one of the single most important variables influencing pupils' progress in reading.

Researchers have looked at good teachers but have not focussed enough on the good teacher of reading (Artley, 1969). Artley and others have suggested that to improve pupil achievement in reading we must look at teachers teaching reading. We must identify teacher characteristics and teaching practices that are most effective in the reading class. To accomplish this, Artley contends that we need specific ways to examine teaching behavior during reading lessons.

Emmans and Fox (1973), reporting on teaching behaviors in reading instruction, indicate that teachers communicate through their behavior. Since some teachers are more effective in fostering children's reading achievement than others, they suggest it is necessary to study, to compare and to evaluate the behaviors of good and of poor teachers. They suggest that it is possible to observe and analyze reading teacher behaviors in ways that will facilitate improvements in instruction.

Browne (1971) attempted to analyze teacher behavior by examining teacher-pupil verbal interaction during reading lessons, using a standard system of analysis, Flanders Interaction Analysis System (FIAS). She also conducted a content analysis of the verbal behavior of teachers and pupils in primary reading lessons using the Focused Interaction Episode in Reading (FIER). The Observational System for the Analysis of Primary Reading Lessons (OSAPRL) was developed from a combination of the two types of analyses. Browne suggested that with some refinements and extension the OSAPRL might be adaptable to the upper elementary grades, even though it was first used in observations of primary reading lessons (grades one and three). The present investigation attempted to refine and extend the OSAPRL to reading lessons beyond the primary level, specifically grade four. It has also

attempted to provide information about the teaching of reading in the grade four classes observed.

STATEMENT OF THE PROBLEM

The general problem of this study was to describe teacher-pupil verbal interaction during reading lessons under natural classroom conditions at the fourth grade level using Browne's OSAPRL and to examine the differences, if any, in the behaviors of the teachers and of the pupils observed in the sample classrooms.

Therefore, the specific problems posed in the study were:

1. To determine what changes in the procedures, categories and ground rules of the OSAPRL would be necessary to modify the system for use at the grade four or upper elementary level as opposed to the primary level for which the instrument was developed.

2. To determine whether or not the categories of the system, specifically Category 2, the Teacher Comprehension Solicitations category, could be subscripted as suggested by Browne (1971) to provide information about the kinds of reading comprehension questions asked during the teaching of reading and the subsequent interaction that takes place at the fourth grade level.

3. To examine, within the limitations imposed on the study by the instrument itself, teacher-pupil verbal interaction during grade four reading lessons on the basis of the OSAPRL system.

RESEARCH QUESTIONS

The following research questions guided the conduct of the study:

1. What changes, if any, in the Observational System for the

Analysis of Primary Reading Lessons (OSAPRL) are necessary to refine and extend the instrument for use in analyzing teacher-pupil verbal interaction in fourth grade reading classes?

2. Is it possible to extend the Comprehension Category 2 of the OSAPRL through the procedure of subscripting to account for the types of reading comprehension questions teachers ask during the reading lessons?

3. Given the limitations imposed on the study by the instrument itself, what would the revised OSAPRL reveal about teacher-pupil verbal interaction in the fourth grade reading classes observed?

ASSUMPTIONS

The following assumptions were basic to the investigation:

1. That the verbal behavior of teachers and pupils represents an adequate sample of the total interaction taking place in the reading lessons observed in this study.

2. That audio-tapes of teacher-pupil verbal interaction, supplemented by anecdotal records of classroom events, provide a sufficient sample of the total verbal behavior observed in the reading lessons.

3. That a careful and descriptive analysis of teacher-pupil verbal interaction during a sample of regular reading lessons, where no attempt has been made to influence the content or procedures of the lesson, can provide insights into the kinds of verbal behaviors used by classroom teachers in the teaching of reading.

4. That observer bias was minimal.

LIMITATIONS

The following factors were recognized as possible limitations in this research:

1. The presence of an observer in the classroom may have caused teacher-pupil verbal interaction to be atypical in spite of efforts made in advance to accustom both teachers and pupils to the observer's presence.

2. The small voluntary composition of the sample of teachers may have eliminated "typical teachers" from the sample thus limiting the generalizability of the analyses.

3. Students involved in the study were included solely on the basis of their membership in the classes of the participating teachers and, therefore, may not be representative of grade four students.

4. Due to circumstances beyond the control of the investigator, three teachers in the sample received copies of a letter outlining the purpose of the study and, therefore, their classroom behavior may have been influenced by this information.

5. For the purposes of this study no attempt was made to control for the approach to the teaching of reading used in the different classrooms and, therefore, the differences in the types of behavior noted may have been due to the specific reading teaching materials used.

6. Shortly after the study was initiated one teacher was eliminated from the sample because a student-teacher had been assigned to that classroom, thereby necessitating a last minute replacement teacher for the study.

DEFINITIONS

Certain terms having specific meaning for the purposes of this study are defined as follows:

1. Reading. This term includes not only word recognition, but comprehension and interpretation, appreciation, and application of what is read to the study of personal and social problems.

2. Reading teacher. The teachers in this study have been referred to as reading teachers and/or teachers of reading because each is responsible for teaching basic reading skills to pupils in self-contained classrooms. The designation of these teachers as reading teachers, therefore, does not imply that they are solely responsible for teaching reading in special reading classes, developmental or remedial, nor does it necessarily indicate that they have special qualifications which set them apart from other regular classroom teachers.

3. Reading lesson. This term indicates the period of time during which the reading program was taught in the classroom. The lesson was considered to begin when the teacher began to instruct a group, and was considered terminated when she indicated that the lesson was over, and ceased to instruct the group.

4. Reading group. This term refers to the sub-groups in a class to which pupils were assigned for the purposes of learning to read. The assignment was based upon the classroom teacher's assessment of the pupils' abilities and/or achievement in reading. For the purposes of this study, the designations of High, Average, Average-Low and Low refer respectively to the groups perceived by the teacher to be most

competent, of average competence, of average to least competence, and of least competence in comparison to other learner-readers in the classroom.

5. Primary. This term is used when a collective reference is made to the classrooms, teachers, pupils or activities when grade level is not specified. The term has been in common use to identify pupils in grades one through three, or the first division of the elementary school.

6. Upper elementary. This term is used to identify pupils in grades four through six or the second division of the elementary school.

7. Basal reading approach. This is a generic term for an approach to the teaching of reading which depends upon the use of a series of readers accompanied by teachers' guidebooks and supplemental materials such as workbooks. This approach is described in terms of an introduction to new concepts through a careful control of the vocabulary and involves a sequential, balanced skill development program which extends from beginning reading to grade six or beyond.

8. Interaction. For the purposes of this study, this term refers to reciprocal verbal acts between teacher and pupil as described by Flanders (1970).

9. Interaction analysis. This phrase applies to those methods of observation which study behavioral transactions by coding spontaneous communication, arranging data into a useful display and analyzing results in order to study patterns of teaching and learning (Flanders, 1970).

10. Interaction matrix. A matrix is a rectangular array of numbers. In using the OSAPRL in the present study, a twenty column, twenty row

plot used to analyze the coded verbal behaviors of teachers and pupils is the visual display identified by this term. This matrix differs somewhat from that used by Browne because of the refinements and extensions made to the OSAPRL as used in the present study.

The following terms are specifically used in connection with the OSAPRL instrument:

11. Solicitation. This term identifies an act on the part of the teacher which is intended to initiate a response from the pupils.

12. Non-soliciting statement. This term may refer to either of two teacher acts: reading related or not reading related. Neither of these statements calls for an immediate pupil verbal response.

13. Response. This term identifies an act on the part of the pupil that is in response to a teacher solicitation.

14. Reaction. This term identifies an act on the part of the teacher in reply to the responding act(s) of the pupil(s).

15. Subscripting. This term is used to designate the process of sub-dividing an existing behavioral category in an observation system to account for a more specific description of an observed behavior. In this study, for example, Browne's Category 2 (Teacher Comprehension Solicitations) was subscripted to account for the specific kinds of reading comprehension questions teachers asked.

16. Steady state cell. This term identifies a behavior in the matrix which occurs consecutively, for example, 5,5,5.

SIGNIFICANCE OF THE STUDY

In light of the needs in the analysis of the teaching of reading, adapting and refining the OSAPRL for use in the upper elementary

grades should extend the utility of this observational instrument. Determining the feasibility of subscripting categories of the OSAPRL will further enhance its value as an observational instrument. A more flexible observational system will be of greater assistance to researchers interested in studying teaching behavior in the reading classroom.

Subsequently the instrument may be used as a means of helping reading teachers, in a pre-service or an in-service situation, change or modify their behavior in a desired direction.

A descriptive analysis of the teacher-pupil interaction in upper elementary reading classes may provide further information about the teaching of reading under normal classroom conditions.

A close inspection of comprehension questioning patterns within the regular reading instruction may provide a basis for an in-depth study of these behaviors to determine their consequences for the learner.

ORGANIZATION OF THIS STUDY

This report of the descriptive analysis of teacher-pupil verbal interaction using the Observational System for the Analysis of Primary Reading Lessons, with extensions and refinements, in grade four classrooms consists of six chapters.

Chapter One has introduced the problem and stated the research questions. It has provided relevant background information including the assumptions, limitations, and definitions of terms basic to the investigation. It has also indicated the significance of the study. In this section an overview of the other chapters is presented.

Chapter Two presents a review of the research literature related to the present study. Specifically, it examines relevant studies in the area of classroom observational research, classroom verbal interaction during reading lessons, and teacher questioning behavior during reading lessons.

Chapter Three explains the design of the research with descriptions of the sample, instrumentation, and procedures used in the collection and analysis of the data.

A critique of the OSAPRL based upon its use as an observational instrument for examining the teaching of reading at the fourth grade level is presented in Chapter Four.

Chapter Five discusses the teacher-pupil verbal interaction observed in fourth grade reading lessons on the basis of the OSAPRL.

The final chapter, Chapter Six, presents the summary, findings and conclusions, and the implications of the study related to the OSAPRL and to the observation of teacher-pupil verbal interaction at the fourth grade level. Suggestions are made for further research.

CHAPTER 2

REVIEW OF RELATED LITERATURE

The purpose of this chapter is to provide a background for the current study by presenting previous research and literature which influenced the conduct of this study.

The first section of this chapter will review those studies pertaining to classroom observational research. The second section will look at studies related to classroom verbal interaction during reading lessons. The third section will review studies done on teacher questioning behavior during reading lessons.

CLASSROOM OBSERVATIONAL RESEARCH

Human learning occurs in social contexts (Withall and Lewis, 1963). One such institutionalized setting for facilitating the socialization process has been the school classroom. Observational research has attempted to discover what goes on within the school classroom with a view to improving the teaching and learning process.

Observation and the Measure of Teacher Effectiveness: The Early Studies

Classroom interaction investigation prior to the 1930's were concerned with the question, "What contributes to teacher effectiveness?" The instruments used to collect information were mainly rating scales and questionnaires with the criteria for effectiveness determined by opinions of the observed behaviors rather than by measured changes in pupil learning. Some studies, cited by Medley (1972), tried to use students

as observers in the classroom but found that pupil ratings involved too much inference. Lists of teacher characteristics by neither pupils nor "experts" provided useful information regarding characteristics of effective teachers. Barr's extensive study in 1935 (Withall and Lewis, 1963) exemplified the difficulties involved in this type of assessment of teacher effectiveness and his conclusions, in part, pointed out the need for investigating the whole area of teacher-pupil relationships and, especially, measuring the teacher in action.

Meanwhile, attempts were being made to study teacher behavior in the classroom context. Johnson (1935, in Withall and Lewis, 1963) demonstrated that positive, direct and approving verbal communication to pupils ensured a greater degree of compliance by learners as compared with directions or requests to learners that were negative, non-specific and reproving. Olson and Wilkinson (1938, in Withall and Lewis, 1963) helped substantiate Johnson's findings by using a time-sampling technique while observing a student-teacher in the classroom. The present study also investigates teacher verbal behavior using a time-sampling technique and two of the observational categories are related to teacher confirming and corrective behavior.

Observational studies during the late thirties through the fifties were influenced by research on child development and on group life and climate. Anderson (1937) developed categories for the classification of teacher behavior, identifying "dominative" and "integrative" contacts between teachers and pupils. "Dominative" contacts involved, for example, the use of force, commands, threats, shame or blame while "integrative" contacts were characterized by asking and by giving explanations to make the requests meaningful. The results of

Anderson and his co-workers' studies indicated that identifiable teacher behaviors could be categorized so that teachers could be differentiated on the basis of the relative number of their dominative and integrative contacts with children and it was demonstrated that the teacher's classroom personality and behavior do influence the behavior of the learners. Furthermore, it was shown that the pattern which a teacher demonstrates in one year is likely to persist the following year despite a change in pupils.

Lewin, Lippitt and White (1939) studied the effects of authoritarian, democratic and laissez-faire leadership style upon four different groups of ten-year old boys. Using a variety of data collecting methods, including records of all social interactions made by observers, they ascertained that different leadership styles produced different social climates, which resulted in different group and individual behaviors. They argued that autocratic leadership, for example, elicited either an aggressive or an apathetic atmosphere in the group. This study is regarded as further confirmation of the idea that leadership style is a primary factor in producing "climatic" differences and that group composition is of secondary importance.

Whereas Browne (1971) did not focus on leadership style in developing the OSAPRL used in this study, the category designations do allow for some interpretation of how teachers may dominate the verbal interaction in the reading class and how they can control pupil behaviors during the learning to read process.

An early category system was that of Withall (1949) who developed a more objective observation technique based on Lippitt and Lewin's and on Anderson's work. His seven category classification system

identified teachers' verbal behavior on a continuum moving from learner-centredness to teacher-centredness. Among his conclusions were the possibilities of categorizing teacher statements, of obtaining a consistent pattern of verbal behavior for a given teacher from day to day, and of identifying different patterns of verbal behavior used by various teachers. These same problems were a concern of the present study, even though the observational system was more complex.

Cogan (1956) also utilized Anderson's work as well as that of Lewin, Lippitt and White to examine the relationships between teacher behavior and pupils' work patterns. Teacher-pupil interaction was examined specifically to determine whether pupils' perceptions of teacher behavior leads to certain predictable behavior by the pupils. Data were gathered by pupil survey rather than by direct observation. Cogan's assessment of pupil participation and pupil-initiated participation with its positive correlation to positive teacher behavior is relevant to the present study in that the OSAPRL Category 15 allows for a record of pupil-initiated behavior.

Systematic Analysis of Classroom Behavior

Flanders (1949) used Withall's learner-centred and teacher-centred approach to investigate further the crucial question of ". . . how learning and achievement were influenced in the classroom by the nature and quality of teacher-pupil interaction" (Withall and Lewis, 1963, p. 698). From various studies done in the 1950's, Flanders evolved his method of Interaction Analysis, referred to by Medley and Mitzel in 1963 who described it as ". . . the most sophisticated technique for observing (classroom) climate thus far . . ." (p. 271).

Despite these plaudits, Flanders continued to revise the system

with the 1967 revision (Amidon and Flanders, pp. 121-128) being the basis for the development of the OSAPRL (Browne, 1971) used in this study. Just before Browne's dissertation was completed, Flanders (1970) suggested that specific categories in his general system could be further defined (subscripted) to account for more specific behavior observed in classrooms. Browne incorporated the idea and suggested that the categories of the OSAPRL could also be subscripted to account for more specific behaviors in the analysis of reading lessons. The present study had, as one of its major thrusts, an attempt to do just that by further refining the teacher questioning category to account for the kinds of questions teachers might ask during the reading comprehension tasks of the reading lesson.

Bellack (1966) looked at cognitive aspects of the teaching process through analysis of tape recordings of the linguistic behavior of fifteen teachers and 345 students in high school Social Studies classes. His categories for analysis developed during the study were classified in terms of the pedagogical function they served in the classroom: structuring, soliciting, responding and reacting. The concept of teaching cycles, beginning with a structuring or soliciting move followed by responding or reacting moves, made it possible to trace recurrent sequences. Browne (1971) utilized Bellack's work in the construction of her observational instrument, the Focused Interaction Episode in Reading, which was later synthesized along with Flanders' system to become the OSAPRL, the instrument used in the present study.

The Current State of Interaction Analysis

In 1972, a special number of the International Review of Education, edited by Flanders and Nuthall and devoted to research in which the

classroom behavior of teachers was described and analyzed, was indicative of a growing interest and an increasing level of research activity in many parts of the world. Emmer (1972) predicted that direct observation seemed likely to become a standard procedure in classroom evaluation studies and field research.

Nuthall and Church (1972) while stressing the difficulty and complexity of attempting to understand classroom teaching, indicated the importance of validity as a criteria for evaluating observational systems. Martin (1977) outlined the use of several criteria for the evaluation of observational systems.

Rosenshine and Furst, in their extensive description of the present state and prospects for future use of direct observation to study teaching, in Travers' (1973) Second Handbook of Research on Teaching, described a model for studying teaching in classrooms:

1. development of procedures for describing teaching in a quantitative manner;
2. correlational studies in which the descriptive variables are related to measures of student growth;
3. experimental studies in which the significant variables obtained in the correlational studies are tested in a more controlled situation (p. 122).

The present study is involved with step one of this model.

In Mirrors for Behavior, 1974 edition, Simon and Boyer documented ninety-nine observational systems used in education and other fields of interactive settings. They prefaced the collection by remarking that these descriptions of behavior can be used as prescriptions for skills to be acquired by people to help them become what they want to be. The observational instrument used in the current study may help teachers become the kind of reading teachers they want to be. Koehler (1978) analyzed the trend toward a greater emphasis on descriptive

research.

STUDIES OF THE READING LESSON

General Studies of Reading

Bond and Dykstra (1967), reporting on extensive studies done in reading, concluded that no one method of teaching reading was superior enough to be used exclusively. They suggested that teacher training be examined as a possible means of improving reading instruction and that an over-emphasis on the reading materials themselves be avoided. In developing the OSAPRL, Browne was attempting, in part, to meet a need in the area of improving reading instruction. The present study, which further refines the OSAPRL and attempts to describe teacher-pupil verbal interaction in classroom reading lessons, is an extension of that work.

A review of the literature suggests that there is need for further research in this area, for while the teaching of reading is a major concern of our schools, very little work has been done to describe empirically what is going on in reading classes. In an article examining studies which have been done in reading, Artley (1969) concluded that to improve pupil achievement in reading one should look first at the teachers and their training. He suggested that more emphasis on research into the good teacher and good teaching of reading is needed. According to Artley, we need studies that will enlighten us as to the nature of the reading teaching-learning process.

Systematic Observational Studies in Reading

About the time that Artley was making his contention that there was too much emphasis on the teacher as a generalist, studies were beginning to appear in the literature which attempted a more systematic

observation of what was actually happening during reading lessons.

Chall and Feldman (1966) investigated the question of whether within a given reading method the teacher makes a difference in the reading achievement of her pupils. Observations were made, during the actual reading lessons using a basal reader approach, in the classrooms of a small group of teachers within one school system with children from socially disadvantaged neighborhoods. No significant relationship was found between the ranking of the teacher's professed method emphasis and the method observed during the actual lessons. A discrepancy, therefore, was found between what teachers said they do in first grade reading and what they were observed to do in their classrooms. Teachers using a basal reading approach were also observed during actual reading lessons in the present study.

A study done by Furst and Amidon (1967), using Flanders Interaction Analysis, included observation of reading lessons in grades one to six. One possible conclusion drawn from the data is that primary grade teachers and intermediate grade teachers hold varying assumptions about the teaching-learning process. There did appear to be a similarity among the intermediate grades regarding the most frequently observed reading behaviors. This finding would seem to support the use of fourth grade reading lessons in the present study as being representative of intermediate level reading.

Soar, (1967) hypothesized that both reading comprehension and vocabulary would improve under conditions of indirect control and an atmosphere of low hostility. The results were significant for vocabulary but not for comprehension. In another analysis of the data (1968),

Soar hypothesized that increasing levels of teacher indirectness would be found to be optimal for pupil growth in reading, vocabulary and creativity in the order stated. FIAS and a specially built instrument based on OScAR, the revised OScAR, Fowlers Hostility-Affection Schedule and a number of original items, were used in the analysis of the data which upheld the hypothesis. In a discussion of the findings, Soar suggested that if a direct, highly structured presentation should be used for teaching concrete material and a more indirect method should be used when the objective is more abstract, then perhaps the effective teacher must be able to shift styles as he shifts objectives. Categories of the OSAPRL used in the current investigation, Teacher Word Perception Solicitations (Cat. 1) and Teacher Comprehension Solicitations (Cat. 2), are related to vocabulary and comprehension respectively.

Morrison (1968) studied teacher-pupil behaviors occurring in three types of classroom reading situations; 1) using a single text with all pupils as one group, 2) using multi-level texts with different ability groups, and 3) using supplementary and/or individualized reading materials with all pupils. A revised form of OScAR was used for the analysis of video-taped samples of behavior in 81 elementary reading classes. The results indicated that classes using multi-level texts and classes using supplementary materials were significantly higher in terms of positive affective behaviors. However, there was no breakdown of data in terms of a teacher's level of warmth with each ability group. The classes involved in the present study all used multi-level texts with pupils in ability groups.

Bogener (1968) attempted to investigate whether direct or indirect

methods, as indicated by observed behavior, differed with the approach to reading. The sample consisted of seven teachers, kindergarten to grade six, and their pupils each using one of seven methods of instruction. Observations were made over a period of seven weeks of 60 - 150 minutes per class. Flanders Interaction Analysis System was extended to seventeen categories by subscripting Questioning Response (8) and Pupil Initiation (9). It included a category for pupil meditation not combined with silent reading. Findings indicated that the most direct behavior was observed in the most programmed approach. The most indirect behavior was observed in the language experience approach. No effort was made to determine whether the teacher behaved in the same way with children of different ability levels. Since there were no data on different teachers using the same method there is no information on teacher differences within a method. The present study also used a "new" instrument based on FIAS and looked more closely at teacher questioning behavior by subscripting a category.

Haffner and Slobodian (1969) used the Reading Observation Record (ROR) developed earlier by Slobodian specifically to observe a reading group interaction. They investigated the hypothesis that teacher - pupil interaction patterns would vary significantly even when a basal reader approach was used in reading instruction. The sample, twenty-four grade three teachers and their high ability reading groups, used the readiness sections of the same basal reader as the basis of their lessons. Verbal behavior, considered to be an adequate sample of total behavior and to be consistent with all other aspects of behavior, was categorized by ROR into five distinctive patterns. Findings indicated that teacher-initiated questioning followed by pupil response

was the dominant pattern of interaction behavior and that teachers and groups did not modify their behavior significantly from one instructional period to another. However, since the ROR consisted of only five categories, relevant behavior could have been lost thus reducing the possibility of differentiating among the teachers studied. Twenty categories were used in the present study and it was possible to trace behavior patterns. Although basal readers were used, they were not all of the same series.

Browne (1971) looked at teacher-pupil verbal interaction during reading lessons under natural conditions. The sample, all using basal reading materials, consisted of five grade one classes and four grade three classes each of which was divided into High, Average and Low ability reading groups. After data were collected by tape recordings and anecdotal records, they were analyzed with Flanders Interaction Analysis System. The Focused Interaction Episode in Reading (FIER), an investigator-constructed observational instrument developed for the study, was then used to analyze the specific reading content of the verbal interaction observed. While the FIER generated in-depth information about the reading content, it was too unwieldy for general use. The Observational System for the Analysis of Primary Reading Lessons (OSAPRL), the instrument used in the present study, was developed as a synthesis of Flanders' system and FIER.

Browne's findings, from the data analysis using the Flanders system, showed that there were significant differences in teacher behavior in the instruction of High, Average and Low ability groups.

Teachers, according to Browne's interpretation, were influenced by their perceptions of the needs of the learners as well as by the stated objectives and activities of the program. Although all were using a basal reader approach there were differences in the verbal interaction within a grade level as well as across grades. The reading classes observed with the OSAPRL in the present study were at the grade four level but also used basal reading materials. Although the pupils were divided into ability groups, not all classes had three groupings.

Frizzi (1972) video-taped twenty-two grade one teacher-student groups while the phoneme-grapheme correspondence of the letter "p" was being taught. Flanders System of Interaction Analysis was used to analyze the verbal behavior. The findings indicated that 66 per cent of the total tallies were teacher talk, 24 per cent were student talk and 10 per cent were silence and confusion. The major components of teacher talk were questioning, lecturing and directives and student talk was primarily response to questions or directives. The most effective teachers were more accepting of the students' feelings and ideas, used more praise and encouragement, used less lecture and directives, used less criticism and had less unsolicited student talk. The least effective teachers were twice as direct in teaching the lessons and in their motivation and control of the students. While this is an example of the use of interaction analysis during the reading lesson, the limited scope of the lesson content limits the usefulness of the findings. Furthermore, only 50 per cent of the total observed behavior had to do with the lesson content.

Yake (1973) attempted to describe under natural conditions teacher-

pupil interaction in order to evaluate and refine Browne's OSAPRL and to examine the differences, if any, in the behavior of classroom teachers using the same Gage Language Experience Reading program. The sample consisted of three grade one teachers and their classes which were ability grouped. Yake's findings indicated that the OSAPRL was a viable system for use in the LER classes observed and held some implications for refinements and extensions to the OSAPRL categories and ground rules. The findings also indicated that verbal interaction varied significantly between intra-class groups. High groups appeared to have more emphasis on "meaning" of content, Average groups tended to be more involved with non-conventional questioning techniques, and Low groups had the highest proportion of oral reading behaviors and corrective reactions. The extending category was not widely used and non-reading statements were sometimes observed in as much or greater proportion of total reading behavior as important reading-related categories. The present study is an extension of Yake's work in that it uses Browne's OSAPRL to describe teacher-pupil interaction in grade four classes and to determine whether refinements to the instrument are necessary for use at the upper elementary level.

TEACHER QUESTIONING IN READING

There have been a number of attempts to analyze teacher questioning behavior in the classroom. Some of these have been of a general nature and some have been specific to the teaching of reading. Sanders (1966), for example, developed a taxonomy of questions based on Bloom's (1956) Taxonomy of Educational Objectives within the cognitive domain. Sanders maintained that within each questioning category there were both simple

and complex questions and that teachers at all levels would find it possible to use every one of the categories since the differences were in the complexity of the thinking rather than the kind of thinking (p. 11). He also applied the same point to using all categories of questions in teaching slow and rapid learners, suggesting that, rather than limiting slow learners just to memory questions, providing a variety of questions might be stimulating for them. Frazier and Caldwell (1977) found that intellectual skills appeared to be distinguishable in the primary grades. The use of a variety of questioning categories at a given grade level and across all ability groups was investigated in the present study.

Reading Questioning Models

The Bloom Taxonomy and subsequent modifications by Sanders have been further refined to adapt such a taxonomy to an analysis of the teaching of reading. Guszak (1967), in an attempt to determine the kinds of questions teachers ask about reading assignments, developed a model which he called the Reading Comprehension Question-Response Inventory. The questioning categories included: Recognition, Recall, Translation, Conjecture, Explanation, and Evaluation. Barrett (in Clymer, 1968) while giving acknowledgement to the work of Bloom and Sanders, developed A Taxonomy of Reading Comprehension designed to focus on questioning and attempting to expand upon the recommendations of Guszak. The taxonomy consists of the following categories, each containing a number of descriptive sub-categories: Literal Recognition or Recall, Inference, Evaluation, Appreciation and Reorganization. In the present study, both the Guszak and Barrett categories were used initially in attempting to determine the category system best utilized in the subscripting of OSAPRL's Category 2, Teacher Comprehension Solicitations.

In a study involving the teaching of critical reading to elementary school children, (Wolfe, King and Huck, 1968), teacher questioning behavior was examined in the light of seven categories: Gathering Specific Facts, Clarifying, Interpreting, Analyzing, Applying, Summarizing, and Evaluating. Another descriptive model, developed by Bartolome (1969) in a study of teacher objectives and questions in reading, contained the following seven categories: Memory, Translation, Interpretation, Application, Analysis, Synthesis, and Evaluation.

Research in Teacher Questioning in Reading

Observation and analysis of actual teacher questioning techniques in reading lessons would suggest that teachers tend to focus on low levels of literal comprehension skills and, therefore, do not contribute greatly to the development of the children's critical thinking levels. Guszak (1967) found that 56.9 per cent of reading comprehension questions were of the recall type. Bartolome (1967) also found memory questions, 47.4 per cent, to be predominant. He had indicated a rather high proportion of the questions, 25.94 per cent, to be of the analysis type. However, according to Clegg (1970), this figure was misleading because the analysis category had been extended to include the skill of predicting while in other studies it had not.

Guszak did show that the percentage of direct recall questions decreased from grade two to grade six but it was still 47.6 per cent at the grade two level. According to Bartolome, application and evaluation questions were seldom used at the primary level. Browne's findings (1971) indicated that teachers appeared to have little flexibility in adjusting the level of questioning to the abilities of the student. Yake (1973) also suggested that, particularly for the low

ability group, teacher questioning was inappropriate for the student's ability level.

Two points would now appear to be worth pursuing regarding teacher questioning behavior in reading comprehension: 1) are teachers aware that they are not asking these more complex and critical kinds of questions, and 2) is it possible to improve the questioning behavior of teachers? Bartolome's study (1969) of teacher's objectives and questions in reading lessons would indicate that there is a discrepancy between the teachers' perception of what they are doing and their observed behavior. His findings revealed that teachers' objectives in the memory category, for example, comprised only 8.46 per cent of the overall objectives but the actual teacher questioning in the same category amounted to 47.54 per cent of the total observed behaviors. In the Wolf, King and Huck (1968) study it was found that teachers did ask more analyzing and evaluating types of questions in their reading classes after they had received training in teaching critical reading.

The implications arising from such research would seem to indicate that teachers support the value of asking higher level comprehension questions but that they are presently unaware of what kinds of questions they are actually employing during reading lessons and that their questioning behavior can be improved. The need, now, would appear to be for an instrument which would enable teachers to look at themselves, to discover objectively not only what they are doing in reading lessons but also specifically what questioning behavior they are demonstrating. This study attempts to meet that need.

SUMMARY

This chapter has reviewed the literature pertinent to the present study both at its inception and at its conclusion some four years later.

In describing the early history of observational research Medley (1972) credits Anderson (1935) and Jayne (1945) with the innovation of defining behavior traits as a composite of a number of specific behaviors (or categories):

> With this development the study of the teaching act came of age by making it possible to measure important dimensions of classroom behavior with sufficient objectivity for quantitative scientific analysis. Exploitation of this new methodology was greatly facilitated by the increased availability of federal funds, by the development of high speed computers and inexpensive videotape equipment, and by advances in statistical methodology, all happening at the same time (p. 437).

The progress of this innovation can be traced from Anderson's work through Withall's "climate index" and Flanders' I-D ratio to Browne's synthesis of Flanders' system and her own FIER which produced the OSAPRL used in the present study.

Observational studies revealed a number of things that may be taken into consideration for the present study, especially the discrepancy between what teachers say they do and what they are observed to do. There appeared to be observable differences between primary and upper elementary teachers with variations in verbal interaction within grades as well as across grades. Within the reading group, teacher question followed by pupil response appeared to be the usual pattern. Different reading approaches differed in their degree of direct and indirect methods but: different presentations may be required for different objectives. Perhaps the single most important indication of observational studies is the value of observing the teacher in the classroom

under natural conditions and the need for further research.

Teacher questioning studies in reading have been influenced by Bloom's Taxonomy of Educational Objectives and while it would appear that pupils of any grade or ability grouping could be asked any kind of question, in fact, they are not. Since here again, there appears to be a discrepancy between what teachers think they are doing and what they actually do, and since training in questioning skills can bring about improvement, the use of the subscripted OSAPRL in the present study may determine the need for such improvement.

CHAPTER 3

THE DESIGN OF THE RESEARCH

This chapter will describe the procedures followed in order to explore the major problems and sub-problems posed for this study. The sampling procedures, instrumentation, data collection and data analysis and display are discussed.

Using the Observational System for the Analysis of Primary Reading Lessons (OSAPRL), data were collected under natural conditions during reading lessons in four grade four classrooms utilizing basal reader approaches. This was the first use of the OSAPRL at an intermediate grade level since Browne (1971) had analyzed data collected in grade one and grade three basal reading classes in developing the instrument and Yake (1973) had collected data at the first grade level only.

THE SAMPLE

Selection of Teacher-Classroom Units

During the design of the research it was recognized that because of the nature of the study, the sample of teachers and classroom units could not be selected on a random basis, but would require teachers to volunteer. As a first step in identifying teachers who might be willing to participate, a senior official of the Edmonton Public School system was approached in February, 1974, for information about such teachers. Several grade four teachers were identified and an official request for permission to observe in these classrooms was forwarded to

the Edmonton Public School Board.

The original sample of four grade four teachers identified by this procedure was reduced to three when one teacher in the study was assigned a student teacher. Because of time limitations, this teacher was replaced by one in the St. Albert Protestant School Division who met the criteria.

Organization of the Classrooms

Class sizes ranged from 26 to 28 students. In each class two or more reading groups had been established by the teacher for the purpose of reading instruction but there were differences in the ways the classes were grouped. Class I had two groups designated by the teacher as High ability and Average ability. Class II also had two ability groups identified as High and Average but in order to reduce the size of the group this teacher had split the Average group into two sections independent of ability. Class III had two groups, Average and Low, but, again, the Average group was handled in two sections. Class IV had two groups, High ability and Average-Low ability. After the study began it was discovered that in Class II the Average groups were sometimes combined for instruction and in Class III sometimes all groups were combined.

Characteristics of the Teachers

A short interview form was adapted (Yake, 1973) to collect some personal data about the teachers (Appendix A). From the data collected, the following characteristics of the sample of teachers were revealed.

The teachers in the sample, two males and two females, each had a Bachelor of Education degree and one also had a Graduate Diploma in Elementary Education. All of the teachers had taken at least one course in Reading Curriculum and Instruction although none were

presently taking a reading course. Their years of teaching experience ranged from five to sixteen with from one to fifteen years being at the grade four level. Each teacher had access to one or more educational publications. All of the teachers indicated a positive attitude towards their classes as evidenced by their willingness to teach the same class another year.

INSTRUMENTATION

The OSAPRL

The procedures, categories and ground rules of the OSAPRL which Browne (1974) revised on the basis of Yake's (1973) use of the instrument are included in Appendix B. The revised 1974 edition was the basic instrument used in the present study, although some further revisions were made prior to its actual use at the fourth grade level.

Revision of the OSAPRL for the Present Study

Initial revisions. Before this study was initiated it was recognized immediately that some revisions in the OSAPRL were warranted. Category 2, Comprehension solicitations, would be subscripted to account for more specific information about the reading comprehension questioning behavior of teachers. Guszak's (1967) questioning categories were used for this purpose.

Further revisions. Tapes made during the preliminary visits to each classroom were intended to be used as part of the training procedures. However, once the training procedures had been initiated and an attempt made to use the OSAPRL, it became clear that other revisions in the instrument would be necessary. On the basis of that application and in discussion with Browne, the instrument was further revised

to accommodate to the upper elementary level.

The procedures, however, for using the instrument remained unchanged. The major revisions were in the extension, modification and deletion of certain categories from the instrument. The Guszak category system was changed in favor of the more detailed Barrett Taxonomy (Appendix C). Category 4, "Other" Solicitations, was split into two sub-categories to allow for questions which called for student background knowledge and to retain a "catch-all" category that would account for solicitations that fell outside of Categories 1, 2 and 3. In order to accommodate to a twenty category system, the Unison category which was not used extensively in the preliminary tapes, was deleted thus allowing for the expansion of Category 4. The final categories used in this study are briefly described in Figure 3.1.

Training Schedule

Overview. The audio tapes collected during two preliminary visits to each classroom were used by the investigator and a second observer for training purposes. In applying the proposed system, Browne's 1974 revised edition of OSAPRL, both the investigator and the second observer used the system and to that extent this provided initial practice in the application of the system.

Training procedures. Segments of three minutes duration were selected from each of the preliminary tapes to provide a cross-section of the types of activities observed. The segments were typescripted and samples may be found in Appendix D.

Training began with the typescripted segments. Observations were done on change of behavior but not on three-second intervals.

OSAPRL CATEGORIES

Category 1. Word Perception Solicitations: teacher questions or directives involving phonics, structural analysis, dictionary usage, or any other word recognition skill.

Category 2. Comprehension Solicitations: teacher questions or directives which call for an understanding of or ability to interpret or integrate information from the context of the written materials used in the reading lesson, specifically:

a. Literal comprehension
b. Reorganization
c. Inferential
d. Evaluation
e. Appreciation

Category 3. Oral (Silent) Reading Solicitations: teacher request for oral or silent reading without any emphasis on a purpose except for its own sake or to generally determine "what was said".

Category 4. "Other" Solicitations:

a. Teacher solicitations regarding background experience and information relating to the reading material being discussed.
b. Teacher solicitations that fall outside of Category 1, 2, 3 and 4a.

Category 5. Teacher Reading-Centred Lecture-Type Behavior: reading-related lecturing and other teacher behavior which is not directed at involving pupils in verbal interaction.

Category 6. Non-Reading Centred Behavior: any teacher or pupil verbal behaviors which are not specifically related to reading such as general announcements, disciplining of students or off-the-topic comments by students or teacher.

Category 7. Teacher Confirming Reactions: teacher indication that pupil's response is acceptable.

Category 8. Teacher Extending Reactions: teacher reaction to pupil's response attempts to extend or clarify that response.

Category 9. Teacher Corrective Reactions: teacher indication that pupil's response is not acceptable.

Category 10. Pupil Content Responses: any response which requires pupil to use information from the written materials used in the lesson or from the information specifically disseminated in that lesson.

Category 11. Pupil Self-Expression Responses: response(s) utilizing pupil's own opinion or store of general information or personal experience.

Category 12. Pupil Oral Reading Responses: any response read aloud by the pupil except from material he has written himself.

Category 13. Pupil Silent Reading Responses: pupil's or group of pupil's silent reading, including occasional verbalization of the reading.

Category 14. Unison Responses: not used in the present study.

Category 15. Pupil Initiating Behaviors: verbal interaction relevant to the reading lesson and initiated by the pupil, and directed toward the teacher or another pupil.

Category 16. Silence and Confusion: periods of silence other than silent reading and/or period of interaction so generalized that analysis is impossible; the beginning and ending of each recording session; changes of pupil-speaker if no teacher verbal interaction intervened.

Figure 3.1. Summary of Browne's OSAPRL categories (Anderson, 1978)

The purpose of this was to reach agreement on interpretation of the OSAPRL categories before using the time element. Each observer coded separately on the typescripted sheets and then the categorizations were compared. Differences in coding were discussed and decisions made regarding the categorizations. This was felt to be extremely helpful when coding later with the three-second interval.

After all of the typescripted segments had been coded and discussed, practice was begun using the preliminary audio tapes. Coding was done by noting appropriate category numbers in a vertical column on a plain sheet of paper. The three-second interval and/or change of behavior procedure was incorporated at this time.

In the third stage of the training procedure optical scoring sheets, IBM 5056, were used. These sheets have twenty spaces across each row. Each of the twenty spaces was designated by a category number and/or subcategory number (see Appendix E). Initially practice involved the use of a card with the categories marked, which could be moved down the optical scoring sheet while coding. Later the position of each category on the scoring sheet was memorized. Increased familiarity with the scoring sheet facilitated coding on the three-second interval. A stop watch was used as a check on the coding of sustained behavior.

Reliability Measures

When both the investigator and the second observer had acquired proficiency in the use of the revised OSAPRL, an unfamiliar section of one of the preliminary tapes was selected for coding. This segment consisted of eight minutes of teacher-pupil interaction. Each observer coded separately and the Scott reliability coefficient was calculated

at .791. After further practice, a second reliability test produced a coefficient of .884 (see Appendix F for the statistical data).

COLLECTION OF DATA

The raw data for this study consisted of audio recordings of teacher-pupil verbal interaction during reading lessons coded on IBM 5056 optical scoring sheets, anecdotal records of classroom events pertaining to the reading lesson, and details about the teachers and the pupils based upon information solicited from the teachers.

Overview of the Observational Schedule

The observational schedule consisted of mainly two parts; preliminary visits and data collection visits.

The preliminary visits to the classroom were designed to allow the investigator 1) to become familiar with the classroom environment, 2) to check out the equipment procedures, and 3) to accustom the teachers and children to the presence of an observer. The preliminary visits were held on two consecutive days immediately prior to the major data collection visits.

The data collection was done on four consecutive visits to each classroom to capture continuity in the lessons and, therefore, greater understanding on the part of the observer as to what was happening during the lessons.

The observational schedule occurred April 24 to May 22, 1974, allowing a total of six visits per classroom. It was possible to observe more than one class per day because of the proximity of two of the schools and the non-conflicting scheduling of their reading periods.

Verbatim Audio Records of Teacher-Pupil Verbal Interaction

In order to obtain a verbatim record of the verbal interaction behavior of the teacher and pupils during the teaching of reading, audio tape recordings were prepared during each observational visit.

Equipment. A Sony TC110, cassette tape recorder with three microphones and appropriate extension materials were used in the data collection. One microphone was around the teacher's neck, allowing for the best possible taping of verbal interaction. The other two microphones were strategically placed, depending on the environment, to pick up the children's verbal behavior. One ninety minute cassette tape was sufficient for each classroom visit. Satisfactory recordings of teacher-pupil verbal interaction were produced which were then used for subsequent analysis.

Coding Procedures

Coding procedures described earlier were followed. Optical scoring sheets, IBM 5056, were used for registering the OSAPRL observations from the audio tape recordings made during the reading lessons.

Anecdotal Records

Following the recommendations of both Flanders and Browne, the observer kept anecdotal records during the observational visits. Identification was made of the reading group, reading materials used, seating arrangement, speakers and physical movements that would enhance the interpretation of the audio-recorded data.

DATA ANALYSIS AND DISPLAY

Analysis of the data was facilitated by the use of a University of Alberta computer program, Test 13, designed for Flanders Interaction Analysis. The original data, on sequentially arranged IBM 5056 optical scoring sheets, were transferred to computer cards which were then processed by the computer. Procedures were undertaken to produce the following:

1. a 20 x 20 matrix for each classroom
2. a 20 x 20 matrix for each intra-class group
3. frequencies for each individual cell
4. per cent of total frequencies represented by each cell
5. per cent of column frequencies represented by each cell
6. per cent of row frequencies represented by each cell
7. total column frequencies for each category
8. per cent of total behaviors for each category
9. total frequencies for all 20 categories
10. per cent of total behaviors utilized by teacher and pupil non-reading statements
11. per cent of total behaviors utilized by silence and confusion
12. per cent of total Category 2 comprised of each sub-category 2:
    - 2a/2a-e
    - 2b/2a-e
    - 2c/2a-e
    - 2d/2a-e
    - 2e/2a-e
13. per cent of total Category 4 comprised of each sub-category 4:
    - 4a/4a-b
    - 4b/4a-b

While all these data were generated by the computer analysis, not all the information was used in the actual interpretation of the findings.

SUMMARY

Chapter Three has reported on the design of the research project. It has described the sample of teacher-classroom units, including the selection of the units, the organization of the classes and some characteristics of the teachers.

The instruments and procedures necessary to collect the data were described, including the OSAPRL, revisions of the OSAPRL, training schedule, and reliability measures.

The description of the data collection provided an overview of the observational schedule, and information pertaining to the audio taping of teacher-pupil interaction, the coding procedures, and the anecdotal records.

Procedures for the analysis of the data were also reported in this chapter.

CHAPTER 4

A CRITIQUE OF THE OSAPRL BASED UPON ITS USE AS AN OBSERVATIONAL INSTRUMENT FOR EXAMINING THE TEACHING OF READING AT THE FOURTH GRADE LEVEL

OVERVIEW

This chapter discusses the OSAPRL as an observational instrument for use in upper elementary reading classes based upon its application in this study. The discussion is presented in terms of the criteria for evaluating an aspect of the OSAPRL followed by an analysis of that aspect of the instrument. The criteria and analysis involve the categories of the OSAPRL, the ground rules, validity and reliability, and auxiliary aspects. The discussion will be limited in this chapter to a critique of the OSAPRL, however, specific implications for modifications drawn from these findings will be presented in Chapter 6.

Subscripting of OSAPRL categories is discussed in terms of its actual application in this study to Category 2, Teacher Comprehension Solicitations and Category 4 "Other" solicitations. Further possibilities of subscripting OSAPRL categories are also explored.

Establishing Criteria for Evaluating the OSAPRL

In order to assess the need for modification of the OSAPRL for use at the grade four level, it was first necessary to establish criteria for evaluating the OSAPRL. Since Yake (1973) had used the OSAPRL in a study of grade one Language Experience Reading classes and had critically analyzed the OSAPRL with criteria devised for that

purpose, it was decided to adapt the criteria used by Yake to critically analyze the OSAPRL in this investigation at the fourth grade level. It was felt that a degree of continuity in the research would thus be achieved. The adaptations of the criteria for this study are refinements of those suggested by Medley and Mitzel (1963) but are consistent with Martin's (1977) more recent specifications for suitable criteria to be used in testing the validity and reliability of observational instruments.

EVALUATING THE OSAPRL CATEGORIES

Criteria for Evaluating the OSAPRL Categories

The categories of an observational system must be relevant to the behaviors it expects to record and include all of those behaviors. The objectivity of the system's categories must allow for ease of discrimination by the observer (Martin, 1977). Every observable behavior should be classifiable into one and only one of the system's categories. When the observational system is applied to the classroom setting for which it was designed, the pattern of recording tallies should be diffused across all category areas (Medley and Mitzel, 1963). To meet these conditions the following criteria, in question form, were used to appraise the OSAPRL categories:

1. Are the categories descriptive of teacher-pupil verbal behaviors in fourth grade reading lessons?
2. Are the categories inclusive of all teacher-pupil verbal behaviors at the grade four level?
3. Are the categories precisely and unambiguously defined?
4. Are the categories exclusive of anomalous or incongruent behaviors?
5. Do the categories distort statistical data?

Critical Analysis of the OSAPRL Categories

All of the categories were utilized in the present investigation, therefore, it may be assumed that all categories were useful to some extent to describe basal reading behaviors at the upper elementary level, specifically grade four. Although it was possible to code continuously during the observed reading lessons, it may not be concluded that the OSAPRL was inclusive of all behaviors which occurred since some behaviors were concurrent and forced a choice in coding. The instrument did record differences between intra-class groups as well as between classes. The results of the observations coded Category 1 (Word Perception Solicitations) across the four classes, for example, were as follows:

Teacher I	0.8
Teacher II	6.8
Teacher III	0.3
Teacher IV	7.5

The focus of this section will be on explicating the problems and situations encountered in using specific OSAPRL categories. A verbatim description of each category discussed is provided (Browne, 1974). Category 14, Unison Response, although it was not used in the present study, is discussed. Category 2, Teacher Comprehension Solicitations and Category 4, "Other" Solicitations are discussed later in the subscripting section.

> CATEGORY 1: Word Perception Solicitations. Any teacher question or directive aimed at the development or review of pupils' skills in translating printed symbols to their oral equivalents would be categorized as a word perception solicitation. This category would include any solicitation involving phonics, structural analysis, dictionary usage, or any other word recognition skills. Where there is no specific verbal directive such as in the case of flash card drills, a Category 1 should be inserted for each word presented. If blackboard or printed exercises are used to

develop these skills then directives to complete the appropriate exercise would be recorded here, so long as a verbal pupil response was called for in the solicitation.

The description indicates that when a verbal pupil response was called for in a Word Perception solicitation, this category would be used. In the classroom setting, however, two of the teachers utilized this category to a reasonable extent while the other two apparently only used it minimally. From the anecdotal records it is clear that at least one of the latter teachers tended to ask for Word Perception responses in written form. Such solicitations would have to be categorized as 5, according to the definition of Teacher Reading-Centred Lecture-Type Behavior. This would cause a distortion in the data for both Category 1 and Category 5. In terms of categorizing to provide the greatest amount of information, the inclusion of requests for written responses in the category description would alleviate the problem. Although the OSAPRL is primarily a verbal interaction observational system, a precedent for requesting a non-verbal response was set by the inclusion of a category which requests a silent reading response.

CATEGORY 3: Oral (Silent) Reading Solicitations. Any solicitation which calls for a reading response, except for those identified as Category 1 and 2 solicitation behaviors would be recorded as Category 3. That is, the oral reading category is used only when the oral reading is called for without any emphasis on a purpose for reading aloud except for its own sake or to generally determine "what was said." Audience situations or emphasis on expression in the solicitation would therefore require that the behavior be recorded as a 3. Whenever there is a change of pupils in the "oral reading circle" a 3 should be inserted in order to note a change in readers. A specific directive that pupils read silently would also be classified here, if no purpose were set for the reading except that the pupils find out what was said in the passage. If the silent reading is prompted by a specific question then one of the other solicitation categories should be used.

Although two of the teachers used this category a moderate amount, in fact, more than the teachers in Yake's (1973) grade one study, there

did not appear to be a "round-robin" type of reading situation in any of the classes. It was not necessary, therefore, to interject a 3 in order to automatically denote a change of reader. This finding differs considerably from that of Yake's (1973) but may be attributable to differences in approach at the different grade levels. Where grade one students may be accustomed to reading "in turn," upper elementary readers may be called upon at random, partly to ensure that pupils' attention is fixed upon the reading lesson. The reference to the "oral reading circle" in the category description could simply be deleted.

> CATEGORY 5: Teacher Reading-Centered Lecture Type Behavior. Teacher behavior aimed at the reading aspect of the lesson but which is not directed at involving pupils in interaction would be categorized here. Examples of this behavior would be those instances where teachers lecture or discuss the story content or aspects of it in terms of their own opinions, ideas, and experiences; where teachers add knowledge which is apparently meant to enhance pupil understanding; where teachers give procedural directives for completing independent work; where teachers read aloud to pupils; and where there is teacher dictation related to the completion of reading exercises. In terms of the latter, the lecture category would be used when pupils are expected to write down rather than verbalize their answers. If responses are verbalized, then depending upon the nature of the exercise, one of the solicitation categories would be used.

The percentage of tallies in this category was high, ranging from 15 per cent to 20 per cent. This may have been due to the fact that so many teacher behaviors were included in this one category. Therefore, a distortion of the data may have occurred. The requests for pupils to write down their answers, for instance, might be more appropriately included in the Word Perception and Comprehension solicitations categories.

> CATEGORY 6: Non-Reading-Centered Behavior. Any teacher or pupil verbal behaviors which are not specifically aimed at reading would be identified as Category 6. In any reading class, not all the observed behavior would be specific to the reading content of the lesson, as in the case of announcements over the address system or

other interruptions by outsiders. Teachers may make general announcements; they may discipline pupils for their general behavior; they may direct pupils to do other activities such as the collection and distribution of materials and so on. Pupils may in turn make verbal responses to these teacher actions. A series of 6's at 3 second intervals should be recorded during these interruptions thus providing a record of the proportion of observed behaviors taken up by the non-reading behavior. In a grouped class, for example, teacher and pupil behaviors aimed at one of the independent group should be recorded as a series of 6's.

The description of Category 6 includes both teacher and pupil Non-Reading Centred behavior. Because the category is in the midst of the teacher-talk categories, it was felt that coding the Non-Reading behavior of the pupils may have been slowed down somewhat. Coding may be facilitated by placing the category at the end of the system following the Silence and Confusion category (16) which is also non-reading related. Such a reorganization of the observational system may also facilitate computer programming to ascertain percentages of tallies recorded for reading-centred behavior as opposed to total observed behavior.

Since the category description does not include non-verbal communication by the teacher, some disciplinary measures were not recorded. One teacher, for example, snapped her fingers as a means of reminding the group working independently to do so quietly. Since the OSAPRL is, in part, a non-verbal observational system, additional information about Non-Reading Centred behavior may be revealed if this category description allowed for some non-verbal behavior.

CATEGORY 7: Teacher Confirming Reactions. Where the teacher indicates through acceptance or praise or in any other way that the pupil's response is acceptable, a Category 7 should be recorded. Even brief responses such as 'uh huh," "o.k." and "yes" would be recorded as confirming behaviors if they were aimed at the acceptance of the pupil's response. Where pupil responses are repeated by the teacher for the group, the repetition would constitute a confirming reaction.

In discussion with Browne, it was established that when a pupil asked a question, Category 15, Pupil Initiating Behavior, which required an answer, the teacher's reaction would be classified Category 7 (Confirming). However, within the classroom setting the teacher sometimes capitalized on the pupil's Initiating behavior, making it difficult to ascertain when the Confirming reaction stopped and the teacher-lecturing began. Similarly, the investigator had to be very alert to decide when the Category 7 became teacher solicitations designed to help the pupil realize the answer to his own question. A ground rule might be added to the system to cover this situation.

All of the teachers in the present study had a high percentage of Confirming reactions, ranging from approximately 12 per cent to 17 per cent, although many were of short duration. If a nod of the head, as was frequently observed, may be interpreted as Confirming, then perhaps non-verbal gestures should be mentioned in the category description.

> CATEGORY 8: Teacher Extending Reactions. If a teacher reacts to a pupil to extend or clarify his response to a solicitation, this behavior would be classified as a Category 8. Extending behaviors should not be confused with reactions which are clearly corrective such as "you'll have to say more than that." This is a tricky category and should only be used when the teacher is clearly trying to lead the child ahead in his thinking.

This category description clearly indicates that the teacher must be "trying to lead the child ahead in his thinking." What often occurred in the reading group was that the teacher was trying to lead the group ahead in its thinking. Therefore, instead of giving the same pupil an Extending reaction, the teacher would ask another pupil an extending-type question which would then have to be coded as a new solicitation. This occurred particularly in a series of interactions involving comprehension solicitations. As worded, therefore, the category

definition is very clear but it does not reveal an actual extending behavior pattern that does sometimes occur during the reading lesson. However valuable this information may be, in this type of observational system wherein the individual pupils are not identified it is impossible to capture this kind of interaction. A notation could be made in the anecdotal records, however.

CATEGORY 9: Teacher Corrective Reactions. Any reaction which indicates to a pupil that his response or lack of response is not acceptable should be recorded as a Category 9. This would include those instances where the teacher provides information to the pupil so that he may continue with his response, such as saying the next word in the oral reading sequence. If a teacher calls upon another pupil to provide the corrective or acceptable response for the pupil then that behavior would be recorded as a corrective behavior, and the pupil's response as one of the response categories (10, 11, 12, 14 below).

The frequent interaction pattern observed involving Teacher Corrective reactions was pupil response - teacher corrective reaction - pupil response. There was no way of differentiating, however, between the same pupil responding after the Corrective reaction and a different pupil responding. Although the Teacher Extending Reactions category (8) was very specific about an individual pupil's response being extended, the Corrective category did not allow for an individual pupil being allowed to correct his own response. The insertion of a 16 to denote change of pupil responding (9 - 16 - pupil response) would allow a build-up in the 9 - 16 cell of the matrix to indicate the frequency of this behavior pattern. If the Unison Response category (14) is permanently deleted from the system then the reference to Category 14 would have to be deleted from this category description.

CATEGORY 10: Pupil Content Responses. Any response which requires that a pupil use information from the written materials used in the lesson, or information specifically disseminated in that lesson should be identified as content-centered responses and recorded as a Category 10.

In discussion with Browne it was determined that Category 10 was also to be used when a pupil read an answer that he had written down previously, pertaining to either Word Perception or Comprehension. The anecdotal records indicated that there was a noticeable amount of pupil oral reading of answers for previously assigned workbook pages, exercise sheets, and blackboard exercises while the teacher was working with the reading group. Therefore, the category definition should be extended to include such behavior.

This investigator interpreted "the lesson" loosely so that an exercise discussed and assigned one day but marked the following day could be coded 10 rather than 11 (perviously learned concepts).

> CATEGORY 11: Pupil Self-Expression Responses. Whenever the pupil is allowed to present his own opinions or to draw upon his store of general information (including previously learned concepts in the area of instruction) and personal experiences in responding to a solicitation the response should be categorized as a Category 11.

The category title "Pupil Self-Expression Responses" tended to be misleading in terms of the category definition and tended to make it more difficult for the observer to remember the complete definition of the category. While the term "self-expression" adequately described that the pupil was allowed "to present his own opinions," it was not really suggestive of "to draw upon his store of general knowledge (including previously learned concepts in the area of instruction)." A modification of the category title to "Pupil Self-Expression and Background Knowledge Responses" might facilitate the learning and coding of this category.

As in Category 10, this category was to be used when pupils read aloud their own written response, therefore, the category description should be extended to include the oral reading of pupil's own written

response to Word Perception and Comprehension solicitations. Category 11 did not allow for non-verbal responses but an interesting example occurred when one teacher asked the reading group, "How do you think he looked?", and every pupil responded with a facial expression!

> CATEGORY 12: Pupil Oral-Reading Responses. If the pupil reads aloud his response to the teacher's solicitation, then the response should be recorded as a Category 12, except where the materials being read have been composed by the pupil himself. Where the materials were written by the pupil then the response should be categorized as an 11 (Self-expression) if the ideas are essentially his own and as a content response (Category 10) if the response has been written as an answer to a comprehension question requiring an answer based on the materials in a selection.

This category definition asserts that an Oral Reading response should be classified as a Content response (Category 10) if the response has been written as an answer to a Comprehension question requiring an answer based on the materials in a selection. No allowance has been made for oral reading a written answer to Word Perception questions and certainly as the grade four level with the increased emphasis on dictionary skills, for instance, this is necessary. The category definition, therefore, should be extended to include oral reading a written answer to a Word Perception solicitation as well as a Comprehension question.

The category description did not allow for unison oral reading although Category 13 allows for a group of pupils reading silently. If Category 14, Unison Responses, were to be dropped permanently from the OSAPRL as it was for the present study, Category 12 could make allowance for it. At the grade four level there was only occasional unison response such as the oral reading of a poem which could easily be accommodated in this category.

CATEGORY 13: Pupil Silent-Reading Responses. A category 13 should be recorded for each three second interval that a pupil or group of pupils read silently. Interruptions in the silent reading should be coded according to the other categories, but verbalizing during the reading should continue to be coded as 13's.

Sometimes when a Silent Reading response was called for pupils would be carrying on private conversations among themselves or with the teacher, or doing other activities. In these instances, Category 13 was still used because it provided the most pertinent information about what was happening. Anecdotal records were used to indicate the concurrent behavior.

CATEGORY 14: Pupil Unison Responses. Where more than one pupil responds, either at the teacher's invitation or as a matter of usual behavior, the group response, whether read or expressed in the pupils' own words would be recorded as a Category 14.

Category 14 was omitted from the present study to keep the number of categories manageable and because it was anticipated that at the upper elementary level it would not be widely used. Generally this proved to be the case. Based on information noted in the anecdotal records, Unison responses were only given occasionally. The unison oral reading of a poem which was coded 12 has already been mentioned. When several children called out an answer after the teacher's solicitation had not indicated a particular child, it was categorized a 10 or 11 depending on the type of response. If there was too much confusion to be able to distinguish what the response was, it was coded as a 16. Some Unison responses occurred when the teacher asked "How many . . .?" questions such as "How many had that?", "How many have gone away for Christmas?" Coding was done as if an individual pupil had responded. Unison pronunciation of a new word was handled similarly. Based on the observations of this study, therefore, the investigator's recommendation

would be to eliminate Pupil Unison Response as a category in the OSAPRL for ~~use~~ at the upper elementary level.

> CATEGORY 15: Pupil Initiating Behavior. If the pupil initiates the interaction with the teacher or another pupil by asking a question or submitting unsolicited information relevant to the reading lesson that behavior is categorized as 15. If the interaction is between two pupils, the response of the other pupil should also be recorded as a Category 15, but with a 16 recorded before the second pupil's behavior is recorded. If a pupil corrects another pupil this should be indicated by the pupil's response being categorized as a continuation of his response to the teacher solicitation, such as continuing to read orally (Category 12).

Pupil Initiated behavior occurring when the reading group had assembled but before the teacher had begun to instruct the group caused some difficulties for the investigator in deciding when to begin coding. According to the definition of the reading lesson, the lesson began when the teacher started to instruct the group. If a pupil initiated a discussion (and this applied to Non-Reading behavior as well) it was sometimes a length of time before the teacher began to instruct and coding could begin. Thus, a period of time might be lost from the coding of the designated reading lesson time. The definition of the reading lesson could be changed to allow for coding when verbal interaction begins after the teacher and group have assembled.

> CATEGORY 16: Silence and Confusion. A Category 16 should be recorded for each three seconds of silence, except where pupils are reading silently. Where it is impossible to analyze the interaction because there is too much going on at once, this category should be used at three second intervals.

There was a wide range in the proportions of tallies recorded in this category among the four teachers, from 1.4 per cent to 7.8 per cent. Since the anecdotal records indicate that Category 16 was generally used more frequently for Confusion than for Silence, a teacher wishing to improve interaction patterns might want to know the specific

proportions of both Silence and Confusion. This could be accommodated by subdividing the category into its two component parts. An added advantage would be to be able to use the least used behavior, Silence, for indicating change of speaker as recommended in Category 9 without overlapping with the more frequently used behavior, Confusion.

EVALUATING THE OSAPRL GROUND RULES

Criteria for Evaluating the OSAPRL Ground Rules

Another major structural component of a category observational system, in addition to a set of operationally defined categories of behavior, is a set of rules and priorities for observation and coding (Martin, 1977). Ground rules are necessary because of the complexity of the problems involved in categorization and they aid in developing consistency in coding (Flanders, 1967). Therefore, they should not be contradictory and they should agree with the best knowledge of the day. An adaptation of Yake's (1973) criteria for assessing the OSAPRL ground rules are presented in the following questions:

6. Are the ground rules specifically defined to include all contingencies of the basal reading classes observed at the grade four level?
7. Are the ground rules consistent with each other?
8. Are the inferences upon which the ground rules are based acceptable according to the best knowledge of the day?
9. Do the ground rules distort statistical data?

Critical Analysis of the OSAPRL Ground Rules

A verbatim description of each ground rule discussed (Browne, 1974) is provided.

RULE 1. When in doubt about the category corresponding to the observed behavior, the observer should choose the category which will provide the greatest amount of information. In terms of the solicitations for example, the "Other" category (4) should only be used when the behavior is clearly not in the areas of Word Perception (1) Comprehension (2) or Oral Reading (3).

Implicit in this ground rule definition is the suggestion that the "greatest amount of information" be determined by the investigator's purpose. In the present study, for example, if a rarely used Comprehension solicitation was being asked at the same time as a Non-Reading behavior was occurring, the coding was done in favor of the rarely used category. This is consistent, of course, with Flanders (1970). It may be worthwhile to include a reference to the investigator's purpose in the ground rule description.

The generally minimal use of the "Other" category is probably indicative of the clarity of the solicitation category descriptions in the OSAPRL but that it is used at all is suggestive of the complexity of coding decision-making that does occur in observational situations.

> RULE 2. If there is any doubt about the purpose of the oral reading solicitation being made explicit, the oral reading solicitation category (3) should be used. The rationale here is that if the observer is unsure of the purpose of the solicitation calling for an oral reading response, then it would be likely that the pupils may be uncertain as well.

Yake (1973) felt that implicit reasons for individual oral reading, such as ". . . to allow the teacher to diagnose reading difficulty and/or to help the child become visible within the group." (p. 111), were disregarded in order to apply this ground rule, and that some insights may have been lost. This investigator felt Yake's (1973) criticism of Ground Rule 2 to be unfounded if one considers the description of Category 3 (Oral Reading) which states that "Audience situations or emphasis on expression in the solicitation would therefore require that the behavior be recorded as a 3." If the implicit reason for individual oral reading, as Yake suggests, was to allow the teacher to diagnose reading difficulty, and/or to help the child become visible within the group, then this behavior is already included in the definition of

Category 3. The insights could not be lost because the teacher behavior in this situation is a 3 (Oral Reading Solicitation) and the pupil response is a 12 (Oral Reading Response).

> RULE 3. In deciding upon a confirming reaction (7), an extending reaction (8), or the corrective reaction (9), the observer, while not attempting to second guess the teacher's intentions, should consider how the pupil might perceive the reaction, and categorize it from that point of view.

Amidon and Flanders assert that:

> The effect of a statement on the pupils, then, not the teacher's intent is the crucial criterion for categorizing a statement. This rule has particular value when applied to the problem of helping teachers to gain insight into their own behavior (1967, p. 127).

Theoretically, this ground rule is consistent with the best knowledge of the day and the present investigator supported it. In practice, however, it was sometimes difficult to implement. It was possible, for example, for a child to be confused as to what was a corrective reaction and what was an extending reaction. It is imperative, therefore, that an observer make preliminary visits to the classroom prior to the actual investigation so as to become as familiar as possible with the teacher and the pupils and the usual behavior patterns that occur during the reading lessons.

> RULE 4. If there is doubt regarding the content-centered responses compared with the self-expression response, the content-centered category should be used.

This investigator found Ground Rule 4 to be without sufficient rationale as did Yake (1973). Since the observer was present during the lesson it was easier to be reasonably certain when the pupil's response was based on ". . . information from the written materials used in the lesson or information specifically disseminated in that lesson . . ." (Browne, 1974, Category 10). If there was doubt in the mind of the

observer, then it would appear more likely that the child's response was based on ". . . his own opinions or . . . upon his store of general information (including previously learned concepts in the area of instruction). . . ." (Browne, 1974, Category 11). Therefore, Ground Rule 4's description should be changed to indicate that the Self-Expression response be used. The rationale provided in this discussion might also be included.

> RULE 5. Some unison responses may be close to confusion in that a number of pupils seem to be calling out different answers. If the different responses are clearly audible and relate to the solicitation then the unison response category (14) should be recorded and not a category 16 for silence and confusion.

The present study did not utilize Category 14, Unison Response, nor Ground Rule 5. When unison response was observed it was categorized either as a 10, 11, or 12 if clearly audible and distinguishable as such, if not it was coded as 16. Not utilizing Category 14 at the Division Two level presented no problems and there appears to be no reason to include it in future studies. However, Ground Rule 5 should be included and reworded to allow for coding of unison response as it was done in this study because unison response does still occur occasionally at the Division Two level.

> RULE 6. Each change in behavior should be recorded regardless of the three second interval.

Ground Rule 6 was implemented. To have ignored the change of behavior within the three second interval would have, from this investigator's observations, lost some valuable information regarding teacher-pupil interaction. The teacher's acceptance response, for instance, frequently took less than three seconds as did the teacher's calling a pupil's name for disciplinary purposes or by way of reiterating a question.

In spite of Yake's (1973) contention that uniformity of coding would be enhanced from one investigation to another if the change of behavior coding were dropped, this investigator felt that some uniformity could exist so long as researchers abided by the categories and ground rules of the system. Medley and Mitzel (1963), Amidon and Flanders (1967) and Flanders (1970) all support the change of behavior coding regardless of the three second interval. Martin (1977) does not but provides no rationale for his position.

RULE 7. Pupil initiated behaviors which are corrective of a peer should be recorded as a 15 (Pupil initiating behavior). Where the teacher and a pupil respond correctively to the reader at the same time, the pupil behavior should be recorded. If the teacher extends the corrective reaction beyond the first behavior a Category 16 should be inserted between the pupil corrective behavior and the teacher's extended reaction. The following sequence shows this more clearly.

	Observed behavior	Category
(1)	pupil is reading aloud and makes a miscue	12
(2)	peer and teacher correct	15
(3)	conventional 16	16
(4)	teacher continues to correct (3 sec.)	9

In the present study pupil corrective behavior toward another pupil tended to be of a co-operative nature. While it is possible that in some cases pupils may correct other pupils in a derogatory way, this did not appear to be the case. Therefore, this investigator, unlike Yake (1973), found no fault with the use of the term "corrective" in Ground Rule 7. Following Flanders (1970) it is more important to catch the rare examples of behavior when they do occur and this would support coding Pupil Initiating behavior over Teacher Corrective behavior.

RULE 8. If a pupil hesitates in reading orally for longer than three seconds before he self-corrects or is corrected, a Category 13 (Silent reading) should be recorded. The rationale for this is that the pupil may be reading silently in order to correct himself.

This ground rule was implemented without difficulty. The rationale was acceptable to the investigator since observations seemed to indicate that a pause in oral reading by the pupil was an attempt to decode silently. If the pupil was unable to do so a non-verbal gesture such as a glance at the teacher or at his peers could be coded as a 16 (Silence and Confusion). At this point the teacher would usually interact with the pupil. A mediating behavior category, suggested as an alternative by Yake (1973), who may have intended it to be a "meditating" behavior category, might be more difficult to code as an empirically observable behavior, although Bogener's (1968) system did use a meditating category.

> RULE 9. If a pupil's initiating behavior is ignored by the teacher in that the teacher launches into another behavior, a Category 16 should be recorded between the pupil's initiating attempts and the teacher's next observed behavior. By inserting the 16, the build up in the 15-16 cell in the matrix will show how pupils' unsolicited contributions are received.

This ground rule is inconsistent with Ground Rule 7 because both refer to the 15-16 cell but for recording different behaviors. Rule 7 uses it to indicate Pupil Initiating behavior that is corrective of a peer at the same time as the teacher corrects and then continues to correct. Rule 9 uses it to indicate that Pupil Initiating behavior is ignored by the teacher.

Yake's (1973) conjecture regarding Ground Rule 9 that a Corrective Reaction (Category 9) might have applied equally would not have allowed for the difference between a recognized Pupil Initiating behavior being corrected and an unrecognized Pupil Initiating behavior being ignored.

In discussion with Browne it was established that behaviors relating to both Ground Rules 7 and 9 were frequently observed at the primary

level. In the present study there was limited build-up in most of the 15-16 cells for classes and intra-class groups. This investigator would suggest that Ground Rule 7 be retained to record that behavior and that Ground Rule 9 be deleted. If Pupil Initiating behavior is consistently ignored by the teacher, it could be noted in the anecdotal records.

EVALUATING THE OSAPRL'S VALIDITY AND RELIABILITY

Criteria for Assessing Validity and Reliability of the OSAPRL

Validity and reliability are essential properties of any category observational system. "Are we measuring what we think we are measuring?" (Kerlinger, 1973, p. 457), and can such measurements be replicated? The following criteria adapted from Yake (1973), in question form, guided the discussion of validity and reliability of the OSAPRL:

10. Does the OSAPRL possess validity?
11. Is the instrument reliable?

Specific aspects of both validity and reliability are included within the analysis of the OSAPRL's validity and reliability which follows.

Critical Analysis of Validity and Reliability of the OSAPRL

Validity. Validity is""the extent that differences in scores yielded by it (the category observational system) reflect actual differences in behavior not differences in impressions made on different observers" (Medley and Mitzel, 1963, p. 250). Validity of measurements of behavior depends on the fulfillment of three conditions:

> 1) a representative sample of the behaviors to be measured must be observed, 2) an accurate record of the observed behaviors must be obtained and 3) the records must be scored so as to faithfully reflect differences in behavior (Medley and Mitzel, 1963, p. 250).

Within the present study, using the OSAPRL, all of the behaviors to be measured were observed. An accurate record of the observed

behaviors was obtained through the use of the OSAPRL (given whatever limitations may have been imposed by the category descriptions and the ground rules). The data definitely reflect differences in verbal interaction behavior. The OSAPRL, therefore, having successfully met the above conditions for validity, could be considered a valid observational instrument.

Although "independent measures of the same variables are rare" (Kerlinger, 1973, p. 539), Browne had documented the same verbal behaviors in nine classes and based her work on actual reading observations first with the Flanders Interaction Analysis System (FIAS) and then with her own developed instrument, the Focused Interaction Episode in Reading (FIER). Since the OSAPRL was developed out of the work done with these two instruments, the OSAPRL may be considered to have some construct validity.

Similarly, the Barrett Taxonomy of Reading Comprehension, which was used in the subscription of Category 2 and was itself based upon Bloom's Taxonomy of Educational Objectives, could be assumed to have validity.

Reliability. Although reliability, itself, has been given several meanings (Rosenshine and Furst, 1973), even within the limited area of classroom observational instruments, synonyms for reliability are dependability, stability, consistency, predictability and accuracy (Kerlinger, 1973). The most common form of reliability, however, is observer agreement (Kerlinger, 1973; Rosenshine and Furst, 1973). Observer agreement reliability was established for the present study by correlating the observations of the investigator and a second observer using Scott's coefficient of reliability. An agreement of .884 was reached. Flanders (1967) has indicated that a Scott coefficient of .850 or higher is a reasonable level of performance (see Appendix F for actual data).

The agreement coefficient, however, is usually based on whether two (or more) observers were similar in their tally of total events of each type but agreement is seldom based on whether each event was coded the same way by the observers (Rosenshine and Furst, 1973). This problem may become acute if investigators interested in the sequencing of events, use matrix cells or clusters of cells in their analyses when the coefficient of observer agreement is based solely upon column (or event-type) totals. Within the present study, the investigator and the second observer did examine individual differences in tallies, but no further studies were undertaken.

"Representativeness" reliability has received relatively little study (Rosenshine and Furst, 1973). Insufficient attention has been given to determining whether a sample of observed classroom transactions is a trustworthy representative sample of total behavior. Decisions to make two, four or more observations on each teacher in a study has little empirical basis. In the present study, however, the decision to make two preliminary visits and four main study observational visits was based on the study previously done (Fake, 1973) which also utilized the OSAPRL. Unfortunately, because of the expanded number of categories used in the present study, the number of observational visits to each class was not sufficient to allow a reliable build-up of tallies in all cells. Nonetheless, some comments can be made regarding the data generated by the study and this will be done in Chapter 5.

EVALUATING AUXILIARY ASPECTS OF THE OSAPRL

Auxiliary Criteria for Evaluating the OSAPRL

Some general aspects of category observational instruments, and the

OSAPRL in particular, were questioned:

12. What are the practical features of the system which contribute to, or detract from the usefulness of the system?
13. What are the features of the system which contribute to or detract from adequate representation of teacher-pupil verbal interaction?

Critical Analysis of the OSAPRL using Auxiliary Criteria

Complexities in instrument construction can severely limit the practical utility of a category system. However, the OSAPRL categories were relatively simple to learn to use in spite of extending the number of categories from Browne's original sixteen to twenty to allow for the identification of the type of comprehension questions. The grouping of the categories generally contributed to the ease of memorizing and utilizing the categories. That is, most of the categories belonged to teacher solicitations, pupil response or teacher reaction, thus following a teaching cycle. The subscripting of the Comprehension category was facilitated by the "nesting" of the specific question types within the general Comprehension question category. Category 6, however, might have been more easily utilized if it were placed at the end of the system or just prior to the Silence and Confusion Category (16) since it includes both teacher and pupil Non-Reading behavior.

Simplicity of training procedures and equipment can save time and money in training observers and in utilizing a category observational system. A manual outlining the use of the OSAPRL would have been helpful in the conduct of the present study and is recommended for development prior to future utilization of the instrument.

In the present study approximately ten hours of coding and discussion was done over a two week period before a satisfactory reliability check was achieved. The recording grid and the coding procedures were

relatively simple to use. The use of the IBM score sheets allows for up to twenty categories. These score sheets facilitate use of the computer which can then either produce computer cards with or without a coding print out or it can simply store the information in a computer bank. All three options were used in this study. The Flander's Interaction Analysis Test 13 allowed for various statistical operations to be carried out in analyzing the data and exploring answers to some of the questions which were a concern of the study.

The Sony equipment used for producing the audio tapes was readily available and easy to set up and operate. It was also adequate to pick up voice transmissions within both the group setting and the class setting. When the total taping time exceeded forty five minutes (using a 90-minute tape), and it was necessary to turn the tape, a few minutes of verbal interaction may have been lost. This problem could be overcome by the use of a second set of taping equipment or by simply turning the tape sooner at an appropriate moment as was done in the present study. Video taping would also be possible in the use of the OSAPRL. One advantage to sound/video taping is the possibility of rechecking the coding which cannot be done using the OSAPRL during the actual reading lesson.

The OSAPRL deviates somewhat from a strictly verbal category observational system in that it allows for some non-verbal action to be recorded as well. This contributes greatly to its usefulness in reporting the teacher-pupil interaction. However, it may be that by expanding and clarifying which non-verbal actions may be included in the coding that even more valuable information may be obtained.

The "halo" effect, the observer's impression of the teacher, can

have a tendency to influence the investigator's observations (Medley and Mitzel, 1963). By keeping the category definitions and ground rules as precise as possible to limit the amount of observer inference required, impartial representation of teacher-pupil interaction can be obtained with the OSAPRL. It is as Flanders and Amidon insist:

> . . . absolutely no evaluation or good-bad orientation (is) implied in the category system. The question is simply, "What category best describes this particular bit of interaction?". (Amidon and Flanders, 1967, p. 127).

It is important that OSAPRL investigators keep that question in mind.

SUBSCRIPTING OSAPRL CATEGORIES

Subscripting Category 2, Teacher Comprehension Solicitations

Browne (1971) had suggested that OSAPRL categories could be subscripted following Flanders' (1970) definition of dividing a category into subcategories to provide additional data. Both the Guszak and the Barrett questioning strategies were considered for the present study when the decision was made to subscript the Comprehension category of the OSAPRL to attempt to account for the types of comprehension questions teachers ask during reading lessons. Although Browne (1971) had utilized the Guszak categories in the original content analysis instrument (FIER), it was decided that Barrett's taxonomy would be used in the present adaptation because it allowed for greater precision.

Browne's (1974) description of Category 2 follows:

> CATEGORY 2: Comprehension Solicitations. Any question or directive aimed at soliciting a response from pupils which calls for an understanding of or ability to interpret or integrate information from the context of the written materials would be recorded as a Category 2 behavior, including those instances when a non-verbal response is called for. If the written materials are exercise materials aimed at developing these abilities, then a question or directive (including a gesture) that calls for the completion of such exercises

verbally would be accounted for by this category. If a lesson should depend primarily on these latter types of materials a note should be made to this effect, following Flanders' procedures for explaining the specific nature of any lesson.

The Barrett Taxonomy (see Appendix C for a complete description) used for subscripting Category 2 contains five categories each with subdivisions as briefly outlined here:

a) Literal Comprehension including recognition and recall of details, main ideas, sequence, comparison, cause and effect relationships, and character traits.
b) Reorganization including classifying, outlining, summarizing, and synthesizing.
c) Inferential Comprehension including inferring supporting details, main ideas, sequence, comparisons, cause and effect relationships, character traits, predicting outcomes and interpreting figurative language.
d) Evaluation involving judgements of reality or fantasy; fact or opinion; adequacy or validity; appropriateness; worth, desirability and acceptability.
e) Appreciation involving emotional response to the content, identification with characters or incidents, reactions to the author's use of language, and imagery.

Subscripting Category 2 of the OSAPRL was effective in that it did differentiate among the teachers as to the kinds of questions asked and the proportion of tallies recorded for each type of question. Unfortunately, four observational visits, given the number of kinds of comprehension questions involved, did not result in a build-up of enough tallies in the different category cells to allow for anything but the most cursory generalizations about the observed behaviors.

While the data were limited, it was noteworthy that three of the teachers recorded greater proportions of tallies for Literal Comprehension questions than the one other teacher observed. The latter teacher (IV) recorded a greater proportion of Inferential tallies while actually recording the least proportion of tallies on total questioning. The sub[illegible] category was collapsed to provide information about the total talli[illegible]

recorded for questioning and successfully differentiated among teachers in this way, also.

Bearing in mind the limitations of the data generated, it was evident that a greater proportion of tallies were recorded for Literal questions, with only half as much recorded for Inferential questions. Only a small percentage of Appreciation question tallies were recorded. Evaluation type questions were seldom recorded. Two teachers did not use the Evaluation question strategy at all. Three teachers did not use the Reorganization question strategy either.

Subscripting the Comprehension category also provided some information regarding differential use of questioning strategies when the interaction patterns across the intra-class groups were compared. But, again, the data were extremely limited. There was a slight indication that teachers tend to record a greater proportion of tallies for Literal Comprehension questions with the Average group compared to other groups.

While it was possible to subscript the Comprehension Category of the OSAPRL to account for the types of reading comprehension questions teachers ask during reading lessons, obviously, a greater number of classroom visits are necessary to obtain sufficient data to generalize about fine differences in teacher questioning strategies. Perhaps an equally important question and one which cannot be ignored is whether or not grade four teachers ask enough of the right kinds of Comprehension questions when teaching reading. It would have to be left to another study to explore this question.

With regard to the application of the Comprehension category itself, the category description did not allow for Comprehension solicitations involving a written pupil response. As in the discussion of

Category 1, Word Perception, such allowance is recommended.

Subscripting Category 4, "Other" Solicitations

The description of Category 4 (Browne, 1974) follows:

> CATEGORY 4: "Other" Solicitations. There is no doubt that this is a "catchall" category at this point in the development of the category system in that this category is included to record behavior that falls outside Categories 1, 2 and 3. In any class where a large number of solicitations are identified as Category 4, the observer should note the reasons for this, so that the information may be available for revising the solicitation categories.

Category 4, in the present study, was subscripted into two sub-categories, Background solicitations (4a) and "Other" solicitations (4b). Clymer (1968) had suggested that the Barrett Taxonomy of Reading Comprehension, used in this study to subscript Category 2, did not take into account the background which the reader brings to the comprehension task. Therefore, setting up a Background sub-category (4a) provided some information regarding the amount of attention teachers paid to the pupils' background knowledge. Although all figures were low, the subscripting did differentiate to show that Teachers II and III recorded a greater proportion of Background tallies while Teacher I recorded more "Other" solicitation tallies and Teacher IV recorded an equal amount of both. This successful subscripting is an example of the flexibility of the OSAPRL to be adapted for use depending upon the investigator's purpose.

The "Other" section of Category 4, consistent with Medley and Mitzel (1963), had a low percentage of tallies. Many of these solicitations appeared to be related to situations wherein the reading group was marking an exercise or perhaps discussing a point in the reading materials and the teacher asked, "How many had that?", "How many would agree?", "Have you finished?", "Did everyone hear that?" On occasion it was difficult to decide whether the teacher intended the

question literally or if it was being used in a disciplinary manner. The pupils responded literally but the group behavior also tended to improve. Although some of these questions may have been coded Word Perception or Comprehension, this investigator tended to take a middle-of-the-road approach and call them "Other." These were subtle interchanges and were noted in the anecdotal records but further subscription could be attempted to determine the extent of such behavior in future studies. The anecdotal records also indicated the possibility that in the case of Teacher I, who had the highest proportion of "Other" tallies, that many of these questions were rhetorical in nature. This possibility was substantiated by an examination of the matrices for Teacher I which indicated that the "Other" solicitations tended to be followed by teacher behavior rather than by pupil response.

Further Possibilities for Subscripting OSAPRL Categories

Subscription of the OSAPRL could probably be applied equally as well to other categories. Category 1, for instance, could be subscripted to determine proportions of time spent on such aspects of Word Perception as phonics, structural analysis and dictionary usage. Category 5 might be subscripted to distinguish the specific types of Teacher Reading-Centred Lecture-Type behavior; teacher talk, oral reading, discussion, dictation, and procedural directives.

A class high in Non-Reading Centred behavior might use a subscripted Category 6 to determine what proportions of that behavior were actually teacher non-reading behavior, pupil non-reading, or other interruptions. A researcher particularly interested in Pupil Initiating behavior might subscript Category 15 to establish the time spent on Pupil Initiating behavior directed at the teacher and such behavior directed at another

pupil. Category 16 might also be subscripted, as previously suggested, to determine what proportion of the observed reading lesson is spent in silence and what in confusion.

Subscripting OSAPRL categories allows for gathering more detailed information regarding a particular area of interest within the teacher-pupil verbal interaction of reading lessons observed under natural conditions. For practical purposes it would be advisable to limit the number of categories and sub-categories to twenty. Furthermore, as has been pointed out, when there is a greater classification of observed behavior, larger numbers of observational periods are required.

SUMMARY

Critical analysis of the OSAPRL in terms of the categories, ground rules, validity and reliability, and auxiliary aspects has illustrated possibilities for modifications to the system for use at the upper elementary level. Subscripting OSAPRL categories is a worthwhile technique for revealing more detailed information as was done with the Teacher Comprehension Solicitations category in this study, for example, and could be done with other categories as well.

The extension of the OSAPRL categories from 16 to 20, however, meant that the observational tallies were diffused throughout the matrix to a great extent. Four observational visits to each of the four classrooms did not provide sufficient tallies in all of the matrix cells to be able to generalize about all aspects of teacher-pupil verbal behavior during grade four reading lessons. None the less, within this limitation the OSAPRL did reveal considerable information about teacher-

pupil verbal interaction in the classes observed. Within the many limitations discussed thus far, the data generated are worth discussing, if only to highlight further the kinds of questions we should and could be exploring about the teaching of reading under natural classroom conditions.

CHAPTER 5

AN EXAMINATION OF TEACHER-PUPIL VERBAL INTERACTION DURING THE FOURTH GRADE READING LESSONS OBSERVED FOR THE PURPOSE OF REFINING THE OSAPRL

This chapter discusses the teacher-pupil verbal interaction observed in the fourth grade reading classes, using the OSAPRL. The reader is reminded to generalize about these findings in the light of the limitations of the OSAPRL and the limited number of observational visits as outlined in the previous chapter. Some references are made to similarities and differences in findings from Yake's (1973) study which used the OSAPRL at the grade one level. These comments illustrate the ability of the OSAPRL to differentiate not only between classes and intra-class groups, but also between grade levels, which substantiates Browne's (1971) findings.

ANALYSIS OF MATRIX AREAS

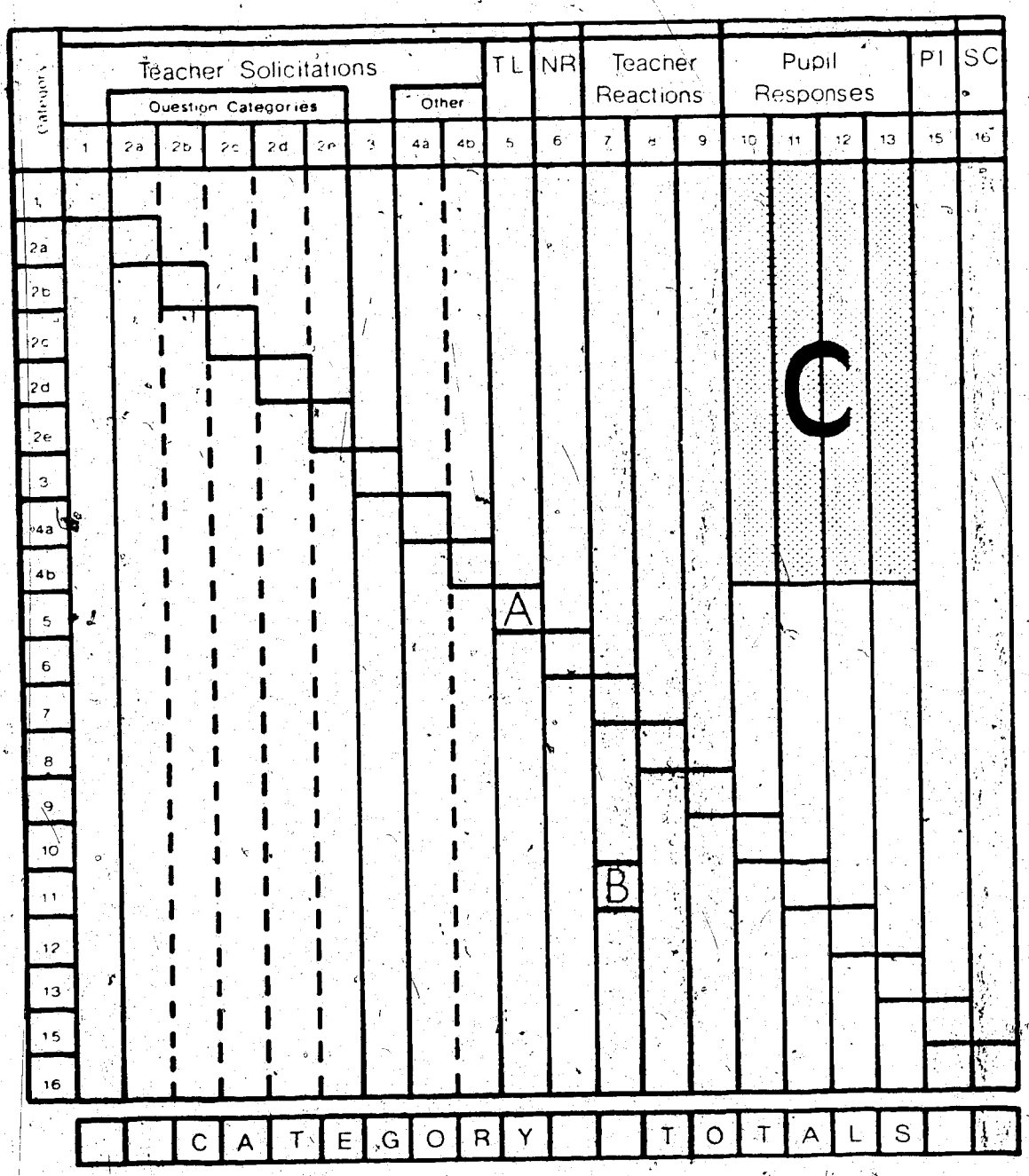
A twenty by twenty matrix for each fourth grade class and intra-class group was generated and represents the basic data for the interpretation which follows. A sample matrix is provided in Figure 5.1 and all matrices used in the study are in Appendix G.

In order to aid in the interpretation of the obvious mass of data in a matrix, a color coded matrix prototype showing the various areas of interpretation is presented in Figure 5.2. The category areas include Teacher Solicitations, Teacher Reading-Lecture Behavior, Non-Reading

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	SUM
1-	44	0	0	0	0	0	0	0	0	2	3	3	1	1	6	155	34	2	2	5	258
T	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.2	4.1	0.9	0.1	0.1	0.1	6.8
C	17.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	3.4	0.5	11.1	0.8	2.5	32.5	8.2	1.3	1.4	9.1	6.8
R	17.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.2	1.2	0.4	0.4	2.3	60.1	13.2	0.8	0.8	1.9	100.0
2-	0	57	0	0	0	1	0	0	2	2	1	2	0	0	75	2	39	20	6	2	209
T	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	2.0	0.1	1.0	0.5	0.2	0.1	5.5
C	0.0	27.3	0.0	0.0	0.0	3.2	0.0	0.0	11.8	0.3	1.1	0.3	0.0	0.0	31.8	0.4	9.4	13.4	4.2	3.6	5.5
R	0.0	27.3	0.0	0.0	0.0	0.5	0.0	0.0	1.0	1.0	0.5	1.0	0.0	0.0	35.9	1.0	18.7	9.6	2.9	1.0	100.0
3-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4-	0	0	0	5	0	0	1	0	0	1	0	0	0	0	16	32	0	0	1	0	56
T	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.8	0.0	0.0	0.0	0.0	1.5
C	0.0	0.0	0.0	8.9	0.0	0.0	0.9	0.0	0.0	0.1	0.0	0.0	0.0	0.0	6.8	6.7	0.0	0.0	0.7	0.0	1.5
R	0.0	0.0	0.0	8.9	0.0	0.0	1.8	0.0	0.0	1.8	0.0	0.0	0.0	0.0	28.6	57.1	0.0	0.0	1.8	0.0	100.0
5-	0	0	0	0	4	0	0	0	0	0	0	0	0	0	3	6	0	0	0	0	13
T	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.3
C	0.0	0.0	0.0	0.0	30.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3	0.0	0.0	0.0	0.0	0.3
R	0.0	0.0	0.0	0.0	30.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.1	46.2	0.0	0.0	0.0	0.0	100.0
6-	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	18	0	0	1	1	31
T	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.8
C	0.0	0.0	0.0	0.0	0.0	35.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.0	0.0	0.7	1.8	0.8
R	0.0	0.0	0.0	0.0	0.0	35.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	58.1	0.0	0.0	3.2	3.2	100.0
7-	0	2	0	0	0	0	28	0	2	6	1	1	0	0	0	0	66	2	5	1	114
T	0.0	0.1	0.0	0.0	0.0	0.0	0.7	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.1	0.1	0.0	3.0
C	0.0	1.0	0.0	0.0	0.0	0.0	24.6	0.0	11.8	0.9	1.1	0.2	0.0	0.0	0.0	0.0	16.0	1.3	3.5	1.8	3.0
R	0.0	1.8	0.0	0.0	0.0	0.0	24.6	0.0	1.8	5.3	0.9	0.9	0.0	0.0	0.0	0.0	57.9	1.8	4.4	0.9	100.0
8-	0	0	0	0	0	0	0	10	0	3	0	0	0	0	0	38	0	0	0	0	51
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.3
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.6	0.0	0.4	0.0	0.0	0.0	0.0	0.0	8.0	0.0	0.0	0.0	0.0	1.3
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.6	0.0	5.9	0.0	0.0	0.0	0.0	0.0	74.5	0.0	0.0	0.0	0.0	100.0
9-	3	2	0	0	0	0	2	0	1	1	0	0	0	0	1	6	1	0	0	0	17
T	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.4
C	1.2	1.0	0.0	0.0	0.0	0.0	1.8	0.0	5.9	0.1	0.0	0.0	0.0	0.0	0.4	1.3	0.2	0.0	0.0	0.0	0.4
R	17.6	11.8	0.0	0.0	0.0	0.0	11.8	0.0	5.9	5.9	0.0	0.0	0.0	0.0	5.9	35.3	5.9	0.0	0.0	0.0	100.0
10-	52	23	0	5	0	3	19	5	1	543	11	0	0	0	1	0	0	3	22	9	697
T	1.4	0.6	0.0	0.1	0.0	0.1	0.5	0.1	0.0	14.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.2	18.3
C	20.2	11.0	0.0	8.9	0.0	9.7	16.7	9.8	5.9	77.9	12.6	0.0	0.0	0.0	0.4	0.0	0.0	2.0	15.5	16.4	18.3
R	7.5	3.3	0.0	0.7	0.0	0.4	2.7	0.7	0.1	77.9	1.6	0.0	0.0	0.0	0.1	0.0	0.0	0.4	3.2	1.3	100.0
11-	6	3	0	0	0	0	5	0	0	12	34	0	0	0	2	2	5	2	5	11	87
T	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.9	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.3	2.3
C	2.3	1.4	0.0	0.0	0.0	0.0	4.4	0.0	0.0	1.7	39.1	0.0	0.0	0.0	0.8	0.4	1.2	1.3	3.5	20.0	2.3
R	6.9	3.4	0.0	0.0	0.0	0.0	5.7	0.0	0.0	13.8	39.1	0.0	0.0	0.0	2.3	2.3	5.7	2.3	5.7	12.6	100.0
12-	100	70	0	32	6	9	15	23	9	97	8	158	5	14	7	31	14	2	60	2	662
T	2.6	1.8	0.0	0.8	0.2	0.2	0.4	0.6	0.2	2.5	0.2	4.1	0.1	0.4	0.2	0.8	0.4	0.1	1.6	0.1	17.4
C	38.8	33.5	0.0	57.1	46.2	29.0	13.2	45.1	52.9	13.9	9.2	23.9	55.6	10.5	3.0	6.5	3.4	1.3	42.3	3.6	17.4
R	15.1	10.6	0.0	4.8	0.9	1.4	2.3	3.5	1.4	14.7	1.2	23.9	0.8	2.1	1.1	4.7	2.1	0.3	9.1	0.3	100.0
13-	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	5	1	0	0	1	9
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2
C	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.0	0.2	0.0	0.0	1.8	0.2
R	0.0	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	55.6	11.1	0.0	0.0	11.1	100.0
14-	20	13	0	4	0	1	5	6	0	7	1	1	0	30	3	20	17	2	2	1	133
T	0.5	0.3	0.0	0.1	0.0	0.0	0.1	0.2	0.0	0.2	0.0	0.0	0.0	0.8	0.1	0.5	0.4	0.1	0.1	0.0	3.5
C	7.8	26.2	0.0	7.1	0.0	3.2	4.4	13.8	0.0	1.4	1.1	0.2	0.0	22.6	1.3	4.2	4.1	1.3	1.4	1.8	3.5
R	15.0	9.8	0.0	3.0	0.0	0.8	3.8	4.5	0.0	5.3	0.8	0.8	0.0	22.6	2.3	15.0	12.8	1.5	1.5	0.8	100.0
15-	2	7	0	2	1	2	0	1	0	0	0	81	2	13	119	0	1	0	5	0	236
T	0.1	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	2.1	0.1	0.3	3.1	0.0	0.0	0.0	0.1	0.0	6.2
C	0.8	3.3	0.0	3.6	7.7	6.5	0.0	2.0	0.0	0.0	0.0	12.2	22.2	9.8	50.4	0.0	0.2	0.0	3.5	0.0	6.2
R	0.8	3.0	0.0	0.8	0.4	0.8	0.0	0.4	0.0	0.0	0.0	34.3	0.8	5.5	50.4	0.0	0.4	0.0	2.1	0.0	100.0
16-	19	3	0	6	1	2	1	5	1	2	0	232	0	39	1	160	1	0	7	2	477
T	0.4	0.1	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0	6.1	0.0	1.0	0.0	4.2	0.0	0.0	0.2	0.1	12.5
C	5.4	1.4	0.0	10.7	7.7	6.5	0.9	9.8	5.9	0.3	0.0	35.0	0.0	29.3	0.4	33.5	0.2	0.0	4.9	3.6	12.5
R	2.9	0.6	0.0	1.3	0.2	0.4	0.2	1.0	0.2	0.4	0.0	48.6	0.0	8.2	0.2	33.5	0.2	0.0	1.5	0.4	100.0
17-	9	3	0	1	1	1	31	1	0	4	8	86	1	27	0	1	230	0	8	1	413
T	0.2	0.1	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.1	0.2	2.3	0.0	0.7	0.0	0.0	6.0	0.0	0.2	0.0	10.8
C	3.5	1.4	0.0	1.8	7.7	3.2	27.2	2.0	0.0	0.6	9.2	13.0	11.1	20.3	0.0	0.2	55.7	0.0	5.6	1.8	10.8
R	2.2	0.7	0.0	0.2	0.2	0.2	7.5	0.2	0.0	1.0	1.9	20.8	0.2	6.5	0.0	0.2	55.7	0.0	1.9	0.2	100.0
18-	2	22	0	1	0	0	2	0	1	2	1	0	0	0	0	0	2	116	0	0	149
T	0.1	0.6	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	3.0	0.0	0.0	3.9
C	0.8	10.5	0.0	1.8	0.0	0.0	1.8	0.0	5.9	0.3	1.1	0.0	0.0	0.0	0.0	0.0	0.5	77.9	0.0	0.0	3.9
R	1.3	14.8	0.0	0.7	0.0	0.0	1.3	0.0	0.7	1.3	0.7	0.0	0.0	0.0	0.0	0.0	1.3	77.9	0.0	0.0	100.0
19-	0	0	0	0	0	0	1	0	0	1	8	96	0	6	0	0	0	0	16	14	142
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.5	0.0	0.2	0.0	0.0	0.0	0.0	0.4	0.4	3.7
C	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.1	9.2	14.5	0.0	4.5	0.0	0.0	0.0	0.0	11.3	25.5	3.7
R	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.7	5.6	67.6	0.0	4.2	0.0	0.0	0.0	0.0	11.3	9.9	100.0
20-	6	3	0	0	0	1	4	0	0	14	11	2	0	3	1	1	2	0	2	5	55
T	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.4	0.3	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	1.4
C	2.3	1.4	0.0	0.0	0.0	3.2	3.5	0.0	0.0	2.0	12.6	0.3	0.0	2.3	0.4	0.2	0.5	0.0	1.4	9.1	1.4
R	10.9	5.5	0.0	0.0	0.0	1.8	7.3	0.0	0.0	25.5	20.0	3.6	0.0	5.5	1.8	1.8	3.6	0.0	3.6	9.1	100.0
SUM	258	209	0	56	13	31	114	51	17	697	87	662	9	133	236	477	413	149	142	55	3809
T	6.8	5.5	0.0	1.5	0.3	0.8	3.0	1.3	0.4	18.3	2.3	17.4	0.2	3.5	6.2	12.5	10.8	3.9	3.7	1.4	100.0

- actual tallies recorded
T percentage of tallies/total observations
C percentage of tallies/total observations in that column
R percentage of tallies/total observations in that row

Figure 5.1. Sample Matrix



A Steady State Cell B Category Cell

C Simple Matrix Area: Pupil Response to Teacher Solicitation

1. Word Perception Solicitations
2a. Literal Comprehension
2b. Reorganization
2c. Inferential
2d. Evaluation
2e. Appreciation
3. Oral (Silent Reading Solicitations
4a. Content Solicitations
4b. Process Solicitations
5. Teacher Reading-Lecture Behavior
6. Non-Reading Behavior
7. Teacher Confirming Reactions
8. Teacher Extending Reactions
9. Teacher Corrective Reactions
10. Pupil Content Responses
11. Pupil Self-Expression Responses
12. Pupil Oral Reading Responses
13. Pupil Silent Reading Responses
15. Pupil Initiating Behavior
16. Silence and Confusion

Figure [illegible] Overview of [illegible] Matrix Areas

Behavior, Teacher Reactions, Pupil Responses, Pupil Initiating Behavior, and Silence and Confusion. Within the Teacher Solicitations area, the Comprehension category and the "Other" category were both subscripted for this investigation and this is shown in the prototype by the broken lines between the categories.

The steady state cells, inscribed diagonally on the matrix, represent behavior that is followed by the same behavior. Cell A of Figure 5.2, for example, would indicate the proportion of tallies recorded for Teacher Lecture (Category 5) followed by Teacher Lecture (Category 5).

A number in a category cell such as B in Figure 5.2 would represent the number of times a particular behavior was followed by a different behavior, in this case, the number of Pupil Self-Expression Responses (11 in the vertical Category column) followed by Teacher Confirming Reactions (Category 7 looking across the horizontal). This same cell could also be read as the proportions of Confirming Reactions (Category 7 in the horizontal Category column) preceded by Pupil Self-Expression Responses (Category 11 looking down the vertical). Examination of single cells in the matrix, therefore, make it possible to discuss the sequence of teacher-pupil verbal interaction in terms of what behavior preceded or followed other behavior.

Sections of the matrix may also be discussed as a matrix area. Section C, the dotted area in Figure 5.2, for example, would display proportions of the number of different Pupil Responses to the different Teacher Solicitations observed. The total observations for each category are shown at the bottom of the matrix as illustrated in Figure 5.2.

Overview of Matrix Areas Relating to Category Totals

The actual category totals from the overall matrices for each class are displayed in Table 5.1. Category totals are expressed as numbers representing the total tallies or number of observations for each category. They are also expressed as percentages of the total observations for each class (see sample matrix, Figure 5.1). In the interpretations that follow, since a standard time unit was not used references are made only to the percentage figures in order to make comparisons. Table 5.1 shows at a glance that, although all classes were using basal reading materials, the OSAPRL has revealed that the verbal interaction varies from class to class. Different emphasis is placed on different behaviors and even where all classes have high emphasis such as in Category 13, Teacher Confirming Behavior, there are differences in the degree of emphasis.

Analysis of Matrix Areas Relating to Teacher Solicitations

Teacher solicitation categories included Word Perception (Category 1), Comprehension (Category 2), Oral (Silent) Reading (Category 3), and "Other" (Category 4).

Across the classes the proportions of total solicitations recorded for these categories ranged as follows:

Teacher I	16.0
Teacher II	19.6
Teacher III	10.1
Teacher IV	17.1

with Teacher II recording twice the proportion that Teacher III recorded.

Within each class the teacher tended to be consistent in the proportion of total tallies recorded for overall solicitations with

Table 5.1. Proportions of Categories Utilized by Classes

Category	Class I	Class II	Class III	Class IV
1. Word Perception	0.8	6.8	0.3	7.5
2a. Literal Comprehension	7.8	5.5	4.8	2.4
2b. Reorganization	0.2	0.0	0.0	0.0
2c. Inferential	3.1	1.5	1.1	3.4
2d. Evaluation	0.0	0.3	0.4	0.0
2e. Appreciation	0.6	0.8	1.0	0.1
3. Oral (Silent) Reading	1.1	3.0	0.5	2.9
4a. Background	0.9	1.3	1.7	0.4
4b. "Other"	2.1	0.4	0.3	0.4
5. Lecture	15.5	18.3	14.9	19.8
6. Non-Reading	13.5	2.3	14.9	5.6
7. Confirming	11.6	17.4	13.6	16.6
8. Extending	2.0	0.2	0.7	1.1
9. Corrective	6.1	3.5	1.9	4.5
10. Content Response	10.3	6.2	3.9	2.7
11. Self-Expression	6.2	12.5	11.9	17.0
12. Oral Reading	7.4	10.8	5.6	7.5
13. Silent Reading	4.1	3.9	4.4	0.5
15. Initiating	4.2	3.7	10.0	3.8
16. Silence and Confusion	2.6	1.4	7.8	4.0

each ability group. The exception was Teacher I who recorded a greater proportion of total solicitation tallies with the Average group (20.3 per cent) than with the High group (13.5 per cent).

Proportions of tallies recorded for each of the four solicitation categories by classes and by intra-class groups are presented in Table 5.2. The data indicate that the Comprehension category was used most frequently by all teachers except Teacher IV who used the Word Perception category more frequently.

The findings regarding teacher-pupil verbal interaction related each of the solicitation categories will be discussed.

Category 1: Word Perception Solicitations. This category included any solicitations involving phonics, structural analysis, dictionary usage or any other word recognition skill.

Among the solicitation categories, Table 5.2 indicates that Word Perception (Category 1) was the second most frequently used after Comprehension (Category 2). This finding was similar to that of Yake's (1973) grade one study. Teacher IV and Teacher II used the category the most, 7.5 per cent and 6.8 per cent respectively. Teacher I and III made minimal use of the category.

Teacher IV seemed to spend more time focussing on Word Perception skills with the less able group than with the higher ability group (13.1 per cent and 3.8 per cent, respectively) and Teacher II followed this pattern as well. Since Teachers I and III asked so few Word Perception solicitations, no intra-class group comparisons were possible within those classes.

Category 2: Comprehension Solicitations. Comprehension solicita-

Table 5.2. Proportions of Solicitation Categories Utilized by Classes and by Intra-Class Groups

Class	Group*	1 Word Perception	2 Comprehension	3 Oral (Silent) Reading	4 "Other"
I	H	1.1	8.4	1.1	2.9
	A	0.3	15.9	1.0	3.1
	Average	0.8	11.1		3.0
II	H	7.7	3.4		2.1
	A-1	0	16.6	2.8	0.7
	A-2	0	17.1	0.9	1.9
	Both A's	4	3.1	0.3	2.2
	Average	6.8	8.1	3.0	1.7
III	A-1	0.0	6.4	0.4	2.2
	A-2	0.0	9.8	0.2	0.8
	L	0.5	5.7	0.4	4.2
	Combined	1.2	5.9	1.7	1.0
	Average	0.3	7.3	0.5	2.0
IV	H	3.8	8.7	3.6	0.8
	A-L	13.1	1.7	1.7	0.8
	Average	7.5	5.9	2.9	0.8

* Throughout all tables in this study, the following legend applies to all groups:

H - High ability group
A - Average ability group
Both A's - Two average ability groups combined
A-L - Average-to-Low ability group
L - Low ability group
Combined - All groups combined

tions included teacher questions or directives calling for an understanding of, or ability to interpret or integrate, information from the context of the written materials used in the reading lesson.

Although the Comprehension category was the most frequently used of the solicitation categories, the range in usage was almost double for Teacher I compared to Teacher IV (11.7 per cent and 5.9 per cent, respectively).

Looking at the intra-class groups, the Average groups seemed to receive more Comprehension solicitations than either the High or the Low. The exception was Teacher IV who asked a greater proportion of Comprehension solicitations with the High group.

The Comprehension category was subscripted using the Barrett Taxonomy which consisted of the following sub-categories reviewed here for the convenience of the reader:

a) Literal Comprehension including recognition and recall of details, main ideas, sequence, comparison, cause and effect relationships, and character traits.
b) Reorganization including classifying, outlining, summarizing, and synthesizing.
c) Inferential Comprehension including inferring supporting details, main ideas, sequence, comparisons, cause and effect relationships, character traits, predicting outcomes and interpreting figurative language.
d) Evaluation involving judgements of reality or fantasy; fact or opinion; adequacy or validity; appropriateness; worth, desirability and acceptability.
e) Appreciation involving emotional response to the content, identification with characters or incidents, reactions to the author's use of language, and imagery.

Table 5.3 reports the proportions for each sub-category for each class and indicates the paucity of data generated in some areas.

It is obvious, however, that the Literal Comprehension category received the most frequent use while the Inferential category, although

Table 5.3. Proportions of Comprehension Solicitation Sub-categories Utilized by Classes

Class	Group	Literal Comprehension	Reorganization	Inferential	Evaluation	Appreciation
I	H	5.6	0.0	2.1	0.0	0.7
	A	10.4	0.5	4.4	0.0	0.6
	Average	7.8	0.2	3.1	0.0	0.6
II	H	1.3	0.0	0.9	0.1	1.1
	A-1	13.0	0.0	1.3	1.3	1.0
	A-2	13.5	0.0	3.6	0.0	0.0
	Both A's	1.0	0.0	1.3	0.0	0.8
	Average	5.5	0.0	1.5	0.3	0.8
III	A-1	4.0	0.0	1.1	0.4	0.9
	A-2	6.8	0.0	1.1	0.2	1.7
	L	3.8	0.0	1.1	0.1	0.7
	Combined	3.3	0.0	1.2	1.4	0.0
	Average	4.8	0.0	1.1	0.4	1.0
IV	H	2.9	0.0	5.7	0.0	0.1
	A-L	1.6	0.1	0.0	0.0	0.0
	Average	2.4	0.0	3.4	0.0	0.1

it had the second highest usage, in fact, had only half as much as the Literal category. It is interesting to note that Teacher IV, who asked the least amount of Comprehension solicitations, did ask slightly more Inferential than Literal questions. The Appreciation category received very little use from any teacher. Two teachers did not use the Evaluation category and three teachers did not use the Reorganization category. A greater number of observational visits may be necessary to generate sufficient data upon which to base more definite conclusions. It may be that such data would only serve to substantiate the present findings.

When the actual total matrix data (included in Appendix G) were examined to determine what kind of responses followed the different Comprehension solicitations (similar to Area C in the prototype matrix, Figure 5.2), the data revealed that Literal Comprehension solicitations were usually followed by Pupil Content responses in all classes.

Category 3: Oral (Silent) Reading Solicitations. This category was used to designate teacher requests for oral or silent reading without any emphasis on a purpose except for its own sake or to generally determine "what was said" in the text.

Limited use was made of this category during the observed grade four reading lessons. The range was from 0.5 to 3.0 per cent for Teachers III and II, respectively (see Table 5.2). Although the figures were low, two of the teachers (II and IV) recorded a greater proportion of Oral (Silent) Reading solicitations than the grade one teachers in Yake's (1973) study.

In classes with High groups, Teachers II and IV recorded a greater proportion of tallies for Oral (Silent) Reading solicitations

of the High group but Teacher I asked about the same of both High and Average groups.

When the matrix data (Appendix G) were examined to determine the kinds of replies pupils made to the Oral Reading solicitations, it appeared that a larger proportion of Oral Reading responses were elicited than Silent Reading responses. Furthermore, the proportion of tallies recorded for Pupil Oral Reading responses was much greater than the proportion of tallies recorded for the teacher request, suggesting the teacher made a short request which was followed by a longer response by the pupil.

Category 4: "Other" Solicitations. The "Other" category was designed to be a catch-all category for those solicitations which do not fit into Categories 1, 2 or 3.

This category received little use overall, the frequency ranging from 0.8 to 3.0 per cent for Teachers IV and I, respectively.

Category 4 was subscripted into Background solicitations (4a) and "Other" solicitations (4b) to obtain more information about the kinds of "Other" questions that were being asked. Table 5.4 records the proportions of use for each sub-category by each class.

Although the data are very limited, they do indicate that two teachers, II and III, recorded a greater proportion of tallies for Background solicitations (4a) than for general "Other" solicitations (4b). Teacher IV recorded the same proportion for both categories while Teacher I recorded more "Other" solicitations (4b).

Examination of the statistics for intra-class groups revealed about the same proportions of use for all groups. The exception was

the Low group in Class III which received more Background Solicitations than any other group.

Table 5.4. Proportions of Subscripted "Other" Solicitations Utilized by Classes

Class	Background (4a)	"Other" (4b)	Totals
I	0.9	2.1	3.0
II	1.3	0.4	1.7
III	1.7	0.3	2.0
IV	0.4	0.4	0.8

Analysis of Matrix Areas Relating to Teacher Re[redacted]entred Lecture-Type Behavior

Category 5: Teacher Reading-Centred Lecture-Type Behavior. This category included teacher behavior aimed at the reading aspect of the lesson which is not directed at involving pupils in interaction. Table 5.5 reports the proportions of Teacher Reading-Lecture statements utilized by classes and intra-class groups.

Teacher Reading-Lecture behavior, with an average percentage of 17.1 recorded the most frequent use of any OSAPRL category in all classes observed. This finding was consistent with that of Yake's (1973), although the grade four figure was even larger than the grade one figure.

The range in use was 14.9 to 19.8 per cent for Teachers III and IV, respectively. It is interesting to note, however, that Teacher III's figure for Category 5 (Lecture) was equalled by the figure for Category 6

(Non-Reading).

Much use was made of this category with all intra-class groups with the relative exception of the Low group in Class III (4.6 per cent). However, much lecturing was done with the whole of Class III combined. Teachers I and IV did more lecturing with the higher ability groups than with the lower ability groups. Teachers II and III who each had two Average intra-class groups, both recorded twice the proportion of tallies for lecture behavior with one of the groups than with the other although they were ostensibly of the same ability.

Table 5.5. Proportions of Teacher Reading-Centred Lecture-Type Behavior Utilized by Classes and Intra-Class Groups

Class	Group						Average
	H	A	Both A's	A-L	L	Combined	
I	17.2	13.5					15.5
II	16.8	12.9/24.6*	21.3				18.3
III		25.9/12.9*			4.6	19.6	14.9
IV	21.2			17.6			19.8

*A-1/A-2

When the steady state cell, 5-5, as depicted by A in the prototype matrix, was examined in each of the class matrices the data indicated that a 3-second period of lecturing followed itself a great deal. In other words, teacher lecturing behavior tended to be of some duration. The limited data indicate that the other following behaviors tended to

be Pupil Initiating, Literal Comprehension or Word Perception solicitations.

Analysis of Matrix Areas Relating to Non-Reading Centred Behavior

Category 6: Non-Reading Centred Behavior. Any teacher or pupil verbal behaviors which were not specifically related to reading such general announcements, disciplining of students, or off-the-topic comments by students and teachers were identified as Category 6. proportions of Non-Reading Centred behavior utilized by classes and by intra-class groups are presented in Table 5.6.

Table 5.6. Proportions of Non-Reading Centred Behavior Utilized by Classes and by Intra-Class Groups

Class	Group						Average
	H	A	Both A's	A-L	L	Combined	
I	15.1	11.5					13.5
II	2.7	2.8/0.9*	2.0				2.3
III		13.0/16.8*			20.0	4.8	14.9
IV	6.4			4.3			5.6

*A-1/A-2

There was a wide discrepancy in the proportion of tallies recorded for this category among classes. The range was from 2.3 to 14.9 per cent (Classes II and III, respectively), a difference of 12.6 per cent. Class I also had a high proportion of use (13.5 per cent) while Class IV had a more moderate amount (5.6 per cent).

Among the intra-class groups there was an even wider variation in the use of Category 6, from [illegible] per cent. In Class II all groups

recorded a relatively low percentage of tallies for Category 6. The High ability groups recorded a larger proportion of tallies within two classes (I and IV) but the Low group in Class III recorded the largest proportion of all groups (20.0 per cent). Class III, with high utilization in all groups, used it considerably less when the teacher worked with the whole class combined (4.8 per cent).

The data corroborate the anecdotal records for Class III which indicate a high degree of interruptions from outside the reading group working with the teacher as well as many off-the-topic comments from within the reading group. Anecdotal records also indicate that Class I had frequent interruptions from outside the class, partly because the teacher also had administrative duties and partly because scheduled school announcements took place during the designated reading time. As Yake (1973) found, there was the possibility that both classroom and school organization contributed to Category 6 behaviors. While it may be true that distractions contaminate the teacher-group reading data, it is important to examine how the time designated for reading lessons is utilized.

The original matrices (Appendix G) indicate that in Classes III and IV, Category 6 was followed most often by Silence and Confusion suggesting that the Non-Reading behavior may have had a disruptive influence. In Classes I and II, Category 6 was most often followed by Teacher-Lecture suggesting that the teacher intervened to refocus attention on the reading lesson. Both findings support those of Yake's (1973).

Analysis of Matrix Areas Relating to Teacher Reactions

Teacher behavior classified in this area was described as reaction to pupil behavior. Included were Confirming reactions (Category 7), indicating that a pupil's response was acceptable; Extending reactions (Category 8), attempting to extend or clarify a pupil's response; and Corrective reactions (Category 9), indicating that a pupil's response was not acceptable. Table 5.7 records the proportions of these teacher reactions for each class and intra-class groups.

Teacher reaction categories accounted for the following proportions of total OSAPRL-observed behaviors:

Teacher I	19.7 per cent
Teacher II	24.1 per cent
Teacher III	16.2 per cent
Teacher IV	22.2 per cent

The Confirming category recorded a greater proportion of use than the Corrective category while the Extending category was used only minimally. The present study observed more of both Confirming and Correcting reactions than Yake's (1973) grade one study, but fewer Extending reactions.

Although teacher reactions tended to be of short duration, some Confirming reactions were longer than the others. Teacher II, for instance, whose high proportion of Confirming reactions were of the longest duration as indicated by the steady state cell, tended to repeat a pupil's answer for the benefit of the group or to reinforce the information given. Teacher I, on the other hand, with the least proportion of Confirming reactions also had those of the shortest duration, tending to use "good" and "right" as indications of acceptance.

The lower ability group in each class tended to receive more

Table 5.7. Proportions of Teacher Reaction Categories Utilized by Classes and by Intra-Class Groups

Class	Group	7 Confirming	8 Extending	9 Corrective
I	H	11.1	0.7	7.6
	A	12.2	3.6	4.3
	Average	11.6	2.0	6.1
II	H	16.5	0.1	3.1
	A-1	16.4	0.4	2.3
	A-2	14.8	0.2	2.8
	Both A's	20.5	0.3	5.3
	Average	17.4	0.2	3.5
III	A-1	9.5	0.4	1.4
	A-2	11.0	1.2	3.2
	L	18.4	0.3	0.7
	Combined	18.4	1.0	1.4
	Average	13.6	0.7	1.9
IV	H	15.6	1.0	3.9
	A-L	18.1	1.2	5.4
	Average	16.6	1.1	4.5

Confirming reactions but in two classes the lower ability group also received more Corrective reactions. The present findings differed from Yake's (1973) in that the High ability group received more confirmation at the grade one level. However, both Browne (1971) and Yake (1973) found that the lower ability groups received the most Corrective reactions.

Each of the Teacher Reaction categories will be discussed in the following section.

Category 7: Teacher Confirming Reactions. This category was used when the teacher indicated that a pupil's response was acceptable.

In all classes the Confirming reaction category recorded the greatest proportion of tallies (see Table 5.7), with a range of 11.6 to 17.4 per cent for Teachers I and II, respectively.

Across intra-class groups the general trend was to be more confirming with lower ability groups. The two classes with two Average groups, however, had slight differences in the amount of confirmation given each group, again pointing out the discrepancy in the interaction of the same teacher with groups designated as similar in ability. In both classes, there was a marked increase in the proportion of Confirming reactions when the teachers worked with combined groups.

Examination of the actual matrices (Appendix G) indicates that the pupil behavior inducing the most Teacher Confirming reactions appears to be Content responses (Category 10) for Teacher I, Self-Expression (Category 11) for Teacher II and IV and Pupil Initiating behavior for Teacher III. All pupil talk categories except Silent Reading (Category 12) tended to elicit Teacher Confirmation to some extent. Table 5.8

presents the proportion of Teacher Confirming reactions following pupil behaviors.

Table 5.8. Proportions of Teacher Confirming Reactions (Category 9) following Pupil Behavior

Pupil Behavior	I	II	III	IV
Content Response (10)	4.4	2.1	1.7	1.4
Self-Expression Response (11)	2.4	6.1	3.2	8.4
Oral Reading Response (12)	0.9	2.3	1.1	1.2
Silent Reading Response (13)	0.0	0.0	0.1	0.0
Initiating Behavior (15)	2.3	2.5	4.3	2.7

Category 7 tended to be followed by Word Perception solicitations or Literal Comprehension as in Yake's (1973) study, supporting the possibility that Confirmation tended to close off the interaction. The exception was Class III wherein Confirming reactions were followed by Pupil Initiating behavior. Because of the limited data, it is impossible to do more than draw tentative conclusions but it may be that pupils perceived the Teacher Confirming reaction as invitation to express their own thoughts.

Category 8: Teacher Extending Reactions. Teacher reactions attempting to extend or clarify a pupil's response were classified in this category.

All classes used this category infrequently with a limited range of 0.2 to 2.0 per cent for Teachers II and I, respectively (see Table 5.7).

The very minimal data in the actual matrices (Appendix G) suggest that Extending reactions tended to follow Pupil Self-Expression

responses or Content responses. Table 5.9 presents the proportions of Teacher Extending reactions following pupil behavior. Extending reactions, in turn, preceded Pupil Self-Expression or Content responses indicating that the Extending reaction did result in furtherance or clarification of that pupil's response.

Table 5.9. Proportions of Teacher Extending Reactions (Category 8) following Pupil Behavior

Pupil Behavior	I	II	III	IV
Content Response (10)	0.8	0.1	0.0	0.0
Self-Expression Response (11)	0.5	0.0	0.2	0.5
Oral Reading Response (12)	0.1	0.0	0.0	0.0
Silent Reading Response (13)	0.0	0.0	0.0	0.0
Initiating Behavior (15)	0.1	0.0	0.0	0.0

Category 9: Teacher Corrective Reactions. This category was used when the teacher indicated that a pupil's response was not acceptable.

A variation in the use of this category by each class is noticeable with a range of 1.9 to 6.1 per cent for Teachers III and I, respectively.

While the data were very limited there is a suggestion that among the variation in use by intra-class groups, Teacher I recorded a higher proportion of Corrective tallies with the High ability group as did Teacher II except when the latter was working with the two Average groups combined, then the latter received more Corrections. Teacher IV tended to record a higher proportion of Corrective reactions with the lower ability group.

Teacher Corrective reactions according to the actual matrices (Appendix G) followed mostly after Pupil Self-Expression and Oral

Reading responses. Table 5.10 presents the proportions of Teacher Corrective reactions following pupil behavior. Corrective reactions preceded Oral Reading or Self-Expression indicating a continuation of the activity but not necessarily by the same pupil.

Table 5.10. Proportions of Teacher Corrective Reactions (Category 7) following Pupil Behavior

Pupil Behavior	I	II	III	IV
Content Responses (10)	1.2	0.3	0.3	0.1
Self-Expression Responses (11)	0.4	1.0	0.1	1.7
Oral Reading Responses (12)	1.3	0.7	0.2	0.1
Silent Reading Responses (13)	0.5	0.0	0.0	0.1
Initiating Behavior (15)	0.4	0.2	0.2	0.1

Analysis of Matrix Areas Relating to Pupil Responses

The pupil response categories designated interaction on the part of the pupils in reply to teacher solicitations. They included Content (Category 10), Self-Expression (Category 11), Oral Reading (Category 12) and Silent Reading (Category 13). Category 14, Unison Response, was not used in the present study.

Across the classes the proportions of total pupil responses ranged as follows:

Class I	28.0
Class II	33.4
Class III	25.8
Class IV	26.7

Overall the pupil responses, the Self-Expression response category recorded the greatest proportion of tallies and the Silent Reading category the least. However, class differences indicated that Class I

had a higher proportion of Content response tallies than of Self-Expression and that Class III recorded fewer Content responses than Silent Reading responses. Class II had a high frequency of Oral Reading tallies as well as Self-Expression tallies.

Intra-class groups showed variation in the total use of these categories. In Class I, the Average group recorded a slightly greater proportion of total response tallies. In Class II one of the Average groups offered a higher proportion of responses than the other Average group and the combined group had lower frequencies. In Classes III and IV groups had similar frequencies but when Class III worked as a combined group they had a higher frequency of responses.

Although across classes Self-Expression had a greater proportion of use, comparison of intra-class groups revealed that the Average group of Class I spent more time on Silent Reading responses and interestingly the Low group of Class III recorded a proportion of 10.5 per cent for Silent Reading responses but recorded no Oral Reading at all.

Table 5.11 records the proportions of pupil response categories utilized by classes and by intra-class groups. Each response category will be discussed in the following section.

Category 10: Pupil Content Responses. Any response which required a pupil to use information from the written materials used in the lesson, or from information specifically disseminated in that lesson, was categorized as a Content response. Also, if a pupil read a written answer to a comprehension question based on the materials in the lesson, it was considered a Content response.

According to Table 5.11 a wide variation in the use of this category

Table 5.11. Proportions of Pupil Response Categories Utilized by Classes and by Intra-Class Groups

Class	Group	10 Content	11 Self-Expression	12 Oral Reading	13 Silent Reading
I	H	6.5	7.2	11.0	2.9
	A	15.1	5.0	3.0	5.6
	Average	10.3	6.2	7.4	
II	H	5.8	13.1	11.1	3.5
	A	9.2	4.5	22.1	3.7
	A	13.7	8.6	8.6	3.4
	Both A's	0.6	19.9	2.8	4.8
	Average	6.2	12.5	10.8	3.9
III	A	2.3	15.6	2.6	4.4
	A	4.6	11.8	7.2	1.2
	L	5.0	10.2	0.0	0.5
	Combined	3.1	9.3	16.5	1.7
	Average	3.9	11.9	5.6	4.4
IV	H	3.0	16.4	8.2	0.3
	A-L	2.2	17.8	6.5	0.9
	Average	2.7	17.0	7.5	0.5

occurred between Teachers IV and I with 2.7 per cent and 10.3 per cent, respectively. Except for Class I there was a smaller proportion of Content responses than at the Primary level in Yake's (1973) study.

An examination of an intra-class group breakdown, however, reveals just as great a discrepancy between the High group and the Average group in Class I with 6.5 per cent and 15.1 per cent, respectively. Class II also had a greater proportion of Content responses recorded by the Average group but Class III had greater frequency of use with the Low group and Class IV had slightly more with the High group.

Examination of the actual matrices (Appendix G) revealed that Pupil Content responses, according to the steady state cells (10-10), were of the longest duration in Class II. In all classes Content responses were generally followed by Teacher Confirming reactions. Content responses were preceded, in most instances, by Teacher Literal Comprehension solicitations.

Category 11: Pupil Self-Expression Responses. This category included responses utilizing a pupil's own opinion or store of general information or personal experience. However, it also included the oral reading of material written by the pupil if the ideas were essentially his own.

Table 5.11 reveals that Class IV, which had the lowest proportion of tallies for Content responses had the highest proportion for Self-Expression responses, 17.0 per cent. Class I, on the other hand, which had the highest proportion of tallies for Content responses, had the lowest proportion for Self-Expression responses, 6.2 per cent. It is interesting to note that the largest percentage of Class II's responses

were preceded by Word Perception solicitations and that the responses were of some duration according to the steady state cell.

In three of the classes the higher ability group offered a larger proportion of Self-Expression response tallies but in Class IV the lower ability group offered slightly more. In Class II the combined group of lower ability offered much more.

Self-Expression responses according to the actual matrices (Appendix G) were generally followed by Teacher Confirming reactions indicating both an accepting climate and the possibility that the written work was within the ability range of the pupils. Self-Expression responses were frequently evoked by Inferential Comprehension (2c) solicitations and by Background (4a) solicitations.

Category 12: Pupil Oral Reading Responses. When a pupil read aloud his response to the teacher's solicitations, provided it was not his own written response being read, that behavior was classified as Category 12.

The proportion of tallies recorded for this category, according to Table 5.11, varied from 5.6 to 10.8 per cent for Teachers III and II, respectively. There was less oral reading done in the classes of the present study than in Yake's (1973) grade one classes.

In two classes, I and IV, the High ability group had higher proportions of Oral reading tallies and the responses were of longer duration according to the steady state cell. In Class II, the particular Average group which had received the least Teacher Lecture behavior, recorded twice the proportion of oral reading tallies as the High group or the other Average group. When the two Average groups were brought together

there were few Oral Reading responses. In Class IV, however, the Low group did no oral reading although the whole class combined did a great deal of oral reading. The orientation here according to anecdotal records, was towards audience-type presentations and sharing of material orally.

Pupil Oral Reading responses, according to the actual matrices (Appendix G) were generally followed by Teacher Confirming reactions. Oral Reading responses were usually preceded by Teacher Oral (Silent) Reading solicitations.

Category 13: Pupil Silent Reading Responses. Category 13 was used to designate a pupil's, or group of pupils', silent reading, including occasional verbalization of this reading.

Classes I, II and III according to Table 5.8 each recorded proportions of tallies for this category of approximately 4 per cent. Class IV, however, which had an extremely high percentage of Self-Expression responses, recorded a proportion of only 0.5 per cent for Silent Reading.

Generally, the lower ability intra-class groups recorded a higher proportion of Silent Reading tallies than the higher ability groups. In Class III, the Low group that had recorded no oral reading tallies at all, recorded a higher proportion of Silent Reading tallies than any other group in the study.

Rather surprisingly, there was less silent reading done in the present study than in Yake's (1973) grade one study. This may be due to teachers assigning silent reading outside the group situation.

Silent Reading responses received almost no teacher reactions, according to the actual matrices (Appendix G). The following behavior

was usually Teacher Literal Comprehension solicitation. Similarly, Silent Reading responses were also preceded by Literal Comprehension solicitations. Thus, the pattern may have been one of the teacher asking a question requiring pupils to read silently to find the answer and after allowing time for the reading the teacher may have repeated the question. At that point a Content response would be given or perhaps an Oral Reading response.

Analysis of Matrix Areas Relating to Pupil Initiating Behavior

Category 15: Pupil Initiating Behavior. This category included verbal interaction relevant to the reading lesson which was initiated by a pupil and directed toward the teacher or another pupil. Table 5.12 reports the proportions of Pupil Initiating behavior utilized by classes and by intra-class groups.

Table 5.12. Proportions of Pupil Initiating Behavior Utilized by Classes and by Intra-Class Groups

	Group						
Class	H	A	Both A's	A-L	L	Combined	Average
I	5.3	2.8					4.2
II	5.5	4.5/1.9*	1.8				3.7
III		8.5/9.3*			13.4	8.1	10.0
IV	3.9			3.5			3.8

*A-1/A-2

The range in proportions across classes was 3.7 per cent to 10.0 per cent for II and III, respectively. Classes I and IV were closer in proportion to Class II.

Across intra-class groups the High groups displayed a greater proportion of Pupil Initiating behavior with the exception of Class III wherein the Low group had the highest proportion of all groups.

Examination of the actual matrices (Appendix G) revealed that Pupil Initiating behavior tended to be followed by Teacher Confirming reactions. Pupils also tended to initiate after Teacher Confirming reactions or Teacher Lecture-type behavior. In one class, although the data are limited, pupils initiated after Background solicitations.

Analysis of Matrix Areas Relating to Silence and Confusion

Category 16: Silence and Confusion. This matrix area consisted of Category 16, Silence or Confusion which included three second periods of silence other than silent reading. It also included periods of interaction so generalized that analysis was impossible, the beginning and ending of each recording session, and changes of pupil speaker if no teacher verbal interaction intervened. Table 5.13 reports the proportions of Category 16 used by classes and by intra-class groups.

There was a great variation in the proportion of tallies recorded for this category, with a range of 1.4 to 7.8 per cent for Classes II and III, respectively. Class III had almost twice as much as any other class.

The intra-class group figures indicate that Average groups had a greater proportion of Silence and Confusion except in Class II where the High group had a slightly greater proportion.

Silence and Confusion tended to be followed by, based on limited data in the actual matrices (Appendix G), Teacher Lecture or Non-Reading behavior, suggesting the possibility that the teacher tried

to regain control by lecturing or that the class went off the topic entirely.

Table 5.13. Proportions of Silence or Confusion Utilized by Classes and by Intra-Class Groups

Class	Group						Average
	H	A	Both A's	A-L	L	Combined	
I	2.0	3.2					2.6
II	2.3	1.0/0.4	1.2				1.4
III		7.2/10.2			6.0	6.4	7.8
IV	3.2			5.3			4.0

The behavior preceding Silence and Confusion tended to be Pupil Initiating or Non-Reading both of which would suggest that many pupils spoke out at once making it impossible to specify the interaction taking place. However, according to Ground Rules 7 and 9, the build-up in the 15-16 cell (Pupil Initiating followed by Silence and Confusion) could also reflect instances of a pupil correcting another pupil at the same time as the teacher corrected or instances of Pupil Initiating behavior being ignored by the teacher. This overlap in the data is indicative of one of the problems of the OSAPRL system.

SUMMARY

In this chapter selected areas of the matrix have been examined in order to explore some of the aspects of teacher-pupil verbal interaction in the observed fourth grade reading classes. The range in the

proportions of tallies recorded for some major matrix areas across classes are summarized as follows:

Teacher Solicitations	10 - 20 per cent
Teacher Reading Lecture	15 - 20 per cent
Non-Reading Behavior	2 - 15 per cent
Teacher Reactions	16 - 22 per cent
Pupil Responses	25 - 33 per cent
Pupil Initiating Behavior	4 - 10 per cent
Silence and Confusion	.1 - 8 per cent.

The range in total proportions of observations for reading related behaviors across classes was approximately 77 to 96 per cent. For non-reading related behavior the range was approximately 4 to 23 per cent.

Certain areas of the matrix have also been selected to explore, within the limitations of the data generated by the use of the OSAPRL in this study, various aspects of different teachers interacting with different ability reading groups at the same grade level and there appeared to be obvious variations in the observed interaction patterns.

Two major considerations may be apparent with regard to the discussion of the data from this study; 1) an indication of our need to continue to explore teacher-pupil interaction patterns during the teaching of reading in order to better understand what happens in the reading class with a view to making improvements, and 2) since teachers do appear to behave differently, for teachers to be able to understand differences among themselves and to have an opportunity to observe their own behavior and to question any congruency between what they think they are doing and what they <u>are</u> doing.

CHAPTER 6

SUMMARY OF THE FINDINGS, CONCLUSIONS AND IMPLICATIONS OF THE STUDY

The major purpose of this study was to determine whether or not the Observational Analysis for Primary Reading Lessons (OSAPRL), with the comprehension category subscripted to account for differences in the kinds of comprehension questions (based upon the Barrett Taxonomy) teachers might ask, would be a useful instrument for observing and analyzing teacher-pupil verbal interaction beyond the primary level.

It was recognized that one result of the study would be the explication of certain changes that may be required of the OSAPRL instrument (including the administration procedures, the category system, and the ground rules) based upon the findings from the use of the instrument with a fourth grade sample of teacher-pupil interaction during reading lessons. The OSAPRL had actually only been used once before in the classroom context and that was in a study of the teaching of reading using the Language Experience method at the first grade level (Yake, 1973).

Another major purpose of the study was to analyze the data from the classes observed in order to determine what, if any, information would be generated about teacher-pupil interaction in the four fourth grade classrooms in a larger urban area where pupils were grouped for reading instruction. It was anticipated that, while the generalizability of the findings would be limited, the findings would provide

some guidance for further studies in this relatively new area of inquiry.

The raw data used in the analysis consisted of audio-tape recordings and anecdotal records collected in the fourth grade reading classes. Actual application of the OSAPRL was, therefore, carried out under laboratory conditions. Some of the audio-tapes were collected to be used in the training of the observer and in establishing the reliability of the instrument. Analysis of the data, which involved the generation of whole class and intra-class group matrices, was accomplished through the use of computerized procedures involving the Flanders Interaction Analysis, Test 13 program.

To facilitate the summary nature of this chapter the findings, conclusions, and implications for modifications of the OSAPRL instrument are presented first. The findings, conclusions, and implications of the OSAPRL analysis of teacher-pupil verbal interaction are then presented. Lastly, there are recommendations for further research.

FINDINGS, CONCLUSIONS AND IMPLICATIONS FOR MODIFICATIONS ARISING FROM THE USE OF THE OSAPRL AT THE FOURTH GRADE

The OSAPRL while revealing valuable data concerning fourth grade reading classes, was found to require some refinements for use at that level. The OSAPRL was relatively simple to learn and the training procedure was not arduous. However, a training manual to accompany the OSAPRL must be developed if the OSAPRL is to have wider use.

All of the OSAPRL categories used in the present study were utilized by the teacher-pupil reading groups. It was possible to code continuously although some concurrent behaviors and some relevant non-verbal

behaviors were not accounted for by the system. These and other problems will be discussed in terms of the categories and ground rules along with suggested modifications.

In this discussion, where an amendment or change in Browne's (1974) category or ground rule statement is recommended, the proposed change in wording is mainly indicated by underlining the new or altered section.

Category 1: Word Perception Solicitations. The category definition did not allow for teacher requests for written responses to Word Perception solicitations. It should be reworded to allow for these requests since they were observed with some regularity. An appropriate rewording might be:

> "If blackboard or printed exercises are used to develop these skills then directives to complete the appropriate exercise would be recorded here, whether a verbal or a written pupil response was called for in the solicitation."

Category 2: Comprehension Solicitations. The subscripting of this category did reveal some interesting information about the kinds of Comprehension questions teachers ask but lack of sufficient data limited generalizations. Very simply, the greater the number of categories, the greater the number of classroom observational visits required.

This category should also be amended, to allow for teacher solicitations calling for written responses to Comprehension questions, as follows:

> ". . . that pupils complete such exercises verbally or in writing would be accounted for by this category."

Category 3: Oral (Silent) Reading Solicitations. No "oral reading circle" type of reading occurred in the classes observed, therefore, the following amendment to this category description is

suggested:

> "If there is a change of readers without a teacher verbal or non-verbal request, a 3 should be inserted in order to note a change in readers."

Category 4: "Other" Solicitations. Subscripting this category provided valuable, though limited, information regarding Background and "Other" solicitations, thus, indicating the flexibility of the OSAPRL available through the possibility of subscription of this or perhaps any category to obtain more explicit information. For example, "Other" solicitations were sometimes used for disciplinary effects. In another study this might be accounted for by further subscription of the original "Other" category in the OSAPRL.

Category 5: Teacher Reading-Centred Lecture-Type Behavior. The high proportion of tallies recorded for this category may reflect a distortion of the data owing to the inclusion of so many teacher behaviors under one category. More specific information could be revealed by subscripting the category into such sub-categories as teacher lecture, teacher discussion, teacher oral reading and teacher dictation requiring the pupils to write.

Browne (1974) had indicated that a teacher solicitation that required a written response should be categorized as a 5. However, after working with the system at the grade four level, the investigator has suggested under both Category 1 and Category 2 that such requests for written work should be categorized according to the substantive intent of the solicitation, Word Perception or Comprehension. If that change is made then the definition of Category 5 would have to be amended as follows:

> ". . . teacher dictation requiring the pupils to write. When the teacher is requesting pupils to answer written exercises with either

verbal or written responses, however, the appropriate solicitation category should be used."

When the behavior cannot be clearly identified as a Word Perception or Comprehension solicitation, as in the case when children are simply asked to write something, then Category 5 could be continued to be used without too much loss of information.

Category 6: Non-Reading Centred Behavior. Some difficulty occurred in recalling the position of this category because, although it included both teacher and pupil behavior, it was placed in the midst of the teacher-talk categories. Coding would be facilitated if this category was removed from the teacher-talk area of the OSAPRL and placed before or after the Silence and Confusion category.

If separate figures were desired for the various behaviors subsumed under this category, subscription could be done with sub-categories involving teacher talk, teacher discipline, pupil talk, and other interruptions of a non-reading nature. Relevant non-verbal behaviors could be accounted for by adding to the category description as follows:

"Any teacher or pupil verbal or relevant non-verbal (such as a disciplinary gesture) behaviors which are not specifically aimed at reading . . ."

Category 7: Teacher Confirming Reaction. Because it was sometimes difficult to ascertain when the teacher's confirming behavior left off and lecture or solicitation began, a new ground rule may be necessary to draw attention to the need to be alert to this change in behavior. The new ground rule could be worded as follows:

"When coding Category 7, Teacher Confirming Reaction, if the teacher uses the confirmation as a springboard for lecture or solicitation then the appropriate category must be coded when the change of behavior occurs."

Browne (1974) clearly indicates in a footnote to the OSAPRL procedures that the instrument deviates somewhat from a strictly verbal system and that this will be made clear in the category descriptions (see Appendix B). Category 1 does indicate a situation where a non-verbal gesture is to be recorded. The description of Category 7, however, is ambiguous because it states: "where a teacher indicates . . . in any other way that a pupil's response is acceptable a Category 7 should be recorded." The phrase "in any other way" could be interpreted as any other verbal or non-verbal way. Because non-verbal confirming behavior such as a nod of the head was observed in the present study, it is suggested that the category description be amended as follows:

> ". . . in any other way (including a non-verbal gesture such as a nod) . . ."

Category 8: Teacher Extending Reactions. The teacher sometimes tended to try to extend the group's thinking rather than just the individual pupil's thinking. The category description could suggest the use of anecdotal records when this occurs:

> "When the teacher appears to have a behavior pattern of attempting to extend the group's thinking rather than an individual pupil's thinking, a note should be made in the anecdotal records because the coding would consist of the appropriate solicitation."

Category 9: Teacher Corrective Reactions. The category description did not reveal a change in the pupil speaker following a Teacher Corrective reaction, therefore, the data did not indicate whether or not a pupil was allowed to correct himself. Also, if Category 14 is deleted from the OSAPRL as it was for the present study then a deletion in the category description is necessary. Both of these problems could be alleviated by these changes in the category description:

"If a teacher calls upon another pupil to provide the correct or acceptable response for the pupil then that behavior would be recorded as a corrective behavior, a 16 inserted to denote a change in pupil speaker, and the pupil's response as one of the response categories (10, 11, 12 below)."

Category 10: Pupil Content Responses. Many of the Content responses were based on the marking of workbooks and printed exercises at the grade four level. The oral reading of answers previously written down by the pupil could be included in this category description as follows, therefore, rather than just in the description of the Oral Reading response category:

"The oral reading of a content response written by the pupil as an answer to a comprehension or word perception question requiring an answer based on the materials in a selection would also be coded as a Category 10."

Category 11: Pupil Self-Expression Responses. There was some difficulty in recalling the complete category description when coding, particularly the section on ". . . previously learned concepts . . .." A modification of the category title to Pupil Self-Expression and Background Knowledge Responses might clarify this.

Again, much oral reading of previously written pupil answers occurred, therefore, it would be helpful to include such behavior in this category description as follows:

"The oral reading of a response written by the pupil if the ideas are essentially his own would be coded Category 11.

Although the category made no provision for non-verbal response, on occasion it did occur, therefore, the following addition could be made to the category description:

"Non-verbal responses that fit this category description would also be coded 11."

Category 12: Pupil Oral Reading Responses. No allowance was made for the oral reading of pupil's written Word Perception answers although there was for written Comprehension answers. This provision should be added to the category description unless the oral reading of written answers is included in the description of Category 10 and Category 11, as previously suggested, then Category 12's description regarding oral reading of written answers should be modified as follows:

> ". . . except where the materials being read have been composed by the pupil himself which would be coded Category 10 or 11."

Delete the remainder of the category description.

Category 13: Pupil Silent Reading Responses: There was no provision for indicating that other behaviors were occurring within the reading group during the time designated as Silent Reading although this occurred frequently. Anecdotal records could be used to indicate concurrent behaviors but a special note to that effect should be included in the category description as follows:

> "Anecdotal records may indicate activities occurring concurrently with the silent reading but not interrupting the reading."

Category 14: Pupil Unison Responses. This category was omitted from the present study and, unlike at the primary level, it was not required. The occasional unison reading may be coded Category 12. If several pupils respond at one time it may be coded a Category 10 or 11, if distinguishable as such, otherwise, it would be coded a 16, Silence and Confusion. The implications for these conclusions are presented in the discussion of Ground Rule 5.

Category 14's position in the OSAPRL system could be used for another purpose if Unison response was deleted. If the suggestions to include teacher solicitations requesting pupils to write their responses to Word

Perception (Category 1) and Comprehension (Category 2) solicitations are incorporated into the system then Category 14 could be used to record instances of pupil writing behavior that occurs within the observational period. An alternative procedure would be to subscript Category 13, Pupil Silent Reading. If Category 6 is moved to the last position in the system as previously suggested, then the numbering of the categories 7-16 moves down one.

Category 15: Pupil Initiating Behavior. Pupil Initiating behavior often occurred at the beginning of the reading lesson before the teacher actually indicated that the lesson had begun. Coding should begin at that point to cover all of the interaction occurring in the time allotted for the reading lesson. Information regarding general procedures for using the OSARRL could define the reading lesson so as to include the suggestion to begin coding when the teacher and the reading group comes together whether the teacher or the pupil initiates the verbal interaction.

Category 16: Silence and Confusion. The wide range of utilization of this category among classes and the anecdotal records indicate that confusion may be more prevalent in some classes than silence. It may be worthwhile, therefore, to subscript the category into Confusion (16a) which would include behaviors so overlapping as to make coding impossible, and Silence (16b) which would include periods of silence as well as indicating change of speakers and the beginning and closing of the observation period.

Ground Rules 1, 2, 6, 7 and 8 were found to be satisfactory as stated and, therefore, remain unchanged. Modifications are suggested

for Ground Rules 3, 4, 5 and 9.

Rule 3. While the ruling was felt to be valid, there was some difficulty in its implementation. The more familiar the observer was with the classroom behavior patterns, the easier it would be to code correctly. The following addition, therefore, could be made to this ground rule:

> "Preliminary visits to the classroom are essential to allow the observer to become familiar with behavior patterns common to that class and will thus facilitate coding."

If this ground rule was observed then a decision to include Category 14, Unison Response, could be made at that time if deemed necessary.

Rule 4. It appeared more likely that when doubt occurred regarding the Content-centred response compared with the Self-Expression response, that the Self-Expression category would more accurately describe the pupil's behavior. Therefore, this ground rule should be changed as follows in favor of selecting the Self-Expression response when doubt exists:

> "If there is doubt regarding the content-centred responses compared with the self-expression responses, the self-expression category should be used."

Rule 5. The present study did not utilize Category 14 or Ground Rule 5, both of which refer to unison response. However, unison response did occur occasionally during the grade four reading lessons. Therefore, this ground rule should be retained and reworded as follows to accommodate the omission of Category 14 but to provide for the coding of unison response when it does occur:

> "When unison response occurs during oral reading, such as the group reading of a poem, Category 12, Pupil Oral Reading response, should be coded. If the different responses are clearly audible and

relate to the solicitation then the appropriate pupil reaction category should be recorded and not a 16 for Silence and Confusion. Anecdotal records could indicate when unison response occurs."

Rule 9. This rule is inconsistent with Ground Rule 7 and should be deleted. The suggested training manual to accompany the OSAPRL might recommend that Pupil Initiated behavior that is ignored by the teacher be noted in the anecdotal records. Although the original research at the primary level (Browne, 1971) indicated the necessity for this ground rule because pupils often called out and were ignored, it was not common at the upper elementary level because it had been replaced by pupils raising their hands and being ignored.

TEACHER-PUPIL VERRAL INTERACTION OBSERVED DURING FOURTH GRADE READING LESSONS

Findings and Conclusions

Analysis of the data gathered using the OSAPRL during fourth grade reading lessons indicated that differences in verbal interaction patterns exist across classes and intra-class groups although all classes used basal reading materials. This section will report only the most important and the most supported findings of the analysis. To that extent the focus will mainly be on the OSAPRL categories' class data for each teacher, although some reference will be made to data pertaining to intra-class group differences.

1. In every class the largest proportion of tallies was recorded for Teacher Reading-Lecture behavior (Category 5). This same behavior predominated when the intra-class group data were examined with the exception of the Low group in Class III which recorded far less than any other group or any other class. A cursory examination of the matrix for

this group showed larger proportions of tallies in the Non-Reading and Silence and Confusion categories.

It would appear, however, that a basic similarity does exist among teachers who use basal reading materials in the fourth grade. That is, they all tend to lecture or talk about "reading".

2. Among the teacher solicitation categories, the greatest proportion of tallies were recorded for Comprehension questions (Category 2) by three of the teachers. Teacher IV, however, recorded a greater proportion of Word Perception solicitations.

Of the intra-class groups, the Average ability groups tended to record a greater proportion of Comprehension solicitations compared with other groups. Class IV was again deviant in that the High group received a greater proportion of tallies for Comprehension solicitations.

The discrepancy in the use of the solicitation categories among classes was similar to Yake's (1973) finding. However, the tendency for the Average group to record a greater proportion of tallies for comprehension solicitations is in contrast to the findings of both Browne (1971) and Yake (1973) wherein, at the primary level, the High group received a greater proportion of Comprehension solicitation tallies.

It would appear, therefore, that teachers are putting emphasis on comprehension questions at the fourth grade level, particularly with the Average groups, at least, compared with the other kinds of solicitations that are measured by the OSAPRL.

An examination of Class IV's matrix indicated that the Average-Low group received a very high proportion of tallies for Word Perception solicitations and a very low proportion of tallies for Comprehension

solicitations which accounts for the discrepancy shown by that class and intra-class group data. Because these figures reflect those of primary level findings (Browne, 1971; Yake, 1973), it may be that Teacher IV viewed the Average-Low group's needs as being at a primary level.

3. Within the subscripted Comprehension category, teachers recorded twice the proportion of tallies for Literal Comprehension questions as they did for Inferential questions. They recorded a minimal proportion of tallies for Appreciation questions and some teachers recorded no tallies at all for Evaluation and Reorganization questions.

It may be concluded, therefore, that these fourth grade teachers, like many other teachers observed by such investigators as Guszak (1967), Bartolome (1967), and Wolf, King and Huck (1968), still see the literal comprehension of the reading content to be the most important comprehension task in the fourth grade reading curriculum.

Habecker's (1976) study which classified questions asked in basal reading manuals using a scheme based on Bloom's Taxonomy, just as the Barrett Taxonomy used to subscript the Comprehension category in the present study had been based on Bloom's Taxonomy, found that basal reading manuals, while still emphasizing literal questions, had increased their emphasis on a variety of other question types. It would appear, however, from the findings of this study, that teachers at the grade four level have not yet increased their emphasis on using a variety of question types.

4. There was a wide variation across classes in the proportion of tallies recorded for Category 6, Non-Reading behavior (approximately

2 to 15 per cent). This would suggest that whatever efforts may be made to standardize the amount of time to be devoted to reading in the school curriculum, the actual amount of time may differ from class to class when classroom behavior is observed and measured.

5. Within the area of teacher reactions a greater proportion of tallies was recorded for Confirming behaviors than for Corrective or Extending reactions. This would suggest that the reading tasks in these classes were tasks that the pupils were able to handle. However, although it would appear that the pupils were having positive experiences in the reading class, the lower proportions of Teacher Corrective reaction and minimal Extending reactions may also mean that the pupils were not being suitably challenged.

This conclusion is borne out further by the fact that the majority of questions asked were at the literal level and, therefore, it is not surprising that pupil responses would be found acceptable and thus confirmed by the teacher. The possibility that the Literal Comprehension question tends to lead to a Confirming or closure-type teacher reaction is supported by the general finding that very few Extending reactions were recorded in these classes. To put it another way, standard pupil responses do not lead to the exploration of ideas in reading or more Teacher Extending reactions might have occurred if only for the purpose of clarification of student ideas.

An examination of the steady state cell (7-7) of the matrices for these teachers indicated that some Teacher Confirming reactions tended to be of short duration. Flanders (1967), in making a distinction between true praise and a verbal habit of briefly accepting nearly all

student statements, suggests that true praise must get through to the student and provide reward and encouragement and that this cannot be accomplished by a verbal habit alone (p. 159). It may be, therefore, that the high incidence of Teacher Confirming reactions is, in fact, a reflection of the type of verbal habit referred to by Flanders.

There was some cursory evidence from the matrices to suggest an inverse relationship between the amount of Teacher Confirming reactions and of Pupil Initiating behaviors. This inverse relationship was also revealed in Yake's (1973) study. Cogan (1967), on the other hand, found that teachers high in confirming behavior elicited a high degree of pupil initiated behavior. This discrepancy may be explained by differences in the nature of the two studies. Cogan's analysis focussed more upon a generalized positive learning environment as one in which pupils would feel secure in initiating different behaviors. What the present study suggests is that Confirming reactions to reading tasks alone do not necessarily create a positive environment.

6. Among the pupil response categories, the greatest proportion of tallies was recorded for Self-Expression responses (Category 11) by three of the classes. In Class I, a greater proportion was recorded for Content responses (Category 10). A closer examination of the data revealed that within Class I, the lower ability group had a very high proportion of tallies for Content responses. Browne (1971) and Yake (1973) both found a higher incidence of Content responses at the primary level. Again, Teacher I's treatment of the lower ability group may be a reflection of the teacher's perception of the group's needs, that is, that they were at a primary level.

At first glance it would appear to be inconsistent that, with the high proportion of tallies occurring for Literal Comprehension among teacher solicitations, the Self-Expression category rather than the Content response would have the highest proportion of tallies among the pupil responses. An examination of the steady state cells for both categories (10-10 and 11-11) provides some insight into the observed behavior. The Self-Expression category had greater proportions of sustained behavior than did the Content response.

What was probably occurring in these classrooms, therefore, was that teachers were asking many Literal Comprehension questions which were followed by brief Pupil Content responses. The nature of the Self-Expression response, however, which generally followed Word Perception solicitations and also Inferential Comprehension and Background solicitations, apparently allowed for pupil replies of longer duration.

Implications

1. In spite of the fact that teachers using basal reading materials employ various verbal interaction patterns across classes and intra-class groups, they all rely heavily on lecture-type behavior. A closer look at the behaviors included in the OSAPRL Lecture category, through other studies, might reveal more specific information regarding the ways in which teachers utilize the time designated as lecture.

2. The general emphasis on Comprehension solicitations may reflect an emphasis on the "meaning" of the reading materials. The trend toward greater emphasis on Comprehension among the Average ability pupils at the upper elementary level may suggest that teachers associate an increased competence with Word Perception with a growing need for

development in the Comprehension area.

It may be, however, that teachers need an opportunity to objectively analyze what they are doing and to determine if there are valid reasons behind their behavior in reading classes or if they just feel that they are doing what is needed. The emphasis on Word Perception to the exclusion of Comprehension, for example, may not be what Class IV's Average-Low group really needed to improve their reading skills, (see Browne, 1973).

3. If, as Bartolome's study (1969) suggests, there is a discrepancy between teachers' perceptions of what they do and what in fact they do, then perhaps the OSAPRL could be used, and needs to be used, to point out to teachers as well as researchers, not only the emphasis placed on Literal Comprehension questions but, particularly, the scarcity of use of other types of questions.

Training teachers in the use of different questioning techniques, as in the Wolf, King and Huck study (1968), may be a necessary action to be taken for the improvement of teacher reading comprehension questioning ability.

4. Both teachers and school administrators may need to look at classroom management techniques and school organization to reduce the incidence of activity which interferes with the scheduled reading lesson time.

5. The nature of Teacher Confirming behavior may need to be examined more closely to determine if, in fact, teachers are merely employing a "verbal habit" when they accept a pupil's response or if, indeed, it is true praise. Furthermore, teachers may need to be made aware of the

difference.

The "closure" aspect of Teacher Confirming behavior may also need to be revealed to teachers with a view to increasing their skill with, and their use, of Extending reactions for the purpose of encouraging the pupil's thinking to some depth rather than just at a superficial level. Pupil Initiating behavior may need to be seen by teachers as opportunities for Teacher Extending reactions rather than just for Teacher Confirming behavior.

6. Since it appears that pupils were allowed to express themselves at some length in response to Word Perception, Inferential Comprehension and Background solicitations as opposed to Literal Comprehension solicitations, it may be worthwhile to draw such information to the attention of teachers. Again, the degree of literal question, brief response, closure acceptance behavior pattern could be reduced in favor of a variety of questioning techniques followed by an idea exploring response, reacted to with an extending behavior that carries the child's thinking beyond the literal level.

SUGGESTIONS FOR FURTHER RESEARCH

More testing is needed using the OSAPRL in basal reading classes at the upper elementary level, in more classrooms and, especially, with more observational visits. The modifications to the OSAPRL categories and ground rules as suggested by this study might be implemented in future studies.

The OSAPRL might also be applied in classrooms using other reading approaches and particulary in classes utilizing an integrated language

arts program since there is growing emphasis on such an approach.

A parallel study involving the subscripting of the Comprehension Solicitation category would serve to substantiate the indications found in the present study regarding the kinds of comprehension questions teachers ask during actual reading lessons.

It might be of value to set up a study using model lesson plans wherein a selection of teachers are encouraged to ask questions beyond the literal level and to examine the pupil response and teacher reaction patterns that emerge. Such a study may confirm the remarks made earlier about the closure aspect of the usual question, response, confirmation pattern.

Studies involving interests in particular aspects of teacher-pupil interaction during reading lessons might be undertaken with the subscripting of other categories such as Teacher Lecture (Category 5) to determine what proportions of various behaviors are included in this category.

As refinements are made to the OSAPRL the next step would be to have teachers use the OSAPRL to analyze their own patterns of behavior to help them understand what they are doing and the congruency, if any, between what they do and what they think that they do.

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APPENDICES

APPENDIX A

TEACHER DATA INTERVIEW FORM

TEACHER DATA INTERVIEW FORM

Teacher Experience

1. Number of years of teaching experience _____
2. Number of years experience teaching at this level _____
3. Other primary teaching experience _____

Educational Background - General

1. Nature of training preceding first full time teaching _____
2. Type of subsequent training if any _____
3. Study being undertaken at this time _____

Educational Background - Reading

1. Any initial reading courses _____
2. Subsequent reading courses _____
3. Reading courses being undertaken at this time _____
4. Do you subscribe to or have access to educational journals? Which do you find most useful? _____

Teachers Perceptions of Pupils' Needs and Abilities

1. Would you like to teach this class next year? _____
2. Is this class quick to grasp ideas? _____
3. Is this class productive of new ideas? _____
4. Does this class participate freely in discussions? _____
5. Does this class cooperate well in group projects? _____
6. Does this class take pride in its work as a unit? _____
7. Are the members of this class generally friendly and accepting of each other? _____

APPENDIX B

THE OBSERVATIONAL SYSTEM FOR THE ANALYSIS OF PRIMARY READING LESSONS (OSAPRL)

THE OBSERVATIONAL SYSTEM FOR THE ANALYSIS OF PRIMARY READING LESSONS (OSAPRL)

(Revised Edition, 1974)

PROCEDURES

The procedures for using OSAPRL follow those recommended for the Flanders' system. An observer is trained in using the category system and then observes and codes (at 3 second intervals or when there is a change in behavior) teacher-pupil verbal[1] interaction either under natural classroom conditions or from audio/video recordings.

CATEGORY DESCRIPTIONS

CATEGORY 1: WORD PERCEPTION SOLICITATIONS

Any teacher question or directive aimed at the development or review of pupils' skills in translating printed symbols to their oral equivalents would be categorized as a word perception solicitation. This category would include any solicitation involving phonics, structural analysis, dictionary usage, or any other word recognition skill. Where there is no specific verbal directive such as in the case of flash card drills, a Category 1 should be inserted for each word presented. If blackboard or printed exercises are used to develop these skills then directives to complete the appropriate exercise would be recorded here, so long as a verbal pupil response was called for in the solicitation.

CATEGORY 2: COMPREHENSION SOLICITATIONS

Any question or directive aimed at soliciting a response from pupils which calls for an understanding of or ability to interpret or integrate information from the context of the written materials would be recorded as a Category 2 behavior, including those instances when a non-verbal response is called for. If the written materials are exercise materials aimed at developing these abilities then a question or directive (including a gesture) that pupils complete such exercises verbally would be accounted for by this category. If a lesson should depend primarily on these latter types of materials a note should be made to this effect, following Flanders' procedures for explaining the specific nature of any lesson.

CATEGORY 3: ORAL READING SOLICITATIONS

Any solicitation which calls for a reading response, except for those identified as Category 1 and 2 solicitation behaviors would be recorded as Category 3. That is, the oral reading category is used only when the oral reading is called for without any emphasis on a purpose for reading aloud except for its own sake or to generally determine "what was said." Audience situations or emphasis on expression in the solicitation would therefore require that the behavior be recorded as a 3. Whenever there is a change of pupils in the "oral reading circle" a 3 should be inserted in order to note a change in readers. A specific directive that pupils read silently would also be classified here, if no purpose were set for the reading except that the pupils find out what was said in the passage. If the silent reading is prompted by a specific question then one of the other solicitation categories should be used.

CATEGORY 4: "OTHER" SOLICITATIONS

There is no doubt that this is a "catchall" category at this point in the development of the category system in that this category is included to record behavior that falls outside Categories 1, 2 and 3. In any class where a large number of solicitations are identified as Category 4, the observer should note the reasons for this, so that the information may be available for revising the solicitation categories.

CATEGORY 5: TEACHER READING-CENTERED LECTURE TYPE BEHAVIOR

Teacher behavior aimed at the reading aspect of the lesson but which is not directed at involving pupils in interaction would be categorized here. Examples of this behavior would be those instances where teachers lecture or discuss the story content or aspects of it in terms of their own opinions, ideas, and experiences; where teachers add knowledge which is apparently meant to enhance pupil understanding; where teachers give procedural directives for completing independent work; where teachers read aloud to pupils; and where there is teacher dictation related to the completion of reading exercises. In terms of the latter, the lecture category would be used when pupils are expected to write down rather than verbalize their answers. If responses are verbalized, then depending upon the nature of the exercise, one of the solicitation categories would be used.

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[1] The OSAPRL deviates somewhat from a strictly verbal system. This will be made clear in the category descriptions.

CATEGORY 6: NON-READING-CENTERED BEHAVIOR

Any teacher or pupil verbal behaviors which are not specifically aimed at reading would be identified as Category 6. In any reading class, not all the observed behavior would be specific to the reading content of the lesson, as in the case of announcements over the address system or other interruptions by outsiders. Teachers may make general announcements; they may discipline pupils for their general behavior; they may direct pupils to do other activities such as the collection and distribution of materials and so on. Pupils may in turn make verbal responses to these teacher actions. A series of 6's at 3 second intervals should be recorded during these interruptions thus providing a record of the proportion of observed behaviors taken up by the non-reading behavior. In a grouped class, for example, teacher and pupil behaviors aimed at one of the independent groups should be recorded as a series of 6's.

CATEGORY 7: TEACHER CONFIRMING REACTIONS

Where the teacher indicates through acceptance or praise or in any other way that the pupil's response is acceptable, a Category 7 should be recorded. Even brief responses such as "uh huh," "o.k." and "yes" would be recorded as confirming behaviors if they were aimed at the acceptance of the pupil's response. Where pupil responses are repeated by the teacher for the group, the repetition would constitute a confirming reaction.

CATEGORY 8: TEACHER EXTENDING REACTIONS

If a teacher reacts to a pupil's response by attempting to get the pupil to extend or clarify his response to a comprehension solicitation, this behavior would be classified as a Category 8. Extending behaviors should not be confused with reactions which are clearly corrective such as "you'll have to say more than that". This is a tricky category and should only be used when the teacher is clearly trying to lead the child ahead in his thinking.

CATEGORY 9: TEACHER CORRECTIVE REACTIONS

Any reaction which indicates to a pupil that his response or lack of response is not acceptable should be recorded as a Category 9. This would include those instances where the teacher provides information to the pupil so that he may continue with his response, such as saying the next word in the oral reading sequence. If a teacher calls upon another pupil to provide the correct or acceptable response for the pupil then that behavior would be recorded as a corrective behavior, and the pupil response as one of the response categories (10, 11, 12, 14 below).

CATEGORY 10: PUPIL CONTENT RESPONSES

Any response which requires that a pupil use information from the written materials used in the lesson, or information specifically disseminated in that lesson should be identified as content-centered responses and recorded as a Category 10.

CATEGORY 11: PUPIL SELF-EXPRESSION RESPONSES

Whenever the pupil is allowed to present his own opinions or to draw upon his store of general information (including previously learned concepts in the area of instruction) and personal experiences in responding to a solicitation the response should be categorized as a Category 11.

CATEGORY 12: PUPIL ORAL-READING RESPONSES

If the pupil reads aloud his response to the teacher's solicitation, then the response should be recorded as a Category 12, except where the materials being read have been composed by the pupil himself. Where the materials were written by the pupil then the response should be categorized as an 11 (Self-expression) if the ideas are essentially his own and as a content response (Category 10) if the response has been written as an answer to a comprehension question requiring an answer based on the materials in a selection.

CATEGORY 13: PUPIL SILENT-READING RESPONSES

A category 13 should be recorded for each three second interval that a pupil or group of pupils read silently. Interruptions in the silent reading should be coded according to the other categories, but verbalizing during the reading should continue to be coded as 13's.

CATEGORY 14: PUPIL UNISON RESPONSES

Where more than one pupil responds, either at the teacher's invitation or as a matter of usual behavior, the group response, whether read or expressed in the pupils' own words would be recorded as a Category 14.

CATEGORY 15: PUPIL INITIATING BEHAVIOR

If the pupil initiates the interaction with the teacher or another pupil by asking a question or submitting unsolicited information relevant to the reading lesson that behavior is categorized as 15. If the interaction is between two pupils, the response of the other pupil should also be recorded as a Category 15, but with a 16 recorded before the second pupil's behavior is recorded. If a pupil corrects another pupil this should be indicated by the pupil's response being categorized as a continuation of his response to the teacher solicitation, such as continuing to read orally (Category 12).

CATEGORY 16: SILENCE AND CONFUSION

A Category 16 should be recorded for each three seconds of silence, except where pupils are reading silently. Where it is impossible to analyze the interaction because there is too much going on at once, this category should be used at three second intervals.

THE CATEGORIZATION GROUND RULES

RULE 1. When in doubt about the category corresponding to the observed behavior, the observer should choose the category which will provide the greatest amount of information. In terms of the solicitations for example, the "other" category (4) should only be used when the behavior is clearly not in the areas of Word perception (1) Comprehension (2) or Oral reading (3).

RULE 2. If there is any doubt about the purpose of the oral reading solicitation being made explicit, the oral reading solicitation category (3) should be used. The rationale here is that if the observer is unsure of the purpose of the solicitation calling for an oral reading response, then it would be likely that the pupils may be uncertain as well.

RULE 3. In deciding upon a confirming reaction (7), an extending reaction (8), or the corrective reaction (9), the observer, while not attempting to second guess the teacher's intentions, should consider how the pupil might perceive the reaction, and categorize it from that point of view.

RULE 4. If there is doubt regarding the content-centered responses compared with the self-expression response, the content-centered category should be used.

RULE 5. Some unison responses may be close to confusion in that a number of pupils seem to be calling out different answers. If the different responses are clearly audible and relate to the solicitation then the unison response category (14) should be recorded and not a category 16 for silence and confusion.

RULE 6. Each change in behavior should be recorded regardless of the three second interval.

RULE 7. Pupil initiated behaviors which are corrective of a peer should be recorded as a 15 (Pupil initiating behavior). Where the teacher and a pupil respond correctively to the reader at the same time, the pupil behavior should be recorded. If the teacher extends the corrective reaction beyond the first behavior a Category 16 should be inserted between the pupil corrective behavior and the teacher's extended reaction. The following sequence shows this more clearly.

	Observed behavior	Category
(1)	pupil is reading aloud and makes a miscue	12
(2)	peer and teacher correct	15
(3)	conventional 16	16
(4)	teacher continues to correct (3 sec.)	9

RULE 8. If a pupil hesitates in reading orally for longer than three seconds before he self-corrects or is corrected, a Category 13 (Silent reading) should be recorded. The rationale for this is that the pupil may be reading silently in order to correct himself.

RULE 9. If a pupil's initiating behavior is ignored by the teacher in that the teacher launches into another behavior, a Category 16 should be recorded between the pupil's initiating attempts and the teacher's next observed behavior. By inserting the 16, the build up in the 15-16 cell in the matrix will show how pupils' unsolicited contributions are received.

APPENDIX C

THE BARRETT TAXONOMY

THE BARRETT TAXONOMY

COGNITIVE AND AFFECTIVE DIMENSIONS OF READING COMPREHENSION

1.0 Literal Comprehension. Literal comprehension focuses on ideas and information which are explicitly stated in the selection. Purposes for reading and teacher's questions designed to elicit responses at this level may range from simple to complex. A simple task in literal comprehension may be the recognition or recall of a single fact or incident. A more complex task might be the recognition or recall of a series of facts or the sequencing of incidents in a reading selection. Purposes and questions at this level may have the following characteristics.

1.1 Recognition requires the student to locate or identify ideas or information explicitly stated in the reading selection itself or in exercises which use the explicit ideas and information presented in the reading selection. Recognition tasks are:

1.11 Recognition of Details. The student is required to locate or identify facts such as the names of characters, the time of the story, or the place of the story.

1.12 Recognition of Main Ideas. The student is asked to locate or identify an explicit statement in or from a selection which is a main idea of a paragraph or a larger portion of the selection.

1.13 Recognition of a Sequence. The student is required to locate or identify the order of incidents or actions explicitly stated in the selection.

1.14 Recognition of Comparison. The student is requested to locate or identify likenesses and differences in characters, times, and places that are explicitly stated in the selection.

1.15 Recognition of Cause and Effect Relationships. The student in this instance may be required to locate or identify the explicitly stated reasons for certain happenings or actions in the selection.

1.16 Recognition of Character Traits. The student is required to identify or locate explicit statements about a character which helps to point up the type of person he is.

1.2 Recall requires the student to produce from memory ideas and information explicitly stated in the reading selection. Recall tasks are:

1.21 Recall of Details. The student is asked to produce from memory facts such as the names of characters, the time of the story, or the place of the story.

1.22 Recall of Main Ideas. The student is required to state a main idea of a paragraph or a larger portion of the selection from memory, when the main idea is explicitly stated in the selection.

1.23 Recall of a Sequence. The student is asked to provide from memory the order of incidents or actions explicitly stated in the selection.

1.24 Recall of Comparisons. The student is required to call up from memory the likenesses and differences in characters, times, and places that are explicitly stated in the selection.

1.25 Recall of Cause and Effect Relationships. The student is requested to produce from memory explicitly stated reasons for certain happenings or actions in the selection.

1.26 Recall of Character Traits. The student is asked to call up from memory explicit statements about characters which illustrate the type of persons they are.

2.0 Reorganization. Reorganization requires the student to analyze, synthesize, and/or organize ideas or information explicitly stated in the selection. To produce the desired thought product, the reader may utilize the statements of the author verbatim or he may paraphrase or translate the author's statements. Reorganization tasks are:

2.1 Classifying. In this instance the student is required to place people, things, places, and/or events into categories.

2.2 Outlining. The student is requested to organize the selection into outline form using direct statements or paraphrased statements from the selection.

2.3 Summarizing. The student is asked to condense the selection using direct or paraphrased statements from the selection.

2.4 Synthesizing. In this instance, the student is requested to consolidate explicit ideas or information from more than one source.

3.0 Inferential Comprehension. Inferential comprehension is demonstrated by the student when he uses the ideas and information explicitly stated in the selection, his intuition, and his personal experience as a basis for conjectures and hypotheses. Inferences drawn by the student may be either convergent or divergent in nature and the student may or may not be asked to verbalize the rationale underlying his inferences. In general, then, inferential comprehension is stimulated by purposes for reading and teachers' questions which demand thinking and imagination that go beyond the printed page.

3.1 Inferring Supporting Details. In this instance, the student is asked to conjecture about additional facts the author might have included in the selection which would have made it more informative, interesting, or appealing.

3.2 Inferring Main Ideas. The student is required to provide the main idea, general significance, theme, or moral which is not explicitly stated in the selection.

3.3 Inferring Sequence. The student, in this case, may be requested to conjecture as to what action or incident might have taken place between two explicitly stated actions or incidents, or he may be asked to hypothesize about what would happen next if the selection had not ended as it did but had been extended.

3.4 Inferring Comparisons. The student is required to infer likenesses and differences in characters, times, or places. Such inferential comparisons revolve around ideas such as: "here and there," "then and now," "he and he," "he and she," and "she and she."

3.5 Inferring Cause and Effect Relationships. The student is required to hypothesize about the motivations of characters and their interactions with time and place. He may also be required to conjecture as to what caused the author to include certain ideas, words, characterizations, and actions in his writing.

3.6 Inferring Character Traits. In this case, the student is asked to hypothesize about the nature of characters on the basis of explicit clues presented in the selection.

3.7 Predicting Outcomes. The student is requested to read an initial portion of the selections and on the basis of this reading he is required to conjecture about the outcome of the selection.

3.8 Interpreting Figurative Language. The student, in this instance, is asked to infer literal meanings from the author's figurative use of language.

4.0 Evaluation. Purposes for reading and teacher's questions, in this instance, require responses by the student which indicate that he has made evaluative judgment by comparing ideas presented in the selection with external criteria provided by the teacher, other authorities, or other written sources, or with internal criteria provided by the reader's experiences, knowledge, or values. In essence evaluation deals with judgment and focuses on qualities of accuracy, acceptability, desirability, worth, or probability of occurrence. Evaluative thinking may be demonstrated by asking the student to make the following judgments.

4.1 Judgments of Reality or Fantasy. Could this really happen? Such a question calls for a judgment by the reader based on his experience.

4.2 Judgments of Fact or Opinion. Does the author provide adequate support for his conclusions. Is the author attempting to sway your thinking? Questions of this type require the student to analyze and evaluate the writing on the basis of the knowledge he has on the subject as well as to analyze and evaluate the intent of the author.

4.3 Judgments of Adequacy and Validity. Is the information presented here in keeping with what you have read on the subject in other sources? Questions of this nature call for the reader to compare written sources of information, with an eye toward agreement and disagreement or completeness and incompleteness.

4.4 Judgments of Appropriateness. What part of the story best describes the main character? Such a question requires the reader to make a judgment about the relative adequacy of different parts of the selection to answer the question.

4.5 Judgments of Worth, Desirability and Acceptability. Was the character right or wrong in what he did? Was his behavior good or bad? Questions of this nature call for judgments based on the reader's moral code or his value system.

5.0 Appreciation. Appreciation involves all the previously cited cognitive dimensions of reading, for it deals with the psychological and aesthetic impact of the selection on the reader. Appreciation calls for the student to be emotionally and aesthetically sensitive to the work and to have a reaction to the worth of its psychological and artistic elements. Appreciation includes both the knowledge of and the emotional response to literary techniques, forms, styles, and structures.

5.1 Emotional Response to the Content. The student is required to verbalize his feelings about the selection in terms of interest, excitement, boredom, fear, hate, amusement, etc. It is concerned with the emotional impact of the total work on the reader.

5.2 Identification with Characters or Incidents. Teachers' questions of this nature will elicit responses from the reader which demonstrate his sensitivity to, sympathy for, and empathy with characters and happenings portrayed by the author.

5.3 Reactions to the Author's Use of Language. In this instance the student is required to respond to the author's craftsmanship in terms of the semantic dimensions of the selection, namely, connotations and denotations of words.

5.4 Imagery. In this instance, the reader is required to verbalize his feelings with regard to the author's artistic ability to paint word pictures which cause the reader to visualize, smell, taste, hear, or feel.

APPENDIX D

SAMPLE TYPESCRIPTS

Sample Typescript A

T - What does it mean if the person is legendary? It says the legendary Foster Hewitt is here.

Confusion

T - Sorry, Ruth?

P - He's really popular and liked and that

T - There's a root word in there that gives you a clue

P - popular

T - Norma, if a person is legendary, that's true, he's, he would be, be quite popular, ah, but does legend give you a clue, Ruth?

Confusion

T - Again?

P - Everybody says they know him and

Confusion

T - He's what?

P - (reply inaudible)

T - O.K. If you didn't hear him, Edward said he's, he's been in the business for a long time, he's old, he's, he's well known. A legend is usually a story about somebody or something that's well know and so, that gives you a little bit of a clue, legendary. What does it mean, 'Again, he has symbolized for us all.' What do you think it means? 'Again he has symbolized for us all.' What do you think, Marvin?

P - (inaudible)

T - Tell me a little more.

P - (inaudible) and then talking . . . what the game is . . . know . . .

T - Very good. Good. O.K. Ah, Who's Foster Hewitt, there, Norman, let's go. Now. Excuse me. Let's remember this is an interview and these are people actually talking so make it sound as much like the people

Sample Typescript B

T - Almost and what

P -

T - Ssh. Let him think. No. You think about it. Almost

Pause

P - nearly

T - nearly. That's right. Almost and nearly. Good. What's the third one We talked about synonyms and we talked about antonyms. What is the third one of those 'nym' words? We might as well review it while we're at it.

Pause

Yes?

P - Homonyms

T - Homonyms. And how, what are homonyms?

Pause

Yes. Monica?

P - They sound the same but they aren't spelt the same.

T - That's right. They are words that are totally different words, they may have no relationship as far as meaning, of spelling, but, they have the same sound. So you have to watch. That's right. Let's have another couple of examples. Yes?

P - Pair and pare

T - Pair and pare. Can you spell the two of them?

P - p a i r, pa i r and p a r e

T - Right. There's another one, too. Pa, p a i r, p e a r and what's the third pair. Maybe you gave, I think I gave it to you, didn't I? What's the third? Yes?

P - P a i r

T - We had that one, but there are three that sound the same. Yes?

Sample Typescript C

Confusion

P - If the giant was friendly and if he ruled out the wicked wizard, he could go go to the the house and and and say, give the food back or just take it.

P - Stamp on him

P - Stamp on him and then take the food

T - What words could be

Confusion

T - Is there any words that could describe the wizard

Confusion

P - Wicked, mean and ugly.

T - O.K. Wayne, do you have any words that you could add to that?

P - Well, uh, well, if the townsfolk found out that the wizard was hiding all that food and all their grain and they they they could tell the mayor. The mayor would probably be the judge and he would have to go to court and and for the rest of his life, he'd have to justice . . . all the stuff out of the cave and put it back in the fields.

P - He had to go out of town. I read it all.

P - One more word is thieves.

T - He was a thief.

P - Mr.

T - Would you put those in alphabetical order and divide them into syllables.

Confusion

T - O.K. Now. O.K. Michelle, fine.

P - He was a fake wizard.

T - O.K.

Confusion

Sample Typescript D

T - Alright David. Let's go through the instructions in the bottom part there.

P - . . .,put before . . . number of the paragraph in which is found . . . on page 44.

T - Alright and do the first one, David.

P - Bird . . scientist about bird migration. Three.

T - Alright, any question about that one. Three. Dana?

P - Some birds migrate when their food disappears. Seven?

T - O.K. What about that third word, Dana?

P - (inaudible)

T - Right. long 'i', migrate. Linda?

P - Long ago men wondered what happened to some birds in the winter. Two?

T - Good. Debbie.

P - There is still much to learn about bird's migration. Eight.

T - Alright. Sherry.

P - (5 sec.) . . . migration . . . five

T - Alright. Let's check this one out. Let's go to paragraph four first, Sherry. Read that one for us and we'll check and see.

P - . . . (inaudible) . . 3 sec.

T - Ah, you're not on paragraph four though. Read paragraph four for us from page 44.

P - paragraph four.

P - (inaudible 15 sec. student reading)

T - Alright. Anything in that paragraph that tells us about roots joining together.

APPENDIX B

AN OPTICAL [illegible] SHEET

NAME .... TODAY'S DATE .... 196 ....
First Middle Day Mo Yr

SCHOOL ....Sample.................. GRADE ....

STUDENT NUMBER

Indicate answer by placing a mark between the guidelines as shown in the example. Use HB pencil.

NAME OF TEST ....

MALE FEMALE

AGE .... Yrs

PART 2a 2b 2c 2d 2e 3 4a 4b 5 6 7 8 9 10 11 12 13 15 16

PART 2

CAUTION — AVOID FOLDING ANY MARK ON THE ANSWER SHEET

IBM 5056

APPENDIX F

PROCEDURES USED FOR COMPUTING SCOTT'S COEFFICIENT

PROCEDURES USED FOR COMPUTING SCOTT'S COEFFICIENT

The investigator and the second observer selected an unfamiliar section, approximately eight minutes long, of one of the preliminary audio tapes. OSAPRL category numbers were used to code the teacher-pupil verbal interaction, although IBM optical score sheets could also have been used. Categorization was done independently at three second intervals and the observers' tallies for each category were tabulated separately.

The actual data used to compute Scott's coefficient for this study are as follows:

A category	B observer x	C observer y	D % x	E % y	F % difference	G average %
1	2	1	.262	.139	.123	.000
2a	74	75	9.699	10.417	.718	.101
2b	1	1	.131	.139	.008	.000
2c	9	8	1.150	1.111	.069	.013
2d	-	-	-	-	-	-
2e	-	-	-	-	-	-
3	33	27	4.325	3.750	.575	.163
4a	7	4	.917	.556	.361	.005
4b	1	-	.131	-	.131	.000
5	117	107	15.334	14.861	.473	2.279
6	49	35	6.422	4.861	1.561	.318
7	100	87	13.106	12.083	1.023	1.569
8	5	6	.655	.833	.178	.006
9	24	25	3.145	3.472	.328	.109
10	79	80	10.354	11.111	.757	1.152
11	12	5	1.573	.694	.879	.013
12	145	137	19.004	19.028	.024	3.616
13	43	51	5.636	7.083	1.447	.404
15	37	41	4.849	5.694	.845	.278
16	25	30	3.277	4.167	.890	.139
Total	763	720	100	99.999	10.389	10.165

Figure F.1. Figures used to calculate Scott's coefficient

Scott's coefficient was calculated by the following formula

$$Pi = \frac{A - R}{100 - R}$$

R is the proportion of agreement expected by chance, and was determined by squaring the proportions of tallies in each category, and adding these for all categories (column G).

A is the proportion of disagreement between two observers (column F) subtracted from 100, or complete agreement.

Using the calculations in Figure F.1, the above formula would read

$$Pi = \frac{(100 - 10.389) - 10.165}{100 - 10.165} = \frac{79.446}{89.833} = .884$$

APPENDIX G

ACTUAL MATRICES USED IN THIS STUDY

Actual Matrices Used in this Study

The following matrices are reduced copies of the actual computer print-out data sheets produced through the use of Test 13, Flanders Interaction Analysis at the University of Alberta.

Because the computer uses only numbers on the axes of the matrix, the lettering of the sub-categories used in the present study had to become part of the systematic numbering. Therefore, the matrix numbering corresponds to the OSAPRL category and sub-category identification as follows:

Matrix	OSAPRL
1	1
2	2a
3	2b
4	2c
5	2d
6	2e
7	3
8	4a
9	4b
10	5
11	6
12	7
13	8
14	9
15	10
16	11
17	12
18	13
19	15
20	16

The rows of figures represent the following:

- \- actual tallies recorded
- T percentage of tallies compared to total observations
- C percentage of tallies compared to total observations in that column
- R percentage of tallies compared to total observations in that row

Class 1 Total Sample

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	SUM
1-	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	15	2	0	3	3	26
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.1	0.1	0.8
C	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.3	7.2	0.8	0.0	2.1	3.5	0.8
R	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.0	0.0	0.0	3.8	57.7	7.7	0.0	11.5	11.5	100.0
2-	0	63	0	1	0	0	3	0	1	1	3	0	0	0	126	12	19	22	5	4	260
T	0.0	1.9	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	3.8	0.4	0.6	0.7	0.1	0.1	7.8
C	0.0	24.2	0.0	1.0	0.0	0.0	8.3	0.0	1.4	0.2	0.1	0.0	0.0	0.0	36.3	5.8	7.7	15.9	3.6	4.7	7.8
R	0.0	24.2	0.0	0.4	0.0	0.0	1.2	0.0	0.4	0.4	1.2	0.0	0.0	0.0	48.5	4.6	7.3	8.5	1.9	1.5	100.0
3-	0	1	1	0	0	0	1	0	0	1	1	0	0	0	2	0	0	0	0	0	7
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2
C	0.0	0.4	14.3	0.0	0.0	0.0	2.8	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.2
R	0.0	14.3	14.3	0.0	0.0	0.0	14.3	0.0	0.0	14.3	14.3	0.0	0.0	0.0	28.6	0.0	0.0	0.0	0.0	0.0	100.0
4-	0	0	0	22	0	1	0	0	1	3	3	0	0	0	47	23	0	3	2	1	105
T	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	1.4	0.7	0.0	0.1	0.1	0.0	3.1
C	0.0	0.0	0.0	21.0	0.0	4.8	0.0	0.0	1.4	0.6	0.7	0.0	0.0	0.0	13.5	11.1	0.0	1.4	1.4	1.2	3.1
R	0.0	0.0	0.0	21.0	0.0	1.0	0.0	0.0	1.0	2.9	2.9	0.0	0.0	0.0	44.8	21.9	0.0	1.9	1.9	1.0	100.0
5-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-	0	0	0	0	0	3	0	0	1	0	1	0	0	0	2	12	0	0	2	0	21
T	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.0	0.0	0.1	0.0	0.6
C	0.0	0.0	0.0	0.0	0.0	14.3	0.0	0.0	1.4	0.0	0.2	0.0	0.0	0.0	0.6	5.8	0.0	0.0	1.4	0.0	0.6
R	0.0	0.0	0.0	0.0	0.0	14.3	0.0	0.0	4.8	0.0	4.8	0.0	0.0	0.0	9.5	57.1	0.0	0.0	9.5	0.0	100.0
7-	0	2	0	0	0	0	5	0	0	0	1	0	0	0	0	0	22	5	0	1	36
T	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1	0.0	0.0	1.1
C	0.0	0.8	0.0	0.0	0.0	0.0	13.9	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	8.9	3.6	0.0	1.2	1.1
R	0.0	5.6	0.0	0.0	0.0	0.0	13.9	0.0	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	61.1	13.9	0.0	2.8	100.0
8-	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	20	0	0	2	1	29
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.1	0.0	0.9
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.8	1.4	0.2	0.0	0.0	0.0	0.0	0.0	9.6	0.0	0.0	1.4	1.2	0.5
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.8	3.4	3.4	0.0	0.0	0.0	0.0	0.0	69.0	0.0	0.0	6.9	3.4	100.0
9-	1	8	0	0	0	0	2	0	15	4	1	0	0	0	21	12	1	0	5	1	71
T	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.4	0.1	0.0	0.0	0.0	0.0	0.6	0.4	0.0	0.0	0.1	0.0	2.1
C	3.8	3.1	0.0	0.0	0.0	0.0	5.6	0.0	21.1	0.8	0.2	0.0	0.0	0.0	6.1	5.8	0.4	0.0	3.6	1.2	2.1
R	1.4	11.3	0.0	0.0	0.0	0.0	2.8	0.0	21.1	5.6	1.4	0.0	0.0	0.0	29.6	16.9	1.4	0.0	7.0	1.4	100.0
10-	2	21	1	15	0	3	0	2	11	392	12	0	0	2	3	4	0	5	26	13	521
T	0.1	0.6	0.0	0.4	0.0	0.1	0.0	0.1	0.3	11.7	0.4	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.8	0.4	15.5
C	7.7	8.1	14.3	14.3	0.0	14.3	13.1	28.6	15.5	75.2	2.7	0.0	0.0	1.0	0.9	1.9	0.0	3.6	18.6	15.1	15.5
R	0.4	4.0	0.2	2.9	0.0	0.6	0.8	1.3	2.1	75.2	2.3	0.0	0.0	0.4	0.6	0.8	0.0	1.0	5.0	2.5	100.0
11-	1	15	1	5	0	0	2	2	4	17	342	4	1	3	4	3	7	5	10	7	451
T	0.0	0.4	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.5	10.8	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.3	0.2	13.5
C	3.8	5.8	14.3	4.8	0.0	0.0	5.6	0.0	5.6	3.3	80.3	1.0	1.5	1.5	1.2	1.4	2.8	3.6	7.1	8.1	13.5
R	0.2	3.3	0.2	1.1	0.0	0.0	0.4	0.0	0.9	3.8	80.3	0.9	0.2	0.7	0.9	0.7	1.6	1.1	2.2	1.6	100.0
12-	4	80	3	40	0	6	10	3	16	46	17	60	13	16	18	25	8	3	39	1	388
T	0.1	2.4	0.1	1.2	0.0	0.2	0.3	0.1	0.5	1.4	0.5	1.2	0.4	0.5	0.5	0.7	0.2	0.1	1.2	0.0	11.6
C	15.4	30.8	42.9	38.1	0.0	28.6	27.8	10.3	22.5	8.8	3.8	10.3	19.4	7.8	5.2	12.0	3.2	2.2	27.9	1.2	11.6
R	1.0	20.6	0.8	10.3	0.0	1.5	2.6	0.8	4.1	11.9	4.4	10.3	3.4	4.1	4.6	6.4	2.1	0.8	10.1	0.3	100.0
13-	0	8	0	1	0	0	0	1	0	1	0	0	2	0	36	23	0	0	1	2	67
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.1	0.7	0.0	0.0	0.0	0.1	2.0
C	0.0	0.0	0.0	1.0	0.0	0.0	0.0	3.4	0.0	0.2	0.0	0.0	3.0	0.0	10.4	11.1	0.0	0.0	0.7	2.3	2.0
R	0.0	0.0	0.0	1.5	0.0	0.0	0.0	1.5	0.0	1.5	0.0	0.0	3.0	0.0	53.7	34.3	0.0	0.0	1.5	3.0	100.0
14-	4	9	0	4	0	1	0	2	1	8	5	6	0	50	30	5	45	14	15	6	205
T	0.1	0.3	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.2	0.1	0.2	0.0	1.5	0.9	0.1	1.3	0.4	0.4	0.2	6.1
C	15.4	3.5	0.0	3.8	0.0	4.8	0.0	6.9	1.4	1.5	1.1	1.5	0.0	24.4	8.6	2.4	18.2	10.1	10.7	7.0	6.1
R	2.0	4.4	0.0	2.0	0.0	0.5	0.0	1.0	0.5	3.9	2.4	2.9	0.0	24.4	14.6	2.4	22.0	6.8	7.3	2.9	100.0
15-	1	32	0	11	0	0	3	3	9	7	7	149	27	40	44	0	1	3	6	0	347
T	0.0	1.0	0.0	0.3	0.0	0.0	0.1	0.1	0.3	0.2	0.2	4.4	0.8	1.2	1.4	0.0	0.0	0.1	0.2	0.0	10.3
C	3.8	12.3	0.0	10.5	0.0	0.0	8.3	10.3	12.7	1.3	1.6	38.4	40.3	19.5	13.8	0.0	0.4	2.2	4.3	0.0	10.3
R	0.3	9.2	0.0	3.2	0.0	0.0	0.9	0.9	2.6	2.0	2.0	42.9	7.8	11.5	13.8	0.0	0.3	0.9	1.7	0.0	100.0
16-	2	1	0	4	0	6	0	8	3	7	5	80	18	13	0	54	0	0	6	1	208
T	0.1	0.0	0.0	0.1	0.0	0.2	0.0	0.2	0.1	0.2	0.1	2.4	0.5	0.4	0.0	1.6	0.0	0.0	0.2	0.0	6.2
C	7.7	0.4	0.0	3.8	0.0	28.6	0.0	27.6	6.2	1.3	1.1	20.6	26.9	6.3	0.0	26.0	0.0	0.0	4.3	1.2	6.2
R	1.0	0.5	0.0	1.9	0.0	2.9	0.0	3.8	1.4	3.4	2.4	38.5	8.7	6.3	0.0	26.0	0.0	0.0	2.9	0.5	100.0
17-	5	12	0	1	0	0	1	0	0	0	7	31	2	44	0	0	137	4	2	1	247
T	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9	0.1	1.3	0.0	0.0	4.1	0.1	0.1	0.0	7.4
C	19.2	4.6	0.0	1.0	0.0	0.0	2.8	0.0	0.0	0.0	1.6	8.0	3.0	21.5	0.0	0.0	55.5	2.9	1.4	1.2	7.4
R	2.0	4.9	0.0	0.4	0.0	0.0	0.4	0.0	0.0	0.0	2.8	12.6	0.8	17.4	0.0	0.0	55.5	1.6	0.8	0.4	100.0
18-	0	10	1	0	0	0	3	0	2	10	3	0	0	18	8	0	3	74	6	0	138
T	0.0	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.3	0.1	0.0	0.0	0.5	0.2	0.0	0.1	2.2	0.2	0.0	4.1
C	0.0	3.8	14.3	0.0	0.0	0.0	8.3	0.0	2.8	1.9	0.7	0.0	0.0	8.8	2.3	0.0	1.2	53.6	4.3	0.0	4.1
R	0.0	7.2	0.7	0.0	0.0	0.0	2.2	0.0	1.4	7.2	2.2	0.0	0.0	13.0	5.8	0.0	2.2	53.6	4.3	0.0	100.0
19-	1	2	0	1	0	0	1	0	0	6	12	76	3	15	0	0	1	0	5	17	140
T	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.4	2.3	0.1	0.4	0.0	0.0	0.0	0.0	0.1	0.5	4.2
C	3.8	0.8	0.0	1.0	0.0	0.0	2.8	0.0	0.0	1.2	2.7	19.6	4.5	7.3	0.0	0.0	0.4	0.0	3.6	19.8	4.2
R	0.7	1.4	0.0	0.7	0.0	0.0	0.7	0.0	0.0	4.3	8.6	54.3	2.1	10.7	0.0	0.0	0.7	0.0	3.6	12.1	100.0
20-	4	8	0	0	0	1	1	1	6	17	10	2	1	4	1	8	1	1	5	27	86
T	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.3	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.8	2.6
C	15.4	1.5	0.0	0.0	0.0	4.8	2.8	3.4	8.5	3.3	2.2	0.5	1.5	2.0	0.3	0.0	0.4	0.7	3.6	31.4	2.6
R	4.7	4.7	0.0	0.0	0.0	1.2	1.2	1.2	7.0	19.8	11.6	2.3	1.2	4.7	1.2	0.0	1.2	1.2	5.8	31.4	100.0
SUM	26	260	7	105	0	21	36	29	71	521	451	388	67	205	347	208	247	138	140	86	3353
T	0.8	7.8	0.2	3.1	0.0	0.6	1.1	0.9	2.1	15.5	13.5	11.6	2.0	6.1	10.3	6.2	7.4	4.1	4.2	2.6	100.0

Class 1 High Group

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	SUM
1- N	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	10	2	0	3	3	21
T	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.5	0.1	0.0	0.2	0.2	1.1
C	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	0.0	0.0	4.8	47.6	9.5	0.0	14.3	14.3	100.0
R	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	0.0	0.0	4.8	47.6	9.5	0.0	14.3	14.3	100.0
2- N	8	11	0	0	0	0	1	0	0	0	1	0	0	0	56	10	12	9	2	1	103
T	0.0	0.6	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	3.0	0.5	0.7	0.5	0.1	0.1	5.6
C	0.0	10.7	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	54.4	9.7	11.7	8.7	1.9	1.0	100.0
R	0.0	10.7	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	54.4	9.7	11.7	8.7	1.9	1.0	100.0
3- N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4- N	0	0	0	6	0	0	0	0	0	2	0	0	0	0	7	21	0	0	2	1	39
T	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.4	1.1	0.0	0.0	0.1	0.1	2.1
C	0.0	0.0	0.0	15.4	0.0	0.0	0.0	0.0	0.0	5.1	0.0	0.0	0.0	0.0	17.9	53.8	0.0	0.0	5.1	2.6	100.0
R	0.0	0.0	0.0	15.4	0.0	0.0	0.0	0.0	0.0	5.1	0.0	0.0	0.0	0.0	17.9	53.8	0.0	0.0	5.1	2.6	100.0
5- N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6- N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0	0	1	0	12
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.0	0.0	0.1	0.0	0.7
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	7.6	0.0	0.0	1.0	0.0	0.7
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	83.3	0.0	0.0	8.3	0.0	100.0
7- N	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17	1	0	1	21
T	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.1	0.0	0.1	1.1
C	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.4	1.9	0.0	2.7	1.1
R	0.0	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	81.0	4.8	0.0	4.8	100.0
8- N	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	1	0	12
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.7
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.7	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	1.0	0.0	0.7
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.7	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	66.7	0.0	0.0	8.3	0.0	100.0
9- N	1	3	0	0	0	0	2	0	4	0	1	0	0	0	18	7	1	0	2	1	40
T	0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.1	0.0	0.0	0.0	1.0	0.4	0.1	0.0	0.1	0.1	2.2
C	4.8	2.9	0.0	0.0	0.0	0.0	9.5	0.0	10.0	0.0	0.4	0.0	0.0	0.0	15.1	5.3	0.5	0.0	2.0	2.7	2.2
R	2.5	7.5	0.0	0.0	0.0	0.0	5.0	0.0	10.0	0.0	2.5	0.0	0.0	0.0	45.0	17.5	2.5	0.0	5.0	2.5	100.0
10- N	1	13	0	7	0	1	3	8	8	239	9	0	0	2	0	2	0	3	19	6	317
T	0.1	0.7	0.0	0.4	0.0	0.1	0.2	0.2	0.4	13.0	0.5	0.0	0.0	0.1	0.0	0.1	0.0	0.2	1.0	0.3	17.2
C	4.8	12.6	0.0	17.9	0.0	8.3	14.3	33.3	20.0	75.4	3.2	0.0	0.0	1.4	0.0	1.5	0.0	5.6	19.4	16.2	17.2
R	0.3	4.1	0.0	2.2	0.0	0.3	0.9	1.3	2.5	75.4	2.8	0.0	0.0	0.6	0.0	0.6	0.0	0.9	6.0	1.9	100.0
11- N	1	7	0	2	0	0	2	0	3	13	220	3	0	3	2	3	7	2	7	2	277
T	0.1	0.4	0.0	0.1	0.0	0.0	0.1	0.0	0.2	0.7	12.0	0.2	0.0	0.2	0.1	0.2	0.4	0.1	0.4	0.1	15.1
C	4.8	4.8	0.0	5.1	0.0	0.0	9.5	0.0	7.5	4.1	79.4	1.5	0.0	2.1	1.7	2.3	3.5	3.7	7.1	5.4	15.1
R	0.4	2.5	0.0	0.7	0.0	0.0	0.7	0.0	1.1	4.7	79.4	1.1	0.0	1.1	0.7	1.1	2.5	0.7	2.5	0.7	100.0
12- N	1	31	0	15	0	5	7	1	11	27	13	22	2	9	9	12	7	2	29	1	204
T	0.1	1.7	0.0	0.8	0.0	0.3	0.4	0.1	0.6	1.5	0.7	1.2	0.1	0.5	0.5	0.7	0.4	0.1	1.6	0.1	11.1
C	4.8	38.1	0.0	38.5	0.0	41.7	33.3	8.3	27.5	8.5	4.7	10.8	16.7	6.4	7.6	9.1	3.5	3.7	29.6	2.7	11.1
R	0.5	15.2	0.0	7.4	0.0	2.5	3.4	0.5	5.4	13.2	6.4	10.8	1.0	4.4	4.4	5.9	3.4	1.0	14.2	0.5	100.0
13- N	0	0	0	1	0	0	0	0	0	0	0	0	0	0	7	3	0	0	0	1	12
T	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.0	0.0	0.0	0.1	0.7
C	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	2.3	0.0	0.0	0.0	2.7	0.7
R	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	58.3	25.0	0.0	0.0	0.0	8.3	100.0
14- N	4	6	0	2	0	0	0	1	1	6	5	2	0	39	9	1	37	12	10	5	180
T	0.2	0.3	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.3	0.3	0.1	0.0	2.1	0.5	0.1	2.0	0.7	0.5	0.3	7.6
C	19.0	5.8	0.0	5.1	0.0	0.0	0.0	8.3	2.5	1.9	1.8	1.0	0.0	27.9	7.6	0.8	18.3	22.2	10.2	13.5	7.6
R	2.9	4.3	0.0	1.4	0.0	0.0	0.0	0.7	0.7	4.3	3.6	1.4	0.0	27.9	6.4	0.7	26.4	8.6	7.1	3.6	100.0
15- N	1	14	0	1	0	0	2	0	8	5	4	47	5	17	7	0	1	3	4	0	119
T	0.1	0.8	0.0	0.1	0.0	0.0	0.1	0.0	0.4	0.3	0.2	2.6	0.3	0.9	0.4	0.0	0.1	0.2	0.2	0.0	6.5
C	4.8	13.6	0.0	2.6	0.0	0.0	9.5	0.0	20.0	1.6	1.4	23.0	41.7	12.1	5.9	0.0	0.5	5.6	4.1	0.0	6.5
R	0.8	11.8	0.0	0.8	0.0	0.0	1.7	0.0	6.7	4.2	3.4	39.5	4.2	14.3	5.9	0.0	0.8	2.5	3.4	0.0	100.0
16- N	1	1	0	4	0	6	0	4	1	5	4	52	1	5	0	45	0	0	3	0	132
T	0.1	0.1	0.0	0.2	0.0	0.3	0.0	0.2	0.1	0.3	0.2	2.8	0.1	0.3	0.0	2.4	0.0	0.0	0.2	0.0	7.2
C	4.8	1.0	0.0	10.3	0.0	50.0	0.0	33.3	2.5	1.6	1.4	25.5	8.3	3.4	0.0	34.1	0.0	0.0	3.1	0.0	7.2
R	0.8	0.8	0.0	3.0	0.0	4.5	0.0	3.0	0.8	3.8	3.0	39.4	0.8	3.8	0.0	34.1	0.0	0.0	2.3	0.0	100.0
17- N	5	8	0	1	0	0	1	0	0	0	7	24	1	36	0	0	114	4	2	1	202
T	0.3	0.4	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.4	1.3	0.1	1.8	0.0	0.0	6.2	0.2	0.1	0.1	11.0
C	23.8	7.8	0.0	2.6	0.0	0.0	4.8	0.0	0.0	0.0	2.5	11.8	8.3	24.3	0.0	0.0	56.4	7.4	2.0	2.7	11.0
R	2.5	4.0	0.0	0.5	0.0	0.0	0.5	0.0	0.0	0.0	3.5	11.9	0.5	16.8	0.0	0.0	56.4	2.0	1.0	0.5	100.0
18- N	0	4	0	0	0	0	1	0	2	6	1	0	0	16	2	0	2	17	3	0	54
T	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.3	0.1	0.0	0.0	0.9	0.1	0.0	0.1	0.9	0.2	0.0	2.9
C	0.0	3.9	0.0	0.0	0.0	0.0	1.9	0.0	5.0	1.9	0.4	0.0	0.0	11.4	1.7	0.0	1.0	31.5	3.1	0.0	2.9
R	0.0	7.4	0.0	0.0	0.0	0.0	1.9	0.0	3.7	11.1	1.9	0.0	0.0	29.6	3.7	0.0	3.7	31.5	5.6	0.0	100.0
19- N	1	2	0	0	0	0	1	0	0	6	3	52	3	12	0	0	1	0	5	12	98
T	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.2	2.8	0.2	0.7	0.0	0.0	0.1	0.0	0.3	0.7	5.3
C	4.8	1.9	0.0	0.0	0.0	0.0	4.8	0.0	0.0	1.9	1.1	25.5	25.0	8.6	0.0	0.0	0.5	0.0	5.1	32.4	5.3
R	1.0	2.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	6.1	3.1	53.1	3.1	12.2	0.0	0.0	1.0	0.0	5.1	12.2	100.0
20- N	4	1	0	0	0	0	1	0	2	7	8	2	0	3	0	0	1	1	5	2	37
T	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.4	0.4	0.1	0.0	0.2	0.0	0.0	0.1	0.1	0.3	0.1	2.0
C	19.0	1.0	0.0	0.0	0.0	0.0	4.8	0.0	5.0	2.2	2.9	1.0	0.0	2.1	0.0	0.0	0.5	1.9	5.1	5.4	2.0
R	10.8	2.7	0.0	0.0	0.0	0.0	2.7	0.0	5.4	18.9	21.6	5.4	0.0	8.1	0.0	0.0	2.7	2.7	13.5	5.4	100.0
SUM N	21	103	0	39	8	12	21	12	40	317	277	204	12	140	118	132	202	54	98	37	1840
T	1.1	5.6	0.0	2.1	0.0	0.7	1.1	0.7	2.2	17.2	15.1	11.1	0.7	7.6	6.5	7.2	11.0	2.9	5.3	2.0	100.0

Class 1. Average Group

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	SUB
1-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	5
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.3
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.6	0.0	0.0	0.0	0.0	0.3
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
2-	0	52	0	1	0	0	2	0	1	1	2	0	0	0	70	2	7	13	3	3	157
T	0.0	3.4	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	4.6	0.1	0.5	0.9	0.2	0.2	10.4
C	0.0	33.1	0.0	1.5	0.0	0.0	13.3	0.0	3.2	0.5	1.1	0.0	0.0	0.0	30.7	2.6	15.6	15.5	7.1	6.1	10.4
R	0.0	33.1	0.0	0.6	0.0	0.0	1.3	0.0	0.6	0.6	1.3	0.0	0.0	0.0	44.6	1.3	4.5	8.3	1.9	1.9	100.0
3-	0	1	1	0	0	0	1	0	0	1	1	0	0	0	2	0	0	0	0	0	7
T	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.5
C	0.0	0.6	14.3	0.0	0.0	0.0	6.7	0.0	0.0	0.5	0.6	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.5
R	0.0	14.3	14.3	0.0	0.0	0.0	14.3	0.0	0.0	14.3	14.3	0.0	0.0	0.0	28.6	0.0	0.0	0.0	0.0	0.0	100.0
4-	0	0	0	16	0	1	0	0	1	1	3	0	0	0	60	2	0	2	0	0	66
T	0.0	0.0	0.0	1.1	0.0	0.1	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.0	2.6	0.1	0.0	0.1	0.0	0.0	4.4
C	0.0	0.0	0.0	24.2	0.0	11.1	0.0	0.0	3.2	0.5	1.7	0.0	0.0	0.0	17.5	2.6	0.0	2.4	0.0	0.0	4.4
R	0.0	0.0	0.0	24.2	0.0	1.5	0.0	0.0	1.5	1.5	4.5	0.0	0.0	0.0	90.6	3.0	0.0	3.0	0.0	0.0	100.0
5-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-	0	0	0	0	0	2	0	0	1	1	0	0	0	0	1	2	0	0	1	0	9
T	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.6
C	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	3.2	0.0	0.6	0.0	0.0	0.0	0.4	2.6	0.0	0.0	2.4	0.0	0.6
R	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	11.1	0.0	11.1	0.0	0.0	0.0	11.1	22.2	0.0	0.0	11.1	0.0	100.0
7-	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	5	4	0	0	15
T	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.0	0.0	1.0
C	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	11.1	4.8	0.0	0.0	1.0
R	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	6.7	0.0	0.0	0.0	0.0	0.0	33.3	26.7	0.0	0.0	100.0
8-	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	12	0	0	1	1	17
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.1	0.1	1.1
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.8	3.2	0.0	0.0	0.0	0.0	0.0	0.0	15.8	0.0	0.0	2.4	2.0	1.1
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.8	5.9	0.0	0.0	0.0	0.0	0.0	0.0	70.6	0.0	0.0	5.9	5.9	100.0
9-	0	5	0	0	0	0	0	0	11	4	0	0	0	0	3	5	0	0	3	0	31
T	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.3	0.0	0.0	0.0	0.0	0.2	0.3	0.0	0.0	0.2	0.0	2.0
C	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	35.5	2.0	0.0	0.0	0.0	0.0	1.3	6.6	0.0	0.0	7.1	0.0	2.0
R	0.0	16.1	0.0	0.0	0.0	0.0	0.0	0.0	35.5	12.9	0.0	0.0	0.0	0.0	9.7	16.1	0.0	0.0	9.7	0.0	100.0
10-	1	8	1	8	0	2	1	3	3	153	3	0	0	0	3	2	6	2	7	7	204
T	0.1	0.5	0.1	0.5	0.0	0.1	0.1	0.2	0.2	10.1	0.2	0.0	0.0	0.0	0.2	0.1	0.4	0.1	0.5	0.5	13.5
C	20.0	5.1	14.3	12.1	0.0	22.2	6.7	17.6	9.7	75.0	1.7	0.0	0.0	0.0	1.3	2.6	0.0	2.4	16.7	14.3	13.5
R	0.5	3.9	0.5	3.9	0.0	1.0	0.5	1.5	1.5	75.0	1.5	0.0	0.0	0.0	1.5	1.0	0.0	1.0	3.4	3.4	100.0
11-	0	8	1	3	0	0	0	0	1	4	142	1	1	0	2	8	0	3	3	5	174
T	0.0	0.5	0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.3	9.4	0.1	0.1	0.0	0.1	0.0	0.0	0.2	0.2	0.3	11.5
C	0.0	5.1	14.3	4.5	0.0	0.0	0.0	0.0	3.2	2.0	81.6	0.5	1.8	0.0	0.9	0.0	0.0	3.6	7.1	10.2	11.5
R	0.0	4.6	0.6	1.7	0.0	0.0	0.0	0.6	0.6	2.3	81.6	0.6	0.6	0.0	1.1	0.0	0.0	1.7	1.7	2.9	100.0
12-	3	49	3	25	0	1	3	2	5	19	4	18	11	7	9	13	1	1	10	0	184
T	0.2	3.2	0.2	1.7	0.0	0.1	0.2	0.1	0.3	1.3	0.3	1.2	0.7	0.5	0.6	0.9	0.1	0.1	0.7	0.0	12.2
C	60.0	31.2	42.9	37.9	0.0	11.1	20.0	11.8	16.1	9.3	2.3	9.8	20.0	10.8	3.9	17.1	2.2	1.2	23.8	0.0	12.2
R	1.6	26.6	1.6	13.6	0.0	0.5	1.6	1.1	2.7	10.3	2.2	9.8	6.0	3.8	4.9	7.1	0.5	0.5	5.4	0.0	100.0
13-	0	0	0	0	0	0	0	1	0	1	0	0	2	0	29	20	0	0	1	1	55
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.0	1.9	1.3	0.0	0.0	0.1	0.1	3.6
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	0.0	0.5	0.0	0.0	3.6	0.0	12.7	26.3	0.0	0.0	2.4	2.0	3.6
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	1.8	0.0	0.0	3.6	0.0	52.7	36.4	0.0	0.0	1.8	1.8	100.0
14-	0	3	0	2	0	1	0	1	0	2	0	4	0	11	21	4	8	2	5	1	65
T	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.3	0.0	0.7	1.4	0.3	0.5	0.1	0.3	0.1	4.3
C	0.0	1.9	0.0	3.0	0.0	11.1	0.0	5.9	0.0	1.0	0.0	2.2	0.0	16.9	9.2	5.3	17.8	2.4	11.9	2.0	4.3
R	0.0	4.6	0.0	3.1	0.0	1.5	0.0	1.5	0.0	3.1	0.0	6.2	0.0	16.9	32.3	6.2	12.3	3.1	7.7	1.5	100.0
15-	0	18	0	10	0	0	1	3	1	2	3	102	22	23	41	0	0	0	2	0	228
T	0.0	1.2	0.0	0.7	0.0	0.0	0.1	0.2	0.1	0.1	0.2	6.7	1.5	1.5	2.7	0.0	0.0	0.0	0.1	0.0	15.1
C	0.0	11.5	0.0	15.2	0.0	0.0	6.7	17.6	3.2	1.0	1.7	55.4	40.0	35.4	18.0	0.0	0.0	0.0	4.8	0.0	15.1
R	0.0	7.9	0.0	4.4	0.0	0.0	0.4	1.3	0.4	0.9	1.3	44.7	9.6	10.1	18.0	0.0	0.0	0.0	0.9	0.0	100.0
16-	1	0	0	0	0	0	0	4	2	2	1	28	17	8	0	9	0	0	3	1	76
T	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.1	0.1	1.9	1.1	0.5	0.0	0.6	0.0	0.0	0.2	0.1	5.0
C	20.0	0.0	0.0	0.0	0.0	0.0	0.0	23.5	6.5	1.0	0.6	15.2	30.9	12.3	0.0	11.8	0.0	0.0	7.1	2.0	5.0
R	1.3	0.0	0.0	0.0	0.0	0.0	0.0	5.3	2.6	2.6	1.3	36.8	22.4	10.5	0.0	11.8	0.0	0.0	3.9	1.3	100.0
17-	0	4	0	0	0	0	0	0	0	0	0	7	1	10	0	0	23	0	0	0	45
T	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	0.7	0.0	0.0	1.5	0.0	0.0	0.0	3.0
C	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	1.8	15.4	0.0	0.0	51.1	0.0	0.0	0.0	3.0
R	0.0	8.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.6	2.2	22.2	0.0	0.0	51.1	0.0	0.0	0.0	100.0
18-	0	6	1	0	0	0	2	0	0	4	2	0	0	2	6	0	1	57	3	0	84
T	0.0	0.4	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.1	0.0	0.0	0.1	0.4	0.0	0.1	3.8	0.2	0.0	5.6
C	0.0	3.8	14.3	0.0	0.0	0.0	13.3	0.0	0.0	2.0	1.1	0.0	0.0	3.1	2.6	0.0	2.2	67.9	7.1	0.0	5.6
R	0.0	7.1	1.2	0.0	0.0	0.0	2.4	0.0	0.0	4.8	2.4	0.0	0.0	2.4	7.1	0.0	2.4	67.9	3.6	0.0	100.0
19-	0	0	0	1	0	0	0	0	0	0	9	24	0	3	0	0	0	0	0	5	42
T	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.6	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.3	2.8
C	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	5.2	13.0	0.0	4.6	0.0	0.0	0.0	0.0	0.0	10.2	2.8
R	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	21.4	57.1	0.0	7.1	0.0	0.0	0.0	0.0	0.0	11.9	100.0
20-	0	3	0	0	0	1	0	1	4	10	2	0	1	1	1	0	0	0	0	25	49
T	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.1	0.3	0.7	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	1.7	3.2
C	0.0	1.9	0.0	0.0	0.0	11.1	0.0	5.9	12.9	4.9	1.1	0.0	1.8	1.5	0.4	0.0	0.0	0.0	0.0	51.0	3.2
R	0.0	6.1	0.0	0.0	0.0	2.0	0.0	2.0	8.2	20.4	4.1	0.0	2.0	2.0	2.0	0.0	0.0	0.0	0.0	51.0	100.0
SUB	5	157	7	66	0	9	15	17	31	204	176	184	55	65	228	76	45	84	42	49	1513
T	0.3	10.4	0.5	4.4	0.0	0.6	1.0	1.1	2.0	13.5	11.5	12.2	3.6	4.3	15.1	5.0	3.0	5.6	2.8	3.2	100.0

Class 2 Total Sample

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	ROW
1-	84	0	0	0	0	0	0	0	0	2	3	3	1	1	6	155	34	2	2	5	258
T	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.2	4.1	0.9	0.1	0.1	0.1	6.8
C	17.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	3.4	0.5	11.1	0.8	2.5	32.5	8.2	1.3	1.4	9.1	6.8
R	32.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.2	1.2	0.4	0.4	2.3	60.1	13.2	0.8	0.8	1.9	100.0
2-	0	57	0	0	0	1	0	0	2	2	1	2	0	0	75	2	39	20	6	2	209
T	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	2.0	0.1	1.0	0.5	0.2	0.1	5.5
C	0.0	27.3	0.0	0.0	0.0	3.2	0.0	0.0	11.8	0.3	1.1	0.3	0.0	0.0	31.8	0.4	9.4	13.4	4.2	3.6	5.5
R	0.0	27.3	0.0	0.0	0.0	0.5	0.0	0.0	1.0	1.0	0.5	1.0	0.0	0.0	35.9	1.0	18.7	9.6	2.9	1.0	100.0
3-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4-	0	0	0	5	0	0	1	0	0	1	0	0	0	0	16	32	0	0	1	0	56
T	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.8	0.0	0.0	0.0	0.0	1.5
C	0.0	0.0	0.0	8.9	0.0	0.0	0.9	0.0	0.0	0.1	0.0	0.0	0.0	0.0	6.8	6.7	0.0	0.0	0.7	0.0	1.5
R	0.0	0.0	0.0	8.9	0.0	0.0	1.8	0.0	0.0	1.8	0.0	0.0	0.0	0.0	28.6	57.1	0.0	0.0	1.8	0.0	100.0
5-	0	0	0	0	4	0	0	0	0	0	0	0	0	0	3	6	0	0	0	0	13
T	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.3
C	0.0	0.0	0.0	0.0	30.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.3	0.0	0.0	0.0	0.0	0.3
R	0.0	0.0	0.0	0.0	30.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	23.1	46.2	0.0	0.0	0.0	0.0	100.0
6-	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	18	0	0	1	1	31
T	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.8
C	0.0	0.0	0.0	0.0	0.0	35.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.0	0.0	0.7	1.8	0.8
R	0.0	0.0	0.0	0.0	0.0	35.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	58.1	0.0	0.0	3.2	3.2	100.0
7-	0	2	0	0	0	0	28	0	2	6	1	1	0	0	0	0	66	2	5	1	114
T	0.0	0.1	0.0	0.0	0.0	0.0	0.7	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.1	0.1	0.0	3.0
C	0.0	1.0	0.0	0.0	0.0	0.0	24.6	0.0	11.8	0.9	1.1	0.2	0.0	0.0	0.0	0.0	16.0	1.3	3.5	1.8	3.0
R	0.0	1.8	0.0	0.0	0.0	0.0	24.6	0.0	1.8	5.3	0.9	0.9	0.0	0.0	0.0	0.0	57.9	1.8	4.4	0.9	100.0
8-	0	0	0	0	0	0	0	10	0	3	0	0	0	0	0	38	0	0	0	0	51
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.3
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.6	0.0	0.4	0.0	0.0	0.0	0.0	0.0	8.0	0.0	0.0	0.0	0.0	1.3
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.6	0.0	5.9	0.0	0.0	0.0	0.0	0.0	74.5	0.0	0.0	0.0	0.0	100.0
9-	3	2	0	0	0	0	2	0	1	1	0	0	0	0	1	6	1	0	0	0	17
T	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.4
C	1.2	1.0	0.0	0.0	0.0	0.0	1.8	0.0	5.9	0.1	0.0	0.0	0.0	0.0	0.4	1.3	0.2	0.0	0.0	0.0	0.4
R	17.6	11.8	0.0	0.0	0.0	0.0	11.8	0.0	5.9	5.9	0.0	0.0	0.0	0.0	5.9	35.3	5.9	0.0	0.0	0.0	100.0
10-	52	23	0	5	0	3	19	5	1	543	11	0	0	0	1	0	0	3	22	9	697
T	1.4	0.6	0.0	0.1	0.0	0.1	0.5	0.1	0.0	14.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	0.2	18.3
C	20.2	11.0	0.0	8.9	0.0	9.7	16.7	9.8	5.9	77.9	12.6	0.0	0.0	0.0	0.4	0.0	0.0	2.0	15.5	16.4	18.3
R	7.5	3.3	0.0	0.7	0.0	0.4	2.7	0.7	0.1	77.9	1.6	0.0	0.0	0.0	0.1	0.0	0.0	0.4	3.2	1.3	100.0
11-	6	3	0	0	0	0	5	0	0	12	34	0	0	0	2	2	5	2	5	11	87
T	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.9	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.3	2.3
C	2.3	1.4	0.0	0.0	0.0	0.0	4.4	8.0	0.0	1.7	39.1	0.0	0.0	0.0	0.8	0.4	1.2	1.3	3.5	20.0	2.3
R	6.9	3.4	0.0	0.0	0.0	0.0	5.7	0.0	0.0	13.8	39.1	0.0	0.0	0.0	2.3	2.3	5.7	2.3	5.7	12.6	100.0
12-	100	70	0	32	6	9	15	23	9	97	8	158	5	14	7	31	14	2	60	2	662
T	2.6	1.8	0.0	0.8	0.2	0.2	0.4	0.6	0.2	2.5	0.2	4.1	0.1	0.4	0.2	0.8	0.4	0.1	1.6	0.1	17.4
C	38.6	33.5	0.0	57.1	46.2	29.0	13.2	45.1	52.9	13.9	9.2	23.9	55.6	10.5	3.0	6.5	3.4	1.3	42.3	3.6	17.4
R	15.1	10.6	0.0	4.8	0.9	1.4	2.3	3.5	1.4	14.7	1.2	23.9	0.8	2.1	1.1	4.7	2.1	0.3	9.1	0.3	100.0
13-	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	5	1	0	0	1	9
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2
C	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.0	0.2	0.0	0.0	1.8	0.2
R	0.0	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	55.6	11.1	0.0	0.0	11.1	100.0
14-	20	13	0	4	0	1	5	6	0	7	1	1	0	30	3	20	17	2	2	1	133
T	0.5	0.3	0.0	0.1	0.0	0.0	0.1	0.2	0.0	0.2	0.0	0.0	0.0	0.8	0.1	0.5	0.4	0.1	0.1	0.0	3.5
C	7.8	6.2	0.0	7.1	0.0	3.2	4.4	11.8	0.0	1.0	1.1	0.2	0.0	22.6	1.3	4.2	4.1	1.3	1.4	1.8	3.5
R	15.0	9.8	0.0	3.0	0.0	0.8	3.8	4.5	0.0	5.3	0.8	0.8	0.0	22.6	2.3	15.0	12.8	1.5	1.5	0.8	100.0
15-	2	7	0	2	1	2	0	1	0	0	0	81	2	13	119	0	1	0	5	0	236
T	0.1	0.2	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	2.1	0.1	0.3	3.1	0.0	0.0	0.0	0.1	0.0	6.1
C	0.8	3.3	0.0	3.6	7.7	6.5	0.0	2.0	0.0	0.0	0.0	12.2	22.2	9.8	50.4	0.0	0.2	0.0	3.5	0.0	6.2
R	0.8	3.0	0.0	0.8	0.4	0.8	0.0	0.4	0.0	0.0	0.0	34.3	0.8	5.5	50.4	0.0	0.4	0.0	2.1	0.0	100.0
16-	14	3	0	6	1	2	1	5	1	2	0	232	0	39	1	160	1	0	7	2	477
T	0.4	0.1	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.1	0.0	6.1	0.0	1.0	0.0	4.2	0.0	0.0	0.2	0.1	12.5
C	5.4	1.4	0.0	10.7	7.7	6.5	0.9	9.8	5.9	0.3	0.0	35.0	0.0	29.3	0.4	33.5	0.2	0.0	4.9	3.6	12.5
R	2.9	0.6	0.0	1.3	0.2	0.4	0.2	1.0	0.2	0.4	0.0	48.6	0.0	8.2	0.2	33.5	0.2	0.0	1.5	0.4	100.0
17-	9	3	0	1	1	1	31	1	0	8	8	86	1	27	0	1	230	0	8	1	413
T	0.2	0.1	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.1	0.2	2.3	0.0	0.7	0.0	0.0	6.0	0.0	0.2	0.0	10.8
C	3.5	1.4	0.0	1.8	7.7	3.2	27.2	2.0	0.0	0.6	9.2	13.0	11.1	20.3	0.4	0.2	55.7	0.0	5.6	1.8	10.8
R	2.2	0.7	0.0	0.2	0.2	0.2	7.5	0.2	0.0	1.0	1.9	20.8	0.2	6.5	0.0	0.2	55.7	0.0	1.9	0.2	100.0
18-	2	22	0	1	0	0	2	0	1	2	1	0	0	0	0	0	2	116	0	0	149
T	0.1	0.6	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	3.0	0.0	0.0	3.9
C	0.8	10.5	0.0	1.8	0.0	0.0	1.8	0.0	5.9	0.3	1.1	0.0	0.0	0.0	0.0	0.0	0.5	77.9	0.0	0.0	3.9
R	1.3	14.8	0.0	0.7	0.0	0.0	1.3	0.0	0.7	1.3	0.7	0.0	0.0	0.0	0.0	0.0	1.3	77.9	0.0	0.0	100.0
19-	0	8	0	0	0	0	1	0	0	1	8	96	0	6	0	0	0	0	16	14	142
T	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.5	0.0	0.2	0.0	0.0	0.0	0.0	0.4	0.4	3.7
C	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.1	9.2	14.5	0.0	4.5	0.0	0.0	0.0	0.0	11.3	25.5	3.7
R	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.7	5.6	67.6	0.0	4.2	0.0	0.0	0.0	0.0	11.3	9.9	100.0
20-	6	3	0	0	0	1	4	0	0	14	11	2	0	3	1	1	2	0	2	5	55
T	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.4	0.3	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.1	1.4
C	2.3	1.4	0.0	0.0	0.0	3.2	3.5	0.0	0.0	2.0	12.6	0.3	0.0	2.3	0.4	0.2	0.5	0.0	1.4	9.1	1.4
R	10.9	5.5	0.0	0.0	0.0	1.8	7.3	0.0	0.0	25.5	20.0	3.6	0.0	5.5	1.8	1.8	3.6	0.0	3.6	9.1	100.0
ROW	258	209	0	56	13	31	114	51	17	697	87	662	9	133	236	477	413	149	142	55	3409
T	6.8	5.5	0.0	1.5	0.3	0.8	3.0	1.3	0.4	18.3	2.3	17.4	0.2	3.5	6.2	12.5	10.8	3.9	3.7	1.4	100.0

Class 2 High Group

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	SUM
1-	33	0	0	0	0	0	0	0	0	1	2	3	1	0	2	55	14	1	2	3	107
R	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.0	0.1	4.0	1.0	0.1	0.1	0.2	7.7
C	21.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	5.3	1.3	50.0	0.0	2.5	30.2	9.1	2.0	2.6	9.4	7.7
B	21.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.9	2.8	0.9	0.0	1.9	51.4	13.1	0.9	1.9	2.8	100.0
2-	0	2	0	0	0	0	0	0	0	0	1	0	0	0	11	0	4	0	0	0	18
R	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.8	0.0	0.3	0.0	0.0	0.0	1.3
C	0.0	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	0.0	13.6	0.0	2.6	0.0	0.0	0.0	1.3
B	0.0	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	0.0	0.0	61.1	0.0	22.2	0.0	0.0	0.0	100.0
3-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4-	0	0	0	1	0	0	0	0	0	1	0	0	0	0	8	1	0	0	1	0	12
R	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.6	0.1	0.0	0.0	0.1	0.0	0.9
C	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	9.9	0.5	0.0	0.0	1.3	0.0	0.9
B	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	66.7	8.3	0.0	0.0	8.3	0.0	100.0
5-	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
R	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
C	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.1
B	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	100.0
6-	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	12	0	0	0	1	15
R	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.1	1.1
C	0.0	0.0	0.0	0.0	0.0	13.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0	0.0	0.0	3.1	1.1
B	0.0	0.0	0.0	0.0	0.0	13.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	80.0	0.0	0.0	0.0	6.7	100.0
7-	0	0	0	0	0	0	19	0	2	5	1	1	0	0	0	0	48	1	5	1	83
R	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.1	0.4	0.1	0.1	0.0	0.0	0.0	0.0	3.5	0.1	0.4	0.1	6.0
C	0.0	0.0	0.0	0.0	0.0	0.0	22.9	0.0	28.6	2.1	2.6	0.4	0.0	0.0	0.0	0.0	31.2	2.0	6.6	3.1	6.0
B	0.0	0.0	0.0	0.0	0.0	0.0	22.9	0.0	2.4	6.0	1.2	1.2	0.0	0.0	0.0	0.0	57.8	1.2	6.0	1.2	100.0
8-	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	17	0	0	0	0	22
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	1.6
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.3	0.0	0.0	0.0	0.0	1.6
B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	77.3	0.0	0.0	0.0	0.0	100.0
9-	0	0	0	0	0	0	2	0	1	0	0	0	0	0	1	2	1	0	0	0	7
R	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.5
C	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0	14.3	0.0	0.0	0.0	0.0	0.0	1.2	1.1	0.6	0.0	0.0	0.0	0.5
B	0.0	0.0	0.0	0.0	0.0	0.0	28.6	0.0	14.3	0.0	0.0	0.0	0.0	0.0	14.3	28.6	14.3	0.0	0.0	0.0	100.0
10-	21	1	0	0	0	3	15	0	1	170	2	0	0	0	0	0	0	1	14	5	233
R	1.5	0.1	0.0	0.0	0.0	0.2	1.1	0.0	0.1	12.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.0	0.4	16.8
C	19.6	5.6	0.0	0.0	0.0	20.0	18.1	0.0	14.3	73.0	5.3	0.0	0.0	0.0	0.0	0.0	0.0	2.0	18.4	15.6	16.8
B	9.0	0.4	0.0	0.0	0.0	1.3	6.4	0.0	0.4	73.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.4	6.0	2.1	100.0
11-	4	1	0	0	0	0	4	0	0	6	7	0	0	0	2	2	5	2	2	3	38
R	0.3	0.1	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.4	0.5	0.0	0.0	0.0	0.1	0.1	0.4	0.1	0.1	0.2	2.7
C	3.7	5.6	0.0	0.0	0.0	0.0	4.8	0.0	0.0	2.6	18.4	0.0	0.0	0.0	2.5	1.1	3.2	4.1	2.6	9.4	2.7
B	10.5	2.6	0.0	0.0	0.0	0.0	10.5	0.0	0.0	15.8	18.4	0.0	0.0	0.0	5.3	5.3	13.2	5.3	5.3	7.9	100.0
12-	43	12	0	9	1	5	11	13	2	36	2	54	1	7	1	8	1	1	22	2	229
R	3.1	0.9	0.0	0.6	0.1	0.4	0.8	0.9	0.1	2.5	0.2	3.9	0.1	0.5	0.1	0.6	0.1	0.1	1.6	0.1	16.5
C	40.2	66.7	0.0	75.0	50.0	33.3	13.3	59.1	28.6	14.6	5.3	23.6	50.0	16.3	1.2	4.4	0.6	2.0	28.9	6.3	16.5
B	18.8	5.2	0.0	3.9	0.4	2.2	4.8	5.7	0.9	14.8	0.9	23.6	0.4	3.1	0.4	3.5	0.9	0.4	9.6	0.9	100.0
13-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.1
B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
14-	7	0	0	1	0	1	5	0	0	7	1	0	0	0	1	1	7	0	2	1	43
R	0.5	0.0	0.0	0.1	0.0	0.1	0.4	0.0	0.0	0.5	0.1	0.0	0.0	0.0	0.1	0.1	0.5	0.0	0.1	0.1	3.1
C	6.5	0.0	0.0	8.3	0.0	6.7	6.0	0.0	0.0	3.0	2.6	0.0	0.0	20.9	1.2	0.5	4.5	0.0	2.6	3.1	3.1
B	16.3	0.0	0.0	2.3	0.0	2.3	11.6	0.0	0.0	16.3	2.3	0.0	0.0	20.9	2.3	2.3	16.3	0.0	4.7	2.3	100.0
15-	0	0	0	1	0	1	0	1	0	0	0	20	0	1	53	0	0	0	4	0	81
R	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	1.4	0.0	0.1	3.8	0.0	0.0	0.0	0.3	0.0	5.8
C	0.0	0.0	0.0	8.3	0.0	6.7	0.0	4.5	0.0	0.0	0.0	8.7	0.0	2.3	65.4	0.0	0.0	0.0	5.3	0.0	5.8
B	0.0	0.0	0.0	1.2	0.0	1.2	0.0	1.2	0.0	0.0	0.0	24.7	0.0	1.2	65.4	0.0	0.0	0.0	4.9	0.0	100.0
16-	1	1	0	0	0	2	1	2	0	0	0	78	0	9	1	80	0	0	6	1	182
R	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	5.6	0.0	0.6	0.1	5.8	0.0	0.0	0.4	0.1	13.1
C	0.9	5.6	0.0	0.0	0.0	13.3	1.2	9.1	0.0	0.0	0.0	34.1	0.0	20.9	1.2	44.0	0.0	0.0	7.9	3.1	13.1
B	0.5	0.5	0.0	0.0	0.0	1.1	0.5	1.1	0.0	0.0	0.0	42.9	0.0	4.9	0.5	44.0	0.0	0.0	3.3	0.5	100.0
17-	4	1	0	0	0	0	21	1	0	3	7	31	0	9	0	0	70	0	7	0	154
R	0.3	0.1	0.0	0.0	0.0	0.0	1.5	0.1	0.0	0.2	0.5	2.2	0.0	0.6	0.0	0.0	5.1	0.0	0.5	0.0	11.1
C	3.7	5.6	0.0	0.0	0.0	0.0	25.3	4.5	0.0	1.3	18.4	13.5	0.0	20.9	0.0	0.0	45.5	0.0	9.2	0.0	11.1
B	2.6	0.6	0.0	0.0	0.0	0.0	13.6	0.6	0.0	1.9	4.5	20.1	0.0	5.8	0.0	0.0	45.5	0.0	4.5	0.0	100.0
18-	1	0	0	0	0	0	1	0	1	0	1	0	0	0	0	0	2	43	0	0	49
R	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	3.1	0.0	0.0	3.5
C	0.9	0.0	0.0	0.0	0.0	0.0	1.2	0.0	14.3	0.0	2.6	0.0	0.0	0.0	0.0	0.0	1.3	87.8	0.0	0.0	3.5
B	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	4.1	87.8	0.0	0.0	100.0
19-	0	0	0	0	0	0	1	0	0	0	7	40	0	5	0	0	0	0	9	14	76
R	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.5	2.9	0.0	0.4	0.0	0.0	0.0	0.0	0.6	1.0	5.5
C	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	18.4	17.5	0.0	11.6	0.0	0.0	0.0	0.0	11.8	43.8	5.5
B	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	9.2	52.6	0.0	6.6	0.0	0.0	0.0	0.0	11.8	18.4	100.0
20-	3	0	0	0	0	1	3	0	0	6	7	2	0	3	1	1	2	0	2	1	32
R	0.2	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.4	0.5	0.1	0.0	0.2	0.1	0.1	0.1	0.0	0.1	0.1	2.3
C	2.8	0.0	0.0	0.0	0.0	6.7	3.6	0.0	0.0	2.6	18.4	0.9	0.0	7.0	1.2	0.5	1.3	0.0	2.6	3.1	2.3
B	9.4	0.0	0.0	0.0	0.0	3.1	9.4	0.0	0.0	18.8	21.9	6.3	0.0	9.4	3.1	3.1	6.3	0.0	6.3	3.1	100.0
SUM	107	18	0	12	2	15	83	22	7	233	38	229	2	43	81	182	154	49	76	32	1385
T	7.7	1.3	0.0	0.9	0.1	1.1	6.0	1.6	0.5	16.8	2.7	16.5	0.1	3.1	5.8	13.1	11.1	3.5	5.5	2.3	100.0

Class 2 Average Group 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	SUM
1-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.1
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
2-	0	35	0	0	0	0	0	0	1	2	0	1	0	0	35	1	19	11	1	2	108
T	0.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.1	0.0	0.0	4.2	0.1	2.3	1.3	0.1	0.2	13.0
C	0.0	32.4	0.0	0.0	0.0	0.0	0.0	0.0	50.0	1.9	0.0	0.7	0.0	0.0	66.1	2.7	10.4	35.5	2.7	25.0	13.0
R	0.0	32.4	0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.9	0.0	0.9	0.0	0.0	32.4	0.9	17.6	10.2	0.9	1.9	100.0
3-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4-	0	0	0	3	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	11
T	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	1.3
C	0.0	0.0	0.0	27.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	10.8	0.0	0.0	0.0	0.0	1.3
R	0.0	0.0	0.0	27.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.4	36.4	0.0	0.0	0.0	0.0	100.0
5-	0	0	0	0	3	0	0	0	0	0	0	0	0	0	3	5	0	0	0	0	11
T	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.6	0.0	0.0	0.0	0.0	1.3
C	0.0	0.0	0.0	0.0	27.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9	13.5	0.0	0.0	0.0	0.0	1.3
R	0.0	0.0	0.0	0.0	27.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.3	45.5	0.0	0.0	0.0	0.0	100.0
6-	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	6	0	0	0	0	8
T	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	1.0
C	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.2	0.0	0.0	0.0	0.0	1.0
R	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	75.0	0.0	0.0	0.0	0.0	100.0
7-	0	1	0	0	0	0	7	0	0	0	0	0	0	0	0	0	15	0	0	0	23
T	0.0	0.1	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	2.8
C	0.0	0.9	0.0	0.0	0.0	0.0	30.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.2	0.0	0.0	0.0	2.8
R	0.0	4.3	0.0	0.0	0.0	0.0	30.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	65.2	0.0	0.0	0.0	100.0
8-	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	0	0	0	4
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.5
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	5.4	0.0	0.0	0.0	0.0	0.5
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	100.0
9-	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
T	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2
C	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.2
R	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	100.0
10-	1	9	0	2	0	0	2	0	0	85	3	0	0	0	0	0	0	0	3	2	107
T	0.1	1.1	0.0	0.2	0.0	0.0	0.2	0.0	0.0	10.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	12.9
C	100.0	8.3	0.0	18.2	0.0	0.0	8.7	0.0	0.0	79.4	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1	25.0	12.9
R	0.9	8.4	0.0	1.9	0.0	0.0	1.9	0.0	0.0	79.4	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	1.9	100.0
11-	0	0	0	0	0	0	1	0	0	3	13	0	0	0	0	0	0	0	3	3	23
T	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.4	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	2.8
C	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	2.8	56.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1	37.5	2.8
R	0.0	0.0	0.0	0.0	0.0	0.0	4.3	0.0	0.0	13.0	56.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.0	13.0	100.0
12-	0	35	0	2	5	8	2	2	1	12	5	25	0	3	3	7	8	0	22	0	136
T	0.0	4.2	0.0	0.2	0.6	0.5	0.2	0.2	0.1	1.4	0.6	3.0	0.0	0.4	0.4	0.8	1.0	0.0	2.7	0.0	16.4
C	0.0	32.4	0.0	18.2	45.5	50.0	8.7	50.0	50.0	11.2	21.7	18.4	0.0	15.8	3.9	18.9	4.4	0.0	59.5	0.0	16.4
R	0.0	25.7	0.0	1.5	3.7	2.9	1.5	1.5	0.7	8.8	3.7	18.4	0.0	2.2	2.2	5.1	5.9	0.0	16.2	0.0	100.0
13-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	1	3
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.4
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.5	0.0	0.0	12.5	0.4
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	33.3	0.0	0.0	33.3	100.0
14-	0	7	0	1	0	0	0	0	0	0	0	1	0	2	2	0	4	2	0	0	19
T	0.0	0.8	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.2	0.0	0.5	0.2	0.0	0.0	2.3
C	0.0	6.5	0.0	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	10.5	2.6	0.0	2.2	6.5	0.0	0.0	2.3
R	0.0	36.8	0.0	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	0.0	10.5	10.5	0.0	21.1	10.5	0.0	0.0	100.0
15-	0	1	0	0	1	1	0	0	0	0	0	33	2	8	28	0	1	0	1	0	76
T	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	4.0	0.2	1.0	3.4	0.0	0.1	0.0	0.1	0.0	9.2
C	0.0	0.9	0.0	0.0	9.1	12.5	0.0	0.0	0.0	0.0	0.0	24.3	66.7	42.1	36.8	0.0	0.5	0.0	2.7	0.0	9.2
R	0.0	1.3	0.0	0.0	1.3	1.3	0.0	0.0	0.0	0.0	0.0	43.4	2.6	10.5	36.8	0.0	1.3	0.0	1.3	0.0	100.0
16-	0	1	0	2	1	0	0	1	0	0	0	22	0	0	0	9	0	0	1	0	37
T	0.0	0.1	0.0	0.2	0.1	0.0	0.0	0.1	0.0	0.0	0.0	2.7	0.0	0.0	0.0	1.1	0.0	0.0	0.1	0.0	4.5
C	0.0	0.9	0.0	18.2	9.1	0.0	0.0	25.0	0.0	0.0	0.0	16.2	0.0	0.0	0.0	24.3	0.0	0.0	2.7	0.0	4.5
R	0.0	2.7	0.0	5.4	2.7	0.0	0.0	2.7	0.0	0.0	0.0	59.5	0.0	0.0	0.0	24.3	0.0	0.0	2.7	0.0	100.0
17-	0	2	0	1	1	1	10	0	0	1	1	23	1	6	0	1	135	0	0	0	183
T	0.0	0.2	0.0	0.1	0.1	0.1	1.2	0.0	0.0	0.1	0.1	2.8	0.1	0.7	0.0	0.1	16.3	0.0	0.0	0.0	22.1
C	0.0	1.9	0.0	9.1	9.1	12.5	43.5	0.0	0.0	0.9	4.3	16.9	33.3	31.6	0.0	2.7	73.8	0.0	0.0	0.0	24.1
R	0.0	1.1	0.0	0.5	0.5	0.5	5.5	0.0	0.0	0.5	0.5	12.6	0.5	3.3	0.0	0.5	73.8	0.0	0.0	0.0	100.0
18-	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0	0	31
T	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0	3.7
C	0.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	58.1	0.0	0.0	3.7
R	0.0	41.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	58.1	0.0	0.0	100.0
19-	0	0	0	0	0	0	0	0	0	0	0	31	0	0	0	0	0	0	6	0	37
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	4.5
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.8	0.0	0.0	0.0	0.0	0.0	0.0	16.2	0.0	4.5
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	83.8	0.0	0.0	0.0	0.0	0.0	0.0	16.2	0.0	100.0
20-	0	3	0	0	0	0	1	0	0	3	1	0	0	0	0	0	0	0	0	0	8
T	0.0	0.4	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
C	0.0	2.8	0.0	0.0	0.0	0.0	4.3	0.0	0.0	2.8	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
R	0.0	37.5	0.0	0.0	0.0	0.0	12.5	0.0	0.0	37.5	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
SUM	1	108	0	11	11	8	23	4	2	107	23	136	3	19	76	37	183	31	37	8	828
T	0.1	13.0	0.0	1.3	1.3	1.0	2.8	0.5	0.2	12.9	2.8	16.4	0.4	2.3	9.2	4.5	22.1	3.7	4.5	1.0	100.0

Class 2 Average Group 2

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	SUM
1-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.2	0.0	0.0	0.0	0.0	0.0	8.2
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	8.2
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
2-	0	17	0	0	0	0	0	0	1	0	0	1	0	0	27	0	15	0	3	0	72
R	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0	5.1	0.0	2.8	1.5	0.6	0.0	13.5
C	0.0	23.6	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	1.3	0.0	0.0	37.0	0.0	32.6	44.4	30.0	0.0	13.5
T	0.0	23.6	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	1.4	0.0	0.0	37.5	0.0	20.8	11.1	4.2	0.0	100.0
3-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4-	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4	14	0	0	0	0	19
R	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	2.6	0.0	0.0	0.0	0.0	3.6
C	0.0	0.0	0.0	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	38.9	0.0	0.0	0.0	0.0	3.6
T	0.0	0.0	0.0	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.1	73.7	0.0	0.0	0.0	0.0	100.0
5-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7-	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	1	0	0	5
R	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.0	0.0	0.9
C	0.0	0.0	0.0	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	5.6	0.0	0.0	0.9
T	0.0	0.0	0.0	0.0	0.0	0.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	20.0	0.0	0.0	100.0
8-	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	6	0	0	0	0	9
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.2	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	1.7
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.2	0.0	0.8	0.0	0.0	0.0	0.0	0.0	13.0	0.0	0.0	0.0	0.0	1.7
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.2	0.0	11.1	0.0	0.0	0.0	0.0	0.0	66.7	0.0	0.0	0.0	0.0	100.0
9-	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
R	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
C	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
T	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
10-	0	10	0	1	0	0	2	0	0	113	2	0	0	0	1	0	0	1	1	0	131
R	0.0	1.3	0.0	0.2	0.0	0.0	0.4	0.0	0.0	21.2	0.4	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.2	0.0	24.6
C	0.0	13.9	0.0	5.3	0.0	0.0	40.0	0.0	0.0	86.3	40.0	0.0	0.0	0.0	1.4	0.0	0.0	5.6	10.0	0.0	24.6
T	0.0	7.6	0.0	0.8	0.0	0.0	1.5	0.0	0.0	86.3	1.5	0.0	0.0	0.0	0.8	0.0	0.0	0.8	0.8	0.0	100.0
11-	0	2	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	5
R	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.9
C	0.0	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.9
T	0.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	100.0
12-	1	19	0	12	0	0	0	3	0	12	0	17	1	0	3	1	4	1	5	0	79
R	0.2	3.6	0.0	2.3	0.0	0.0	0.0	0.6	0.0	2.3	0.0	3.2	0.2	0.0	0.6	0.2	0.8	0.2	0.9	0.0	14.8
C	100.0	26.4	0.0	63.2	0.0	0.0	0.0	33.3	0.0	9.2	0.0	21.5	100.0	0.0	4.1	2.2	8.7	5.6	50.0	0.0	14.8
T	1.3	24.1	0.0	15.2	0.0	0.0	0.0	3.8	0.0	15.2	0.0	21.5	1.3	0.0	3.8	1.3	5.1	1.3	6.3	0.0	100.0
13-	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
R	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
C	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
T	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
14-	0	6	0	0	0	0	0	2	0	0	0	0	0	5	0	0	2	0	0	0	15
R	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.4	0.0	0.0	0.0	2.8
C	0.0	8.3	0.0	0.0	0.0	0.0	0.0	22.2	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	4.3	0.0	0.0	0.0	2.8
T	0.0	40.0	0.0	0.0	0.0	0.0	0.0	13.3	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	13.3	0.0	0.0	0.0	100.0
15-	0	6	0	1	0	0	0	0	0	0	0	25	0	4	37	0	0	0	0	0	73
R	0.0	1.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	0.0	0.8	6.9	0.0	0.0	0.0	0.0	0.0	13.7
C	0.0	8.3	0.0	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	31.6	0.0	26.7	50.7	0.0	0.0	0.0	0.0	0.0	13.7
T	0.0	8.2	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34.2	0.0	5.5	50.7	0.0	0.0	0.0	0.0	0.0	100.0
16-	0	1	0	4	0	0	0	2	0	1	0	11	0	2	0	25	0	0	0	0	46
R	0.0	0.2	0.0	0.8	0.0	0.0	0.0	0.4	0.0	0.2	0.0	2.1	0.0	0.4	0.0	4.7	0.0	0.0	0.0	0.0	8.6
C	0.0	1.4	0.0	21.1	0.0	0.0	0.0	22.2	0.0	0.8	0.0	13.9	0.0	13.3	0.0	54.3	0.0	0.0	0.0	0.0	8.6
T	0.0	2.2	0.0	8.7	0.0	0.0	0.0	4.3	0.0	2.2	0.0	23.9	0.0	4.3	0.0	54.3	0.0	0.0	0.0	0.0	100.0
17-	0	0	0	0	0	0	0	0	0	0	0	17	0	4	0	0	23	0	1	1	46
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.8	0.0	0.0	4.3	0.0	0.2	0.2	8.6
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	21.5	0.0	26.7	0.0	0.0	50.0	0.0	10.0	50.0	8.6
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.0	0.0	8.7	0.0	0.0	50.0	0.0	2.2	2.2	100.0
18-	0	9	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	7	0	0	18
R	0.0	1.7	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	3.4
C	0.0	12.5	0.0	0.0	0.0	0.0	20.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38.9	0.0	0.0	3.4
T	0.0	50.0	0.0	0.0	0.0	0.0	5.6	0.0	0.0	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38.9	0.0	0.0	100.0
19-	0	0	0	0	0	0	0	0	0	1	1	8	0	0	0	0	0	0	0	0	10
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	20.0	10.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	10.0	80.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
20-	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
SUM	1	72	0	19	0	0	5	9	1	131	5	79	1	15	73	46	46	18	10	2	533
T	0.2	13.5	0.0	3.6	0.0	0.0	0.9	1.7	0.2	24.6	0.9	14.8	0.2	2.8	13.7	8.6	8.6	3.4	1.9	0.4	100.0

Class 2 Average Group 1 and 2 Combined

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Row
1-	21	0	0	0	0	0	0	0	0	1	1	0	0	1	3	99	20	1	0	2	148
T	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.3	9.3	1.9	0.1	0.0	0.2	14.0
C	14.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	4.8	0.0	0.0	1.8	50.0	66.7	66.7	2.0	0.0	15.4	14.0
R	14.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.0	0.0	0.7	2.0	66.9	13.5	0.7	0.0	1.3	100.0
2-	0	3	0	0	0	1	0	0	0	0	0	0	0	0	2	1	1	1	2	0	11
T	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.2	0.0	1.0
C	0.0	27.3	0.0	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.5	3.3	2.0	10.5	0.0	1.0
R	0.0	27.3	0.0	0.0	0.0	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.2	9.1	9.1	9.1	18.2	0.0	100.0
3-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4-	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	13	0	0	0	0	14
T	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	1.3
C	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	0.0	0.0	1.3
R	0.0	0.0	0.0	0.0	0.0	0.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	92.9	0.0	0.0	0.0	0.0	100.0
5-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	1	0	8
T	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.8
C	0.0	0.0	0.0	0.0	0.0	87.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	0.0	0.8
R	0.0	0.0	0.0	0.0	0.0	87.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0	100.0
7-	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	3
T	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3
C	0.0	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.3
R	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	100.0
8-	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	13	0	0	0	0	16
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	1.5
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0	0.4	0.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	0.0	0.0	1.5
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0	6.3	0.0	0.0	0.0	0.0	0.0	81.3	0.0	0.0	0.0	0.0	100.0
9-	3	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	0	0	0	0	7
T	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.7
C	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.7
R	42.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.3	0.0	0.0	0.0	0.0	0.0	42.9	0.0	0.0	0.0	0.0	100.0
10-	30	3	0	2	0	0	0	5	0	175	4	0	0	0	0	0	0	1	4	2	226
T	2.8	0.3	0.0	0.2	0.0	0.0	0.0	0.5	0.0	16.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.2	21.3
C	20.1	27.3	0.0	14.3	0.0	0.0	0.0	31.3	0.0	77.4	19.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	21.1	15.4	21.3
R	13.3	1.3	0.0	0.9	0.0	0.0	0.0	2.2	0.0	77.4	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.8	0.9	100.0
11-	2	0	0	0	0	0	0	0	0	2	13	0	0	0	0	0	0	0	0	4	21
T	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.0
C	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	61.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.8	2.0
R	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.5	61.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.0	100.0
12-	56	4	0	9	0	0	2	5	6	39	1	62	3	4	0	15	1	0	11	0	218
T	5.3	0.4	0.0	0.8	0.0	0.0	0.2	0.5	0.6	3.7	0.1	5.8	0.3	0.4	0.0	1.4	0.1	0.0	1.0	0.0	20.5
C	37.6	36.4	0.0	64.3	0.0	0.0	66.7	31.3	85.7	17.3	4.8	28.4	100.0	7.1	0.0	7.1	3.3	0.0	57.9	0.0	20.5
R	25.7	1.8	0.0	4.1	0.0	0.0	0.9	2.3	2.8	17.9	0.5	28.4	1.4	1.8	0.0	6.9	0.5	0.0	5.0	0.0	100.0
13-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.3
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.8
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
14-	13	0	0	2	0	0	0	4	0	0	0	0	0	14	0	19	4	0	0	0	56
T	1.2	0.0	0.0	0.2	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	1.3	0.0	1.8	0.4	0.0	0.0	0.0	5.3
C	8.7	0.0	0.0	14.3	0.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	9.0	13.3	0.0	0.0	0.0	5.3
R	23.2	0.0	0.0	3.6	0.0	0.0	0.0	7.1	0.0	0.0	0.0	0.0	0.0	25.0	0.0	33.9	7.1	0.0	0.0	0.0	100.0
15-	2	0	0	0	0	0	0	0	0	0	0	3	0	0	1	0	0	0	0	0	6
T	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.6
C	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	16.7	0.0	0.0	0.0	0.0	0.0	0.6
R	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	16.7	0.0	0.0	0.0	0.0	0.0	100.0
16-	13	0	0	0	0	0	0	0	0	1	1	0	121	0	28	0	86	1	0	1	212
T	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	8.0	11.4	0.0	2.6	0.0	8.1	0.1	0.0	0.1	19.9
C	8.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.3	0.4	0.0	55.5	0.0	50.0	0.0	21.7	3.3	0.0	7.7	19.9
R	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.0	57.1	0.0	13.2	0.0	21.7	0.5	0.0	0.5	100.0
17-	5	0	0	0	0	0	0	0	0	0	0	0	15	0	8	0	2	0	0	0	30
T	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.8	0.0	0.2	0.0	0.0	0.0	2.8
C	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.9	0.0	14.3	0.0	6.7	0.0	0.0	8.0	2.8
R	16.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	26.7	0.0	0.0	6.7	0.0	0.0	0.0	100.0
18-	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	51
T	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	4.8
C	0.7	0.0	0.0	7.1	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.1	0.0	0.0	4.8
R	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	94.1	0.0	0.0	100.0
19-	0	0	0	0	0	0	0	0	0	0	0	17	0	1	0	0	0	0	1	0	19
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	1.8
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.8	0.0	1.8	0.0	0.0	0.0	0.0	5.3	0.0	1.8
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89.5	0.0	5.3	0.0	0.0	0.0	0.0	5.3	0.0	100.0
20-	3	0	0	0	0	0	0	0	0	0	4	2	0	0	0	0	0	0	0	4	13
T	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	1.2
C	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.8	1.2
R	23.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.8	15.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.8	100.0
Col	199	11	0	14	0	8	3	16	7	226	21	218	3	56	6	212	30	5.1	19	13	1063
T	18.0	1.0	0.0	1.3	0.0	0.8	0.3	1.5	0.7	21.3	2.0	20.5	0.3	5.3	0.6	19.9	2.8	4.8	1.8	1.2	100.0

Class 3 Total Sample

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	###
1-	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	1	3	9
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.3
C	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.6	0.0	0.0	0.3	1.3	0.3
R	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.2	22.2	0.0	0.0	11.1	33.3	100.0
2-	0	21	0	0	0	0	0	0	0	2	5	1	0	0	62	6	22	12	2	6	139
T	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	2.2	0.2	0.8	0.4	0.1	0.2	4.8
C	0.0	15.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.2	0.3	0.0	0.0	58.9	1.7	13.8	9.4	0.7	2.7	4.8
R	0.0	15.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	3.6	0.7	0.0	0.0	44.6	4.3	15.8	8.6	1.4	4.3	100.0
3-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4-	0	0	0	5	0	0	0	1	0	0	0	0	0	0	6	14	0	0	0	6	32
T	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	0.0	0.0	0.0	0.2	1.1
C	0.0	0.0	0.0	15.6	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	4.1	0.0	0.0	0.0	2.7	1.1
R	0.0	0.0	0.0	15.6	0.0	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	18.8	43.8	0.0	0.0	0.0	18.8	100.0
5-	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	7	0	0	1	2	12
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.4
C	0.0	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.3	0.9	0.4
R	0.0	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	58.3	0.0	0.0	8.3	16.7	100.0
6-	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	22	0	0	0	4	28
T	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.1	1.0
C	0.0	0.0	0.0	0.0	0.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	78.6	0.0	0.0	0.0	14.3	100.0
R	0.0	0.0	0.0	0.0	0.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	78.6	0.0	0.0	0.0	14.3	100.0
7-	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	3	0	15	
T	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.0	0.5
C	0.0	0.0	0.0	0.0	0.0	0.0	13.3	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	1.0	0.0	0.5
R	0.0	0.0	0.0	0.0	0.0	0.0	13.3	0.0	0.0	6.7	0.0	0.0	0.0	0.0	0.0	0.0	60.0	0.0	20.0	0.0	100.0
8-	0	0	0	0	0	0	0	5	0	0	0	0	0	0	1	39	0	0	1	3	49
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.1	1.7
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.2	0.0	0.0	0.0	0.0	0.0	0.0	0.9	11.4	0.0	0.0	0.3	1.3	1.7
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.2	0.0	0.0	0.0	0.0	0.0	0.0	2.0	79.6	0.0	0.0	2.0	6.1	100.0
9-	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	7	0	0	1	0	10
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.3
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.9	2.0	0.0	0.0	0.3	0.0	0.3
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	10.0	70.0	0.0	0.0	10.0	0.0	100.0
10-	1	20	0	4	4	2	5	11	2	328	6	0	0	0	1	0	0	1	32	12	429
T	0.0	0.7	0.0	0.1	0.1	0.1	0.2	0.4	0.1	11.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.4	14.9
C	11.1	14.4	0.0	12.5	33.3	7.1	33.3	22.4	20.0	76.5	1.4	0.0	0.0	0.0	0.9	0.0	0.0	0.8	11.2	5.3	14.9
R	0.2	4.7	0.0	0.9	0.9	0.5	1.2	2.6	0.5	76.5	1.4	0.0	0.0	0.0	0.2	0.0	0.0	0.2	7.5	2.8	100.0
11-	1	3	0	1	0	6	0	4	2	8	332	1	1	1	1	9	2	8	19	29	428
T	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.1	0.1	0.3	11.6	0.0	0.0	0.0	0.0	0.3	0.1	0.3	0.7	1.0	14.9
C	11.1	2.2	0.0	3.1	0.0	21.4	0.0	8.2	20.0	1.9	77.4	0.3	4.8	1.9	0.9	2.6	1.3	6.3	6.6	12.9	14.9
R	0.2	0.7	0.0	0.2	0.0	1.4	0.0	0.9	0.5	1.9	77.6	0.2	0.2	0.2	0.2	2.1	0.5	1.9	4.4	6.8	100.0
12-	4	51	0	13	3	10	6	11	2	46	14	40	9	8	1	36	3	4	72	17	390
T	0.1	1.8	0.0	0.5	0.1	0.3	0.2	0.4	0.1	1.6	0.5	2.8	0.3	0.3	0.0	1.3	0.1	0.1	2.5	0.6	13.6
C	44.4	36.7	0.0	40.6	25.0	35.7	40.0	22.4	20.0	10.7	3.3	20.5	42.9	14.8	0.9	10.5	1.9	3.1	25.2	7.6	13.6
R	1.0	13.1	0.0	3.3	0.8	2.6	1.5	2.8	0.5	11.8	3.6	20.5	2.3	2.1	0.3	9.2	0.8	1.0	18.5	4.4	100.0
13-	0	2	0	0	0	0	0	0	0	0	1	0	3	0	2	10	1	0	2	0	39
T	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.3	0.0	0.0	0.1	0.0	0.7
C	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	10.3	0.0	1.8	2.9	0.6	0.0	0.7	0.0	0.7
R	0.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	10.3	0.0	5.5	27.6	4.8	0.0	9.5	0.0	100.0
14-	0	8	0	0	1	0	0	0	0	1	1	1	0	12	7	3	9	2	6	3	54
T	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.2	0.1	0.3	0.1	0.2	0.1	1.9
C	0.0	5.8	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.0	22.2	6.2	0.9	5.6	1.6	2.1	1.3	1.9
R	0.0	14.8	0.0	0.0	1.9	0.0	0.0	0.0	0.0	1.9	1.9	1.9	0.0	22.2	13.0	5.6	16.7	3.7	11.1	5.6	100.0
15-	0	8	0	2	0	0	0	0	0	2	1	50	1	9	27	0	2	0	8	3	113
T	0.0	0.3	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.7	0.0	0.3	0.9	0.0	0.1	0.0	0.3	0.1	3.9
C	0.0	5.8	0.0	6.3	0.0	0.0	0.0	0.0	0.0	0.5	0.2	12.8	4.8	16.7	23.9	0.0	1.3	0.0	2.8	1.3	3.5
R	0.0	7.1	0.0	1.8	0.0	0.0	0.0	0.0	0.0	1.8	0.9	44.2	0.9	8.0	23.9	0.0	1.8	0.0	7.1	2.7	100.0
16-	1	0	0	1	1	2	0	9	2	5	11	93	6	3	0	178	0	0	21	9	342
T	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.1	0.2	0.4	3.2	0.2	0.1	0.0	6.2	0.0	0.0	0.7	0.3	11.9
C	11.1	0.0	0.0	3.1	8.3	7.1	0.0	18.4	20.0	1.2	2.6	23.8	28.6	5.6	0.0	51.9	0.0	0.0	7.3	4.0	11.9
R	0.3	0.0	0.0	0.3	0.3	0.6	0.0	2.6	0.6	1.5	3.2	27.2	1.8	0.9	0.0	52.0	0.0	0.0	6.1	2.6	100.0
17-	0	4	0	0	0	0	0	0	0	0	1	32	0	7	1	1	102	1	10	1	160
T	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.2	0.0	0.0	3.6	0.0	0.3	0.0	5.6
C	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	8.2	0.0	13.0	0.9	0.3	63.8	0.8	3.5	0.4	5.6
R	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	20.0	0.0	4.4	0.6	0.6	63.8	0.6	6.3	0.6	100.0
18-	0	10	0	0	0	0	0	0	0	1	8	2	0	1	1	0	2	96	6	0	127
T	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.1	3.3	0.2	0.0	4.4
C	0.0	7.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.9	0.5	0.0	1.9	0.9	0.0	1.3	75.6	2.1	0.0	4.4
R	0.0	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	6.3	1.6	0.0	0.8	0.8	0.0	1.6	75.6	4.7	0.0	100.0
19-	0	2	0	1	1	1	0	1	1	6	15	123	1	7	0	3	2	0	70	52	286
T	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	4.3	0.0	0.2	0.0	0.1	0.1	0.0	2.4	1.8	10.0
C	0.0	1.4	0.0	3.1	8.3	3.6	0.0	2.0	10.0	1.4	3.5	31.5	4.8	13.0	0.0	0.9	1.3	0.0	24.5	23.1	10.0
R	0.0	0.7	0.0	0.3	0.3	0.3	0.0	0.3	0.3	2.1	5.2	43.0	0.3	2.4	0.0	1.0	0.7	0.0	24.5	18.2	100.0
20-	1	10	0	5	1	5	2	7	0	28	34	7	0	6	0	6	6	3	31	75	227
T	0.0	0.3	0.0	0.2	0.0	0.2	0.1	0.2	0.0	1.0	1.2	0.2	0.0	0.2	0.0	0.2	0.2	0.1	1.1	2.6	7.9
C	11.1	7.2	0.0	15.6	8.3	17.9	13.3	14.3	0.0	6.5	7.9	1.8	0.0	11.1	0.0	1.7	3.8	2.4	10.8	33.3	7.9
R	0.4	4.4	0.0	2.2	0.4	2.2	0.9	3.1	0.0	12.3	15.0	3.1	0.0	2.6	0.0	2.6	2.6	1.3	13.7	33.0	100.0
SUM	9	139	0	32	12	28	15	49	10	429	429	390	21	54	113	343	160	127	286	225	2871
T	0.3	4.8	0.0	1.1	0.4	1.0	0.5	1.7	0.3	14.9	14.9	13.6	0.7	1.9	3.9	11.9	5.6	4.4	10.0	7.8	100.0

Class 3 Average Group 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	888
1-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2-	0	3	0	0	0	0	0	0	0	1	0	0	0	0	1	2	3	2	0	0	28
T	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	1.0	0.3	1.3	0.9	0.0	0.0	4.0
C	0.0	10.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	0.0	0.0	25.0	7.1	32.1	21.4	0.0	0.0	100.0
R	0.0	10.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	0.0	0.0	25.0	7.1	32.1	21.4	0.0	0.0	100.0
3-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4-	0	0	0	2	0	0	0	1	0	0	0	0	0	0	3	0	0	0	0	2	6
T	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.3	1.1
C	0.0	0.0	0.0	25.0	0.0	0.0	0.0	6.7	0.0	0.0	0.0	0.0	0.0	0.0	18.8	0.0	0.0	0.0	0.0	6.0	1.1
R	0.0	0.0	0.0	25.0	0.0	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	37.5	0.0	0.0	0.0	0.0	25.0	100.0
5-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	3
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1	0.4
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	2.0	0.4
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.7	0.0	0.0	0.0	33.3	100.0
6-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	6
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.9
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
7-	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	3
T	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.4
C	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	0.0	0.0	0.4
R	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	100.0
8-	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	12	0	0	0	0	15
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.7	0.0	0.0	0.0	0.0	2.1
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.3	0.0	0.0	0.0	0.0	0.0	0.0	6.3	80.0	0.0	0.0	0.0	0.0	2.1
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.3	0.0	0.0	0.0	0.0	0.0	0.0	6.7	80.0	0.0	0.0	0.0	0.0	100.0
9-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
10-	0	6	0	1	2	1	2	2	0	148	3	0	0	0	0	0	0	0	11	5	181
T	0.0	0.9	0.0	0.1	0.3	0.1	0.3	0.3	0.0	21.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.7	25.9
C	0.0	21.4	0.0	12.5	66.7	16.7	66.7	13.3	0.0	81.8	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.0	10.0	25.9
R	0.0	3.3	0.0	0.6	1.1	0.6	1.1	1.1	0.0	81.8	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	2.8	100.0
11-	0	0	0	0	0	0	0	1	0	5	65	1	0	0	0	4	1	2	4	7	90
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.7	9.3	0.1	0.0	0.0	0.0	0.6	0.1	0.3	0.6	1.0	12.9
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.7	0.0	2.8	72.4	1.5	0.0	0.0	0.0	3.7	5.6	6.5	6.8	14.0	12.9
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	5.6	72.2	1.1	0.0	0.0	0.0	4.4	1.1	2.2	4.4	7.8	100.0
12-	0	12	0	2	0	3	0	1	0	12	3	13	2	2	0	4	0	1	10	1	66
T	0.0	1.7	0.0	0.3	0.0	0.4	0.0	0.1	0.0	1.7	0.4	1.9	0.3	0.3	0.0	0.6	0.0	0.1	1.4	0.1	9.5
C	0.0	42.9	0.0	25.0	0.0	50.0	0.0	6.7	0.0	6.6	3.3	19.7	66.7	20.0	0.0	3.7	0.0	3.2	16.9	2.0	9.5
R	0.0	18.2	0.0	3.0	0.0	4.5	0.0	1.5	0.0	18.2	4.5	19.7	3.0	3.0	0.0	6.1	0.0	1.5	15.2	1.5	100.0
13-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	3
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.4
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	5.6	0.0	1.7	0.0	0.4
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	33.3	0.0	33.3	0.0	100.0
14-	0	1	0	0	0	0	0	0	0	1	1	0	0	2	2	1	1	0	1	0	10
T	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.3	0.3	0.1	0.1	0.3	0.1	0.0	1.4
C	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.1	0.0	0.0	20.0	12.5	0.9	5.6	0.0	1.7	0.0	1.4
R	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	10.0	0.0	0.0	20.0	20.0	10.0	10.0	0.0	10.0	0.0	100.0
15-	0	1	0	1	0	0	0	0	0	0	0	7	0	3	3	0	1	0	0	0	16
T	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.4	0.4	0.0	0.1	0.0	0.0	0.0	2.3
C	0.0	3.6	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.6	0.0	30.0	18.8	0.0	5.6	0.0	0.0	0.0	2.3
R	0.0	6.3	0.0	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	43.8	0.0	18.8	18.8	0.0	6.3	0.0	0.0	0.0	100.0
16-	0	0	0	0	0	1	0	5	0	3	5	14	1	0	0	76	0	0	4	0	109
T	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.7	0.0	0.4	0.7	2.0	0.1	0.0	0.0	10.9	0.0	0.0	0.6	0.0	15.6
C	0.0	0.0	0.0	0.0	0.0	16.7	0.0	33.3	0.0	1.7	5.5	21.2	33.3	0.0	0.0	69.7	0.0	0.0	6.8	0.0	15.6
R	0.0	0.0	0.0	0.0	0.0	0.9	0.0	4.6	0.0	2.8	4.6	12.8	0.9	0.0	0.0	69.7	0.0	0.0	3.7	0.0	100.0
17-	0	1	0	0	0	0	0	0	0	0	1	11	0	1	0	0	3	0	1	0	18
T	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.6	0.0	0.1	0.0	0.0	0.4	0.0	0.1	0.0	2.6
C	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	16.7	0.0	10.0	0.0	0.0	16.7	0.0	1.7	0.0	2.6
R	0.0	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	61.1	0.0	5.6	0.0	0.0	16.7	0.0	5.6	0.0	100.0
18-	0	4	0	0	0	0	0	0	0	0	3	1	0	1	0	0	0	22	0	0	31
T	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.1	0.0	0.0	0.0	3.2	0.0	0.0	4.4
C	0.0	14.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	1.5	0.0	10.0	0.0	0.0	0.0	71.0	0.0	0.0	4.4
R	0.0	12.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.7	3.2	0.0	3.2	0.0	0.0	0.0	71.0	0.0	0.0	100.0
19-	0	0	0	0	0	0	0	0	1	1	5	17	0	1	0	0	0	0	20	16	59
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.7	2.4	0.0	0.1	0.0	0.0	0.0	0.0	2.9	2.0	8.5
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.6	5.5	25.8	0.0	10.0	0.0	0.0	0.0	0.0	33.9	26.0	8.5
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	1.7	8.5	28.8	0.0	1.7	0.0	0.0	0.0	0.0	33.9	23.7	100.0
20-	0	0	0	2	1	1	0	3	0	9	5	2	0	0	0	0	0	1	0	7	20	51
T	0.0	0.0	0.0	0.3	0.1	0.1	0.0	0.4	0.0	1.3	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.0	1.0	2.9	7.3
C	0.0	0.0	0.0	25.0	33.3	16.7	0.0	20.0	0.0	5.0	5.5	3.0	0.0	0.0	0.0	0.0	0.0	5.6	0.0	11.9	40.0	7.3
R	0.0	0.0	0.0	3.9	2.0	2.0	0.0	5.9	0.0	17.6	9.8	3.9	0.0	0.0	0.0	0.0	0.0	2.0	0.0	13.7	39.2	100.0
888	0	28	0	8	3	6	3	15	1	181	91	66	3	10	16	109	18	31	59	50	698
T	0.0	4.0	0.0	1.1	0.4	0.9	0.4	2.1	0.1	25.9	13.0	9.5	0.4	1.4	2.3	15.6	2.6	4.4	8.5	7.2	100.0

Class 3 Average Group 2

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Sum
1-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2-	0	11	0	0	0	0	0	0	0	1	5	1	0	0	26	4	13	3	2	3	69
T	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.1	0.0	0.0	2.5	0.4	1.3	0.3	0.2	0.3	6.8
C	0.0	15.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	2.9	0.9	0.0	0.0	55.3	3.3	17.8	25.0	2.1	2.9	6.8
R	0.0	15.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	7.2	1.4	0.0	0.0	37.7	5.8	18.8	4.3	2.9	4.3	100.0
3-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4-	0	0	0	3	0	0	0	0	0	0	0	0	0	0	2	3	0	0	0	3	11
T	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.0	0.0	0.0	0.3	1.1
C	0.0	0.0	0.0	27.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	2.5	0.0	0.0	0.0	2.9	1.1
R	0.0	0.0	0.0	27.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.2	27.3	0.0	0.0	0.0	27.3	100.0
5-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.2
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	1.0	0.2
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	50.0	100.0
6-	0	0	0	0	0	2	0	0	0	0	0	0	0	0	12	0	0	0	3	17	
T	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.3	1.7	
C	0.0	0.0	0.0	0.0	0.0	11.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	2.9	1.7	
R	0.0	0.0	0.0	0.0	0.0	11.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	70.6	0.0	0.0	0.0	17.6	100.0	
7-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.2
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	100.0
8-	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	6	0	0	1	0	8
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.1	0.0	0.8
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	1.1	0.0	0.8
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	75.0	0.0	0.0	12.5	0.0	100.0
9-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10-	0	10	0	2	0	1	1	4	0	97	1	0	0	0	1	0	0	1	9	5	132
T	0.0	1.0	0.0	0.2	0.0	0.1	0.1	0.4	0.0	9.5	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.9	0.5	12.9
C	0.0	14.5	0.0	18.2	0.0	5.9	50.0	50.0	0.0	73.5	0.6	0.0	0.0	0.0	2.1	0.0	0.0	8.3	9.5	4.8	12.9
R	0.0	7.6	0.0	1.5	0.0	0.8	0.8	3.0	0.0	73.5	0.8	0.0	0.0	0.0	0.8	0.0	0.0	0.8	6.8	3.8	100.0
11-	0	2	0	1	0	5	0	1	0	1	135	0	1	0	1	1	1	1	8	13	171
T	0.0	0.2	0.0	0.1	0.0	0.5	0.0	0.1	0.0	0.1	13.2	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.8	1.3	16.8
C	0.0	2.9	0.0	9.1	0.0	29.4	0.0	12.5	0.0	0.8	78.9	0.0	8.3	0.0	2.1	0.8	1.4	8.3	8.4	12.5	16.8
R	0.0	1.2	0.0	0.6	0.0	2.9	0.0	0.6	0.0	0.6	78.9	0.0	0.6	0.0	0.6	0.6	0.6	0.6	4.7	7.6	100.0
12-	0	20	0	3	0	3	0	0	0	16	5	14	5	4	0	14	3	1	14	10	112
T	0.0	2.0	0.0	0.3	0.0	0.3	0.0	0.0	0.0	1.6	0.5	1.4	0.5	0.4	0.0	1.4	0.3	0.1	1.4	1.0	11.0
C	0.0	29.0	0.0	27.3	0.0	17.6	0.0	0.0	0.0	12.1	2.9	12.5	41.7	12.1	0.0	11.7	4.1	8.3	14.7	9.6	11.0
R	0.0	17.9	0.0	2.7	0.0	2.7	0.0	0.0	0.0	14.3	4.5	12.5	4.5	3.6	0.0	12.5	2.7	0.9	12.5	8.9	100.0
13-	0	2	0	0	0	0	0	0	0	0	1	0	2	0	2	4	0	0	1	0	12
T	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.2	0.4	0.0	0.0	0.1	0.0	1.2
C	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	16.7	0.0	4.3	3.3	0.0	0.0	1.1	0.0	1.2
R	0.0	16.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	0.0	16.7	0.0	16.7	33.3	0.0	0.0	8.3	0.0	100.0
14-	0	6	0	0	1	0	0	0	0	0	0	0	0	0	10	3	2	6	0	2	3	33
T	0.0	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.3	0.2	0.6	0.0	0.2	0.3	3.2
C	0.0	8.7	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.3	6.4	1.7	8.2	0.0	2.1	2.9	3.2
R	0.0	18.2	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.3	9.1	6.1	18.2	0.0	6.1	9.1	100.0
15-	0	3	0	0	0	0	0	0	0	2	1	18	1	5	10	0	1	0	4	2	47
T	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	1.8	0.1	0.5	1.0	0.0	0.1	0.0	0.4	0.2	4.6
C	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.6	16.1	8.3	15.2	21.3	0.0	1.4	0.0	4.2	1.9	4.6
R	0.0	6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.3	2.1	38.3	2.1	10.6	21.3	0.0	2.1	0.0	8.5	4.3	100.0
16-	0	0	0	0	1	1	0	1	0	2	3	27	2	1	0	65	0	0	9	8	120
T	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.2	0.3	2.6	0.2	0.1	0.0	6.4	0.0	0.0	0.9	0.8	11.8
C	0.0	0.0	0.0	0.0	50.0	5.9	0.0	12.5	0.0	1.5	1.8	24.1	16.7	3.0	0.0	58.2	0.0	0.0	9.5	7.7	11.8
R	0.0	0.0	0.0	0.0	0.8	0.8	0.0	0.8	0.0	1.7	2.5	22.5	1.7	0.8	0.0	54.2	0.0	0.0	7.5	6.7	100.0
17-	0	3	0	0	0	0	0	0	0	0	0	15	0	4	1	1	41	1	6	1	73
T	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.4	0.1	0.1	4.0	0.1	0.6	0.1	7.2
C	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.4	0.0	12.1	2.1	0.8	56.2	8.3	6.3	1.0	7.2
R	0.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.5	0.0	5.5	1.4	1.4	56.2	1.4	8.2	1.4	100.0
18-	0	3	0	0	0	0	0	0	0	1	1	0	0	0	1	0	2	4	0	0	12
T	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.2	0.4	0.0	0.0	1.2
C	0.0	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.6	0.0	0.0	0.0	2.1	0.0	2.7	33.3	0.0	0.0	1.2
R	0.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	8.3	0.0	0.0	0.0	8.3	0.0	16.7	33.3	0.0	0.0	100.0
19-	0	1	0	0	0	1	0	0	0	5	2	35	1	4	0	3	2	0	27	14	95
T	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.5	0.2	3.4	0.1	0.4	0.0	0.3	0.2	0.0	2.6	1.4	9.3
C	0.0	1.9	0.0	0.0	0.0	5.9	0.0	0.0	0.0	3.8	1.2	31.3	8.3	12.1	0.0	2.5	2.7	0.0	28.4	13.5	9.3
R	0.0	1.1	0.0	0.0	0.0	1.1	0.0	0.0	0.0	5.3	2.1	36.8	1.1	4.2	0.0	3.2	2.1	0.0	28.4	14.7	100.0
20-	0	8	0	2	0	4	1	1	0	7	17	2	0	5	0	4	2	1	12	38	104
T	0.0	0.8	0.0	0.2	0.0	0.4	0.1	0.1	0.0	0.7	1.7	0.2	0.0	0.5	0.0	0.4	0.2	0.1	1.2	3.7	10.2
C	0.0	11.6	0.0	18.2	0.0	23.5	50.0	12.5	0.0	5.3	9.9	1.8	0.0	15.2	0.0	3.3	2.7	8.3	12.6	36.5	10.2
R	0.0	7.7	0.0	1.9	0.0	3.8	1.0	1.0	0.0	6.7	16.3	1.9	0.0	4.8	0.0	3.8	1.9	1.0	11.5	36.5	100.0
Sum	0	69	0	11	2	17	2	8	0	132	171	112	12	33	47	120	73	12	95	104	1020
T	0.0	6.8	0.0	1.1	0.2	1.7	0.2	0.8	0.0	12.9	16.8	11.0	1.2	3.2	4.6	11.8	7.2	1.2	9.3	10.2	100.0

Class 3 Low Group

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	SUM
1-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	1	4
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.1	0.5
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.4	1.3	0.0	0.0	0.0	2.3	0.5
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	25.0	0.0	0.0	0.0	25.0	100.0
2-	0	6	0	0	0	0	0	0	0	0	0	0	0	0	22	0	0	1	0	1	28
T	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.1	0.0	0.1	3.8
C	0.0	14.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	59.5	0.0	0.0	1.3	0.0	2.3	3.8
R	0.0	14.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	78.6	0.0	0.0	3.6	0.0	3.6	100.0
3-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6	0	0	0	1	8
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.8	0.0	0.0	0.0	0.1	1.1
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	8.0	0.0	0.0	0.0	2.3	1.1
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	75.0	0.0	0.0	0.0	12.5	100.0
5-	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
6-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	1	5
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.1	0.7
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.3	0.0	0.0	0.0	2.3	0.7
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	80.0	0.0	0.0	0.0	20.0	100.0
7-	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	3
T	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.4
C	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.4
R	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.7	0.0	100.0
8-	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	21	0	0	0	3	26
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	0.0	0.0	0.0	0.4	3.5
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.0	0.0	0.0	0.0	6.8	3.5
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	80.8	0.0	0.0	0.0	11.5	100.0
9-	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	2	0	0	1	0	5
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.1	0.0	0.7
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	2.7	2.7	0.0	0.0	1.0	0.0	0.7
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	20.0	40.0	0.0	0.0	20.0	0.0	100.0
10-	1	1	0	1	1	0	0	5	0	17	0	0	0	0	0	0	0	0	7	1	34
T	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.7	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.1	4.6
C	2.9	2.9	0.0	2.9	2.9	0.0	0.0	19.2	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1	2.3	4.6
R	2.9	2.9	0.0	2.9	2.9	0.0	0.0	14.7	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.6	2.9	100.0
11-	1	1	0	0	0	1	0	2	1	0	123	0	0	1	0	3	0	5	4	5	147
T	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.3	0.1	0.0	16.8	0.0	0.0	0.1	0.0	0.4	0.0	0.7	0.5	0.7	20.0
C	25.0	3.6	0.0	0.0	0.0	20.0	0.0	7.7	20.0	0.0	83.7	0.0	0.0	20.0	0.0	8.0	0.0	6.5	4.1	11.4	20.0
R	0.7	0.7	0.0	0.0	0.0	0.7	0.0	1.4	0.7	0.0	83.7	0.0	0.0	0.7	0.0	2.0	0.0	3.4	2.7	3.4	100.0
12-	1	16	0	4	0	4	2	10	2	10	4	33	1	0	0	9	0	2	36	1	135
T	0.1	2.2	0.0	0.5	0.0	0.5	0.3	1.4	0.3	1.4	0.5	4.5	0.1	0.0	0.0	1.2	0.0	0.3	4.9	0.1	18.4
C	25.0	57.1	0.0	50.0	0.0	80.0	66.7	38.5	40.0	29.4	2.7	24.4	5.3	0.0	0.0	12.0	0.0	2.6	36.7	2.3	18.4
R	0.7	11.9	0.0	3.0	0.0	3.0	1.5	7.4	1.5	7.4	3.0	24.4	[illegible]	0.0	0.0	6.7	0.0	1.5	26.7	0.7	100.0
13-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.3
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.3
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
14-	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	2	0	5
T	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.7
C	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	1.3	2.0	0.0	0.7
R	0.0	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	0.0	20.0	40.0	0.0	100.0
15-	0	3	0	1	0	0	0	0	0	0	0	17	0	0	11	0	0	0	4	1	37
T	0.0	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	1.5	0.0	0.0	0.0	0.5	0.1	5.0
C	0.0	10.7	0.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.6	0.0	0.0	29.7	0.0	0.0	0.0	4.1	2.3	5.0
R	0.0	8.1	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	45.9	0.0	0.0	29.7	0.0	0.0	0.0	10.8	2.7	100.0
16-	1	0	0	0	0	0	0	3	1	0	3	32	1	1	0	26	0	0	6	1	75
T	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.4	4.4	0.1	0.1	0.0	3.5	0.0	0.0	0.8	0.1	10.2
C	25.0	0.0	0.0	0.0	0.0	0.0	0.0	11.5	20.0	0.0	2.0	23.7	50.0	20.0	0.0	34.7	0.0	0.0	6.1	2.3	10.2
R	1.3	0.0	0.0	0.0	0.0	0.0	0.0	4.0	1.3	0.0	4.0	42.7	1.3	1.3	0.0	34.7	0.0	0.0	8.0	1.3	100.0
17-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18-	0	1	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	46	6	0	77
T	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	5.0	0.8	0.0	10.5
C	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.0	85.7	6.1	0.0	10.5
R	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.2	0.0	0.0	0.0	0.0	0.0	0.0	85.7	7.8	0.0	100.0
19-	0	0	0	1	0	0	0	1	0	0	5	51	0	2	0	0	0	0	22	16	98
T	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.7	6.9	0.0	0.3	0.0	0.0	0.0	0.0	3.0	2.2	13.4
C	0.0	0.0	0.0	12.5	0.0	0.0	0.0	3.8	0.0	0.0	3.4	37.8	0.0	40.0	0.0	0.0	0.0	0.0	22.4	36.4	13.4
R	0.0	0.0	0.0	1.0	0.0	0.0	0.0	1.0	0.0	0.0	5.1	52.0	0.0	2.0	0.0	0.0	0.0	0.0	22.4	16.3	100.0
20-	0	1	0	1	0	0	0	3	0	6	8	1	0	1	0	1	0	2	6	12	44
T	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.4	0.0	0.8	1.1	0.1	0.0	0.1	0.0	0.1	0.0	0.3	1.1	1.6	6.0
C	0.0	3.6	0.0	12.5	0.0	0.0	0.0	11.5	0.0	17.6	5.4	0.7	0.0	20.0	0.0	1.3	0.0	2.6	8.2	27.3	6.0
R	0.0	2.3	0.0	2.3	0.0	0.0	0.0	6.8	0.0	13.6	18.2	2.3	0.0	2.3	0.0	2.3	0.0	4.5	18.2	27.3	100.0
SUM	4	26	0	8	1	5	3	26	5	26	167	135	2	5	37	75	0	77	98	44	734
T	0.5	3.5	0.0	1.1	0.1	0.7	0.4	3.5	0.7	3.6	22.8	18.4	0.3	0.7	5.0	10.2	0.0	10.5	13.4	6.0	100.0

Class 3 Whole Class Combined

\	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	ROW
1-	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	5
T	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.5	1.2
C	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.8	7.4	1.2
R	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	20.0	40.0	100.0
2-	0	3	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	2	0	2	14
T	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.5	0.0	0.5	3.3
C	0.0	21.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	53.8	0.0	0.0	28.6	0.0	7.4	3.3
R	0.0	21.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	14.3	0.0	14.3	100.0
3-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	5
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	1.2
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.8	0.0	0.0	0.0	0.0	1.2
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
5-	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4	0	0	1	0	6
T	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.2	0.0	1.4
C	0.0	0.0	0.0	0.0	16.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.3	0.0	0.0	2.9	0.0	1.4
R	0.0	0.0	0.0	0.0	16.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	66.7	0.0	0.0	16.7	0.0	100.0
6-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	1	0	7
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.2	0.0	1.7
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.7	0.0	2.9	0.0	1.7
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	85.7	0.0	14.3	0.0	100.0
8-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	1.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.3	0.0	0.0	0.0	0.0	1.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
10-	0	3	0	0	1	0	2	0	2	66	2	0	0	0	0	0	0	0	5	1	82
T	0.0	0.7	0.0	0.0	0.2	0.0	0.5	0.0	0.5	15.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.2	19.6
C	0.0	21.4	0.0	0.0	16.7	0.0	28.6	0.0	50.0	80.5	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.7	3.7	19.6
R	0.0	3.7	0.0	0.0	1.2	0.0	2.4	0.0	2.4	80.5	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	1.2	100.0
11-	0	0	0	0	0	0	0	0	1	2	9	0	0	0	0	1	0	0	3	4	20
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.5	2.1	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.7	1.0	4.8
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	2.4	45.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	8.8	14.8	4.8
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	10.0	45.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	15.0	20.0	100.0
12-	3	3	0	4	3	0	4	0	0	8	2	20	1	2	1	9	0	0	12	5	77
T	0.7	0.7	0.0	1.0	0.7	0.0	1.0	0.0	0.0	1.9	0.5	4.8	0.2	0.5	0.2	2.1	0.0	0.0	2.9	1.2	18.4
C	60.0	21.4	0.0	80.0	50.0	0.0	57.1	0.0	0.0	9.8	10.0	26.0	25.0	33.3	7.7	23.1	0.0	0.0	35.3	18.5	18.4
R	3.9	3.9	0.0	5.2	3.9	0.0	5.2	0.0	0.0	10.4	2.6	26.0	1.3	2.6	1.3	11.7	0.0	0.0	15.6	6.5	100.0
13-	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	3	0	0	0	0	4
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.7	0.0	0.0	0.0	0.0	1.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	7.7	0.0	0.0	0.0	0.0	1.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	75.0	0.0	0.0	0.0	0.0	100.0
14-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	1	1	0	6
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.2	0.2	0.0	1.4
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.4	0.0	2.9	14.3	2.9	0.0	1.4
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	33.3	16.7	16.7	0.0	100.0
15-	0	1	0	0	0	0	0	0	0	0	0	8	0	1	3	0	0	0	0	0	13
T	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.2	0.7	0.0	0.0	0.0	0.0	0.0	3.1
C	0.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.4	0.0	16.7	23.1	0.0	0.0	0.0	0.0	0.0	3.1
R	0.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	61.5	0.0	7.7	23.1	0.0	0.0	0.0	0.0	0.0	100.0
16-	0	0	0	1	0	0	0	0	1	0	0	20	2	1	0	11	0	0	2	0	38
T	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	4.8	0.5	0.2	0.0	2.6	0.0	0.0	0.5	0.0	9.1
C	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0	26.0	50.0	16.7	0.0	28.2	0.0	0.0	5.9	0.0	9.1
R	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0	2.6	0.0	0.0	52.6	5.3	2.6	0.0	28.9	0.0	0.0	5.3	0.0	100.0
17-	0	0	0	0	0	0	0	0	0	0	0	6	0	2	0	0	58	0	3	0	69
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.5	0.0	0.0	13.8	0.0	0.7	0.0	16.5
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.8	0.0	33.3	0.0	0.0	84.1	0.0	8.8	0.0	16.5
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.7	0.0	2.9	0.0	0.0	84.1	0.0	4.3	0.0	100.0
18-	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4	0	0	7
T	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.7
C	0.0	14.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	57.1	0.0	0.0	1.7
R	0.0	28.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.3	0.0	0.0	0.0	0.0	0.0	57.1	0.0	0.0	100.0
19-	0	1	0	0	1	0	0	0	0	0	3	20	0	0	0	0	0	0	1	8	34
T	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.7	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.9	8.1
C	0.0	7.1	0.0	0.0	16.7	0.0	0.0	0.0	0.0	0.0	15.0	26.0	0.0	0.0	0.0	0.0	0.0	0.0	2.9	29.6	8.1
R	0.0	2.9	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	8.8	58.8	0.0	0.0	0.0	0.0	0.0	0.0	2.9	23.5	100.0
20-	1	1	0	0	0	0	1	0	0	6	4	2	0	0	0	1	3	0	4	5	28
T	0.2	0.2	0.0	0.0	0.0	0.0	0.2	0.0	0.0	1.4	1.0	0.5	0.0	0.0	0.0	0.2	0.7	0.0	1.0	1.2	6.7
C	20.0	7.1	0.0	0.0	0.0	0.0	14.3	0.0	0.0	7.3	20.0	2.6	0.0	0.0	0.0	2.6	4.3	0.0	11.8	18.5	6.7
R	3.6	3.6	0.0	0.0	0.0	0.0	3.6	0.0	0.0	21.4	14.3	7.1	0.0	0.0	0.0	3.6	10.7	0.0	14.3	17.9	100.0
SUM	5	14	0	5	6	0	7	0	4	82	20	77	4	6	13	39	69	7	24	27	419
T	1.2	3.3	0.0	1.2	1.4	0.0	1.7	0.0	1.0	19.6	4.8	18.4	1.0	1.4	3.1	9.3	16.5	1.7	8.1	6.4	100.0

Class 4 Total Sample

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	SUM
1-	21	0	0	0	0	0	0	0	0	3	4	5	0	0	1	203	5	2	3	13	266
T	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	5.9	0.1	0.1	0.1	0.4	7.5
C	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.1	0.9	0.0	0.0	1.1	38.6	1.9	11.1	2.3	9.4	7.5
R	8.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.5	1.9	0.0	0.0	0.4	78.1	1.9	0.8	1.2	5.0	100.0
2-	0	11	0	0	0	0	0	0	0	1	1	0	0	1	56	7	3	0	0	0	82
T	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.2	0.1	0.0	0.0	0.0	2.4
C	0.0	13.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.0	0.0	0.6	82.4	1.2	1.2	0.0	0.0	0.0	2.4
R	0.0	13.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.2	0.0	0.0	1.2	70.7	8.5	3.7	0.0	0.0	0.0	100.0
3-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4-	0	0	0	23	0	0	1	0	0	4	2	0	0	0	1	84	0	0	1	2	118
T	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.1	3.4
C	0.0	0.0	0.0	19.5	0.0	0.0	1.0	0.0	0.0	0.6	1.0	0.0	0.0	0.0	1.1	14.3	0.0	0.0	0.8	1.4	3.4
R	0.0	0.0	0.0	19.5	0.0	0.0	0.8	0.0	0.0	3.4	1.7	0.0	0.0	0.0	0.8	71.2	0.0	0.0	0.8	1.7	100.0
5-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1
C	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	100.0
R	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7-	1	0	0	1	0	0	13	0	0	4	0	2	0	0	0	0	72	2	2	1	99
T	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	2.1	0.1	0.1	0.0	2.9
C	0.4	0.0	0.0	0.8	0.0	0.0	13.1	0.0	0.0	0.6	0.0	0.3	0.0	0.0	0.0	0.2	27.7	11.1	1.5	0.7	2.9
R	1.0	0.0	0.0	1.0	0.0	0.0	13.1	0.0	0.0	4.0	0.0	2.0	0.0	0.0	0.0	1.0	72.7	2.0	2.0	1.0	100.0
8-	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	13	0	0	0	0	15
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.4
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.2	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.4
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.7	6.7	0.0	0.0	0.0	86.7	0.0	0.0	0.0	0.0	100.0
9-	1	0	0	0	0	0	2	0	0	4	0	0	0	0	0	4	0	0	3	1	15
T	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.4
C	0.4	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	2.3	0.7	0.4
R	6.7	0.0	0.0	0.0	0.0	0.0	13.3	0.0	0.0	26.7	0.0	0.0	0.0	0.0	0.0	26.7	0.0	0.0	20.0	6.7	100.0
10-	34	12	0	15	0	0	21	4	1	537	14	1	0	0	1	4	1	0	30	9	684
T	1.0	0.3	0.0	0.4	0.0	0.0	0.6	0.1	0.0	15.5	0.4	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.9	0.3	19.8
C	13.1	14.6	0.0	12.7	0.0	0.0	21.2	26.7	6.7	78.5	7.3	0.2	0.0	0.0	1.1	0.7	0.4	0.0	23.1	6.5	19.8
R	5.0	1.8	0.0	2.2	0.0	0.0	3.1	0.6	0.1	78.5	2.0	0.1	0.0	0.0	0.1	0.6	0.1	0.0	4.4	1.3	100.0
11-	12	1	0	4	0	0	4	0	0	14	114	1	0	0	0	11	2	0	6	26	193
T	0.3	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.4	3.3	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.2	0.7	5.6
C	4.6	1.2	0.0	3.4	0.0	0.0	4.0	0.0	0.0	2.0	59.1	0.2	0.0	0.0	0.0	1.9	0.8	0.0	4.6	17.3	5.6
R	6.2	0.5	0.0	2.1	0.0	0.0	2.1	0.0	0.0	7.3	59.1	0.5	0.0	0.0	0.0	5.7	1.0	0.0	3.1	13.4	100.0
12-	122	34	1	88	0	1	16	5	12	85	16	85	14	33	2	35	5	1	56	8	575
T	3.5	1.0	0.0	1.4	0.0	0.0	0.5	0.1	0.3	2.5	0.5	2.5	0.4	1.0	0.1	1.0	0.1	0.0	1.6	0.1	16.6
C	46.9	41.5	100.0	40.7	0.0	50.0	16.2	33.3	80.0	12.4	8.3	14.8	17.8	21.3	2.2	6.0	1.9	5.6	43.1	2.9	16.6
R	21.2	5.9	0.2	15.3	0.0	0.2	2.8	0.9	2.1	14.8	2.8	14.8	2.4	5.7	0.3	6.1	0.9	0.2	9.7	0.7	100.0
13-	2	0	0	2	0	0	0	0	0	1	0	0	0	0	0	3	22	2	0	0	37
T	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.6	0.1	0.0	0.0	1.1
C	0.8	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	10.8	0.0	3.2	3.7	0.8	0.0	0.0	1.1
R	5.4	0.0	0.0	5.4	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	10.8	0.0	8.1	59.5	5.4	0.0	0.0	2.7	100.0
14-	26	5	0	10	0	0	3	0	0	8	1	1	0	83	1	48	3	2	4	0	155
T	0.8	0.1	0.0	0.3	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	2.4	0.0	1.4	0.1	0.1	0.1	0.0	4.5
C	10.0	6.1	0.0	8.5	0.0	0.0	3.0	0.0	0.0	1.2	0.5	0.2	0.0	27.7	1.1	8.2	1.2	11.1	3.1	0.0	4.5
R	16.8	3.2	0.0	6.5	0.0	0.0	1.9	0.0	0.0	5.2	0.6	0.6	0.0	27.7	0.6	31.0	1.9	1.3	2.6	0.0	100.0
15-	0	12	0	1	0	0	0	1	0	1	0	50	1	2	24	0	1	0	0	0	93
T	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.1	0.7	0.0	0.0	0.0	0.0	0.0	2.7
C	0.0	14.6	0.0	0.8	0.0	0.0	0.0	6.7	0.0	0.1	0.0	8.7	2.7	1.3	25.8	0.0	0.4	0.0	0.0	0.0	2.7
R	0.0	12.9	0.0	1.1	0.0	0.0	0.0	1.1	0.0	1.1	0.0	53.8	1.1	2.2	25.8	0.0	1.1	0.0	0.0	0.0	100.0
16-	25	3	0	11	0	0	1	4	0	5	12	291	16	58	0	151	0	1	9	0	587
T	0.7	0.1	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.1	0.3	8.4	0.5	1.7	0.0	4.4	0.0	0.0	0.3	0.0	17.0
T	0.7	0.1	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.1	0.3	8.4	0.5	1.7	0.0	4.4	0.0	0.0	0.3	0.0	17.0
C	4.3	0.5	0.0	1.9	0.0	0.0	0.2	0.7	0.0	0.9	2.0	49.6	2.7	9.9	0.0	25.7	0.0	0.2	1.5	0.0	100.0
17-	1	2	0	0	0	0	34	0	0	2	5	42	1	3	1	2	165	0	2	0	260
T	0.0	0.1	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.1	0.1	1.2	0.0	0.1	0.0	0.1	4.8	0.0	0.1	0.0	7.5
C	0.4	2.4	0.0	0.0	0.0	0.0	34.3	0.0	0.0	0.3	2.6	7.3	2.7	1.9	1.1	0.3	63.5	0.0	1.5	0.0	7.5
R	0.4	0.8	0.0	0.0	0.0	0.0	13.1	0.0	0.0	0.8	1.9	16.2	0.4	1.2	0.4	0.8	63.5	0.0	0.8	0.0	100.0
18-	3	0	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0	0	5	0	18
T	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.5
C	1.2	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0	50.0	0.0	0.5
R	16.7	0.0	0.0	0.0	0.0	0.0	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.8	0.0	0.0	0.0	50.0	0.0	100.0
19-	0	0	0	0	0	0	0	0	0	2	5	94	0	5	0	0	0	0	10	14	130
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	2.7	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.4	3.8
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	2.6	16.3	0.0	3.2	0.0	0.0	0.0	0.0	7.7	10.1	3.8
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	3.8	72.3	0.0	3.8	0.0	0.0	0.0	0.0	7.7	10.8	100.0
20-	12	2	0	3	0	0	3	1	2	13	16	2	1	5	0	1	1	1	4	70	139
T	0.3	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.4	0.5	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	2.0	4.0
C	4.6	2.4	0.0	2.5	0.0	0.0	3.0	6.7	13.3	1.9	9.3	0.3	2.7	3.2	0.0	0.2	0.4	5.6	3.1	50.4	4.0
R	8.6	1.4	0.0	2.2	0.0	0.0	2.2	0.7	1.4	9.4	12.9	1.4	0.7	3.6	0.0	0.7	0.7	0.7	2.9	50.4	100.0
SUM	260	82	1	110	0	2	99	15	15	694	193	575	37	155	93	587	260	18	130	139	3463
T	7.5	2.4	0.0	3.2	0.0	0.1	2.9	0.4	0.4	19.8	5.6	16.6	1.1	4.5	2.7	17.0	7.5	0.5	3.8	4.0	100.0

Class 4 High Group

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	SUM
1-	8	0	0	0	0	0	0	0	0	1	4	0	0	0	0	58	3	2	0	3	79
R	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	2.8	0.1	0.1	0.0	0.1	3.8
C	10.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.0	0.0	0.0	0.0	0.0	17.0	1.8	33.3	0.0	4.5	3.8
E	10.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	5.1	0.0	0.0	0.0	0.0	73.4	3.8	2.5	0.0	3.8	100.0
2-	0	9	0	0	0	0	0	0	0	0	1	0	0	1	40	6	3	0	0	0	60
R	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.3	0.1	0.0	0.0	0.0	2.9
C	0.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	1.2	63.5	1.8	1.8	0.0	0.0	0.0	2.9
E	0.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	1.7	66.7	10.0	5.0	0.0	0.0	0.0	100.0
3-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4-	0	0	0	23	0	0	1	0	0	4	2	0	0	0	1	84	0	0	1	2	118
R	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0	0.1	5.7
C	0.0	0.0	0.0	19.5	0.0	0.0	1.3	0.0	0.0	0.9	1.5	0.0	0.0	0.0	1.6	24.6	0.0	0.0	1.2	3.0	5.7
E	0.0	0.0	0.0	19.5	0.0	0.0	0.8	0.0	0.0	3.4	1.7	0.0	0.0	0.0	0.8	71.2	0.0	0.0	0.8	1.7	100.0
5-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
C	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.1
E	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	100.0
7-	0	0	0	1	0	0	13	0	0	4	0	2	0	0	0	53	2	0	2	0	75
R	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	2.5	0.0	0.1	0.0	3.6	
C	0.0	0.0	0.0	0.8	0.0	0.0	17.3	0.0	0.0	0.9	0.0	0.6	0.0	0.0	0.8	0.0	31.2	0.0	2.4	0.0	3.6
E	0.0	0.0	0.0	1.3	0.0	0.0	17.3	0.0	0.0	5.3	0.0	2.7	0.0	0.0	0.0	70.7	0.0	2.7	0.0	100.0	
8-	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	11	0	0	0	0	13
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.6
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.3	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.6
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	7.7	0.0	0.0	0.0	84.6	0.0	0.0	0.0	0.0	100.0
9-	1	0	0	0	0	0	0	0	0	3	0	0	0	0	0	1	0	0	0	0	5
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
C	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.2
E	20.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	0.0	0.0	100.0
10-	6	8	0	15	0	0	18	3	1	353	8	1	0	0	1	3	0	0	19	5	441
R	0.3	0.4	0.0	0.7	0.0	0.0	0.9	0.1	0.0	17.0	0.4	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.9	0.2	21.2
C	7.6	13.3	0.0	12.7	0.0	0.0	24.0	23.1	20.0	80.0	6.0	0.3	0.0	0.0	1.6	0.9	0.0	0.0	23.2	7.6	21.2
E	1.4	1.8	0.0	3.4	0.0	0.0	4.1	0.7	0.2	80.0	1.8	0.2	0.0	0.0	0.2	0.7	0.0	0.0	4.3	1.1	100.0
11-	7	0	0	4	0	0	2	0	0	7	85	0	0	0	0	9	2	0	4	13	133
R	0.3	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.3	4.1	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.2	0.6	6.4
C	8.9	0.0	0.0	3.4	0.0	0.0	2.7	0.0	0.0	1.6	63.9	0.0	0.0	0.0	0.0	2.6	1.2	0.0	4.9	19.7	6.4
E	5.3	0.0	0.0	3.0	0.0	0.0	1.5	0.0	0.0	5.3	63.9	0.0	0.0	0.0	0.0	6.8	1.5	0.0	3.0	9.8	100.0
12-	37	25	0	48	0	1	6	5	3	52	11	43	8	19	1	20	2	0	42	2	325
R	1.8	1.2	0.0	2.3	0.0	0.0	0.3	0.2	0.1	2.5	0.5	2.1	0.4	0.9	0.0	1.0	0.1	0.0	2.0	0.1	15.6
C	46.8	41.7	0.0	40.7	0.0	50.0	8.0	38.5	60.0	11.8	8.3	13.2	80.0	23.5	1.6	5.9	1.2	0.0	51.2	3.0	15.6
E	11.4	7.7	0.0	14.8	0.0	0.3	1.8	1.5	0.9	16.0	3.4	13.2	2.5	5.8	0.3	6.2	0.6	0.0	12.9	0.6	100.0
13-	0	0	0	2	0	0	0	0	0	1	0	0	3	0	2	11	1	0	0	0	20
R	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.5	0.0	0.0	0.0	0.0	1.0
C	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	15.0	0.0	3.2	3.2	0.6	0.0	0.0	0.0	1.0
E	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	15.0	0.0	10.0	55.0	5.0	0.0	0.0	0.0	100.0
14-	6	4	0	10	0	0	1	0	0	1	1	0	0	25	1	29	0	1	2	0	81
R	0.3	0.2	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	1.4	0.0	0.0	0.1	0.0	3.9
C	7.6	6.7	0.0	8.5	0.0	0.0	1.3	0.0	0.0	0.2	0.8	0.0	0.0	30.9	1.6	8.5	0.0	16.7	2.4	0.0	3.9
E	7.4	4.9	0.0	12.3	0.0	0.0	1.2	0.0	0.0	1.2	1.2	0.0	0.0	30.9	1.2	35.8	0.0	1.2	2.5	0.0	100.0
15-	0	9	0	1	0	0	0	0	0	1	0	33	1	1	16	0	1	0	0	0	63
R	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	3.0
C	0.0	15.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.2	0.0	10.2	5.0	1.2	25.4	0.0	0.6	0.0	0.0	0.0	3.0
E	0.0	14.3	0.0	1.6	0.0	0.0	0.0	0.0	0.0	1.6	0.0	52.4	1.6	1.6	25.4	0.0	1.6	0.0	0.0	0.0	100.0
16-	9	3	0	11	0	0	0	4	0	4	6	159	7	27	0	108	0	1	2	0	341
R	0.4	0.1	0.0	0.5	0.0	0.0	0.0	0.2	0.0	0.2	0.3	7.6	0.3	1.3	0.0	5.2	0.0	0.0	0.1	0.0	16.4
C	11.4	5.0	0.0	9.3	0.0	0.0	0.0	30.8	0.0	0.9	4.5	48.9	35.0	33.3	0.0	33.7	0.0	16.7	2.4	0.0	16.4
E	2.6	0.9	0.0	3.2	0.0	0.0	0.0	1.2	0.0	1.2	1.8	46.6	2.1	7.9	0.0	31.7	0.0	0.3	0.6	0.0	100.0
17-	0	1	0	0	0	0	32	0	0	2	3	23	1	1	1	0	104	0	2	0	170
R	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.1	0.1	1.1	0.0	0.0	0.0	0.0	5.0	0.0	0.1	0.0	8.2
C	0.0	1.7	0.0	0.0	0.0	0.0	42.7	0.0	0.0	0.5	2.3	7.1	5.0	1.2	1.6	0.0	61.2	0.0	2.4	0.0	8.2
E	0.0	0.6	0.0	0.0	0.0	0.0	18.8	0.0	0.0	1.2	1.8	13.5	0.6	0.6	0.6	0.0	61.2	0.0	1.2	0.0	100.0
18-	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	2	0	0	6
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.3
C	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.0	0.0	0.0	33.3	0.0	0.0	0.3
E	16.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	33.3	0.0	0.0	100.0
19-	8	8	0	0	0	0	0	0	0	2	3	62	0	3	0	0	0	0	7	5	82
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	3.0	0.0	0.1	0.0	0.0	0.0	0.0	0.3	0.2	3.9
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	2.3	19.1	0.0	3.7	0.0	0.0	0.0	0.0	8.5	7.6	3.9
E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	3.7	75.6	0.0	3.7	0.0	0.0	0.0	0.0	8.5	6.1	100.0
20-	4	1	0	3	0	0	2	1	1	6	0	1	0	0	0	0	1	0	1	36	66
R	0.2	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	3.2
C	5.1	1.7	0.0	2.5	0.0	0.0	2.7	7.7	20.0	1.4	6.0	0.3	0.0	0.0	0.0	0.0	0.6	0.0	1.2	54.5	3.2
E	6.1	1.5	0.0	4.5	0.0	0.0	3.0	1.5	1.5	9.1	12.1	1.5	0.0	0.0	0.0	0.0	1.5	0.0	1.5	54.5	100.0
SUM	79	60	0	118	0	2	75	13	5	441	133	325	20	51	39	0	170	6	82	66	2080
T	3.8	2.9	0.0	5.7	0.0	0.1	3.6	0.6	0.2	21.2	6.4	15.6	1.0	2.5	1.9	0	16.4	0.2	0.3	3.9	3.2	100.0

Class 4 Average-Low Group

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	###
1-	13	0	0	0	0	0	0	0	0	2	0	5	0	0	1	145	2	0	3	10	181
T	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.4	0.0	0.0	0.1	10.5	0.1	0.0	0.2	0.7	13.1
C	7.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	2.8	0.0	0.0	3.3	58.9	2.2	0.0	4.3	13.7	13.1
R	7.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	2.8	0.0	0.0	0.6	80.1	1.1	0.0	1.7	5.5	100.0
2-	0	2	0	0	0	0	0	0	0	1	0	0	0	0	18	1	0	0	0	0	22
T	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	1.3	0.1	0.0	0.0	0.0	0.0	1.6
C	0.0	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	60.0	0.4	0.0	0.0	0.0	0.0	1.6
R	0.0	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	0.0	0.0	81.8	4.5	0.0	0.0	0.0	0.0	100.0
3-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.1
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0
4-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7-	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	19	2	0	1	24
T	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.4	0.1	0.0	0.1	1.7
C	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	21.1	16.7	0.0	1.4	1.7
R	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	79.2	8.3	0.0	4.2	100.0
8-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.1
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
9-	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0	3	0	0	1	1	10
T	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.1	0.7
C	0.0	0.0	0.0	0.0	0.0	0.0	8.3	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	4.3	1.4	0.7
R	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	30.0	0.0	0.0	30.0	10.0	100.0
10-	28	4	0	0	0	0	3	1	0	184	6	0	0	0	0	1	1	0	11	4	243
T	2.0	0.3	0.0	0.0	0.0	0.0	0.2	0.1	0.0	13.3	0.4	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.8	0.3	17.6
C	15.5	18.2	0.0	0.0	0.0	0.0	12.5	50.0	0.0	75.7	10.0	0.0	0.0	0.0	0.0	0.4	1.1	0.0	22.9	5.5	17.6
R	11.5	1.6	0.0	0.0	0.0	0.0	1.2	0.4	0.0	75.7	2.5	0.0	0.0	0.0	0.0	0.4	0.4	0.0	4.5	1.6	100.0
11-	5	1	0	0	0	0	2	0	0	7	29	1	0	0	0	2	0	0	2	11	60
T	0.4	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.5	2.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.8	4.3
C	2.8	4.5	0.0	0.0	0.0	0.0	8.3	0.0	0.0	2.9	48.3	0.4	0.0	0.0	0.0	0.8	0.0	0.0	4.2	15.1	4.3
R	8.3	1.7	0.0	0.0	0.0	0.0	3.3	0.0	0.0	11.7	48.3	1.7	0.0	0.0	0.0	3.3	0.0	0.0	3.3	18.3	100.0
12-	85	9	1	0	0	0	10	0	9	33	5	42	6	14	1	15	3	1	14	2	250
T	6.1	0.7	0.1	0.0	0.0	0.0	0.7	0.0	0.7	2.4	0.4	3.0	0.4	1.0	0.1	1.1	0.2	0.1	1.0	0.1	18.1
C	47.0	40.9	100.0	0.0	0.0	0.0	41.7	0.0	90.0	13.6	8.3	16.8	35.3	14.9	3.3	6.1	3.3	8.3	29.2	2.7	18.1
R	34.0	3.6	0.4	0.0	0.0	0.0	4.0	0.0	3.6	13.2	2.0	16.8	2.4	5.6	0.4	6.0	1.2	0.4	5.6	0.8	100.0
13-	2	0	0	0	0	0	0	0	0	0	0	0	1	0	1	11	1	0	0	1	17
T	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.8	0.1	0.0	0.0	0.1	1.2
C	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	0.0	3.3	4.5	1.1	0.0	0.0	1.4	1.2
R	11.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.9	0.0	5.9	64.7	5.9	0.0	0.0	5.9	100.0
14-	20	1	0	0	0	0	2	0	0	7	0	1	0	18	0	19	3	1	2	0	74
T	1.4	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.5	0.0	0.1	0.0	1.3	0.0	1.4	0.2	0.1	0.1	0.0	5.4
C	11.0	4.5	0.0	0.0	0.0	0.0	8.3	0.0	0.0	2.9	0.0	0.4	0.0	24.3	0.0	7.7	3.3	8.3	4.2	0.0	5.4
R	27.0	1.4	0.0	0.0	0.0	0.0	2.7	0.0	0.0	9.5	0.0	1.4	0.0	24.3	0.0	25.7	4.1	1.4	2.7	0.0	100.0
15-	0	3	0	0	0	0	0	1	0	0	0	17	0	1	8	0	0	0	0	0	30
T	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	1.2	0.0	0.1	0.6	0.0	0.0	0.0	0.0	0.0	2.2
C	0.0	13.6	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	6.8	0.0	1.4	26.7	0.0	0.0	0.0	0.0	0.0	2.2
R	0.0	10.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	56.7	0.0	3.3	26.7	0.0	0.0	0.0	0.0	0.0	100.0
16-	16	0	0	0	0	0	1	0	0	1	6	132	9	31	0	43	0	0	7	0	246
T	1.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.4	9.5	0.7	2.2	0.0	3.1	0.0	0.0	0.5	0.0	17.8
C	6.8	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0	0.4	10.0	52.8	52.9	41.9	0.0	17.5	0.0	0.0	14.6	0.0	17.8
R	6.5	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.4	2.4	53.7	3.7	12.6	0.0	17.5	0.0	0.0	2.8	0.0	100.0
17-	1	1	0	0	0	0	2	0	0	0	2	19	0	2	0	2	61	0	0	0	90
T	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	1.4	0.0	0.1	0.0	0.1	4.4	0.0	0.0	0.0	6.5
C	0.6	4.5	0.0	0.0	0.0	0.0	8.3	0.0	0.0	0.0	3.3	7.6	0.0	2.7	0.0	0.8	67.8	0.0	0.0	0.0	6.5
R	1.1	1.1	0.0	0.0	0.0	0.0	2.2	0.0	0.0	0.0	2.2	21.1	0.0	2.2	0.0	2.2	67.8	0.0	0.0	0.0	100.0
18-	2	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	7	0	0	12
T	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.5	0.0	0.0	0.9
C	1.1	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	58.3	0.0	0.0	0.9
R	16.7	0.0	0.0	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	16.7	0.0	0.0	0.0	58.3	0.0	0.0	100.0
19-	0	0	0	0	0	0	0	0	0	0	2	32	0	2	0	0	0	0	3	9	
T	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.3	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.7	
C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	12.8	0.0	2.7	0.0	0.0	0.0	0.0	6.3	12.3	
R	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	66.7	0.0	4.2	0.0	0.0	0.0	0.0	6.3	18.8	
20-	8	1	0	0	0	0	1	0	1	5	18	1	1	4	0	1	0	1	3	10	
T	0.6	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.5	0.7	0.1	0.1	0.3	0.0	0.1	0.0	0.1	0.2	2.5	
C	4.4	4.5	0.0	0.0	0.0	0.0	4.2	0.0	10.0	2.9	16.7	0.4	5.9	5.4	0.0	0.4	0.0	8.3	6.3	46.6	
R	11.0	1.4	0.0	0.0	0.0	0.0	1.4	0.0	1.4	6.8	13.7	1.4	1.4	5.5	0.0	1.4	0.0	1.4	4.1	46.6	
###	181	22	1	0	0	0	24	2	10	243	60	250	17	74	30	246	90	12	48	41	
T	13.1	1.6	0.1	0.0	0.0	0.0	1.7	0.1	0.7	17.6	4.3	18.1	1.2	5.4	2.2	17.8	6.5	0.9	3.5	3.0	