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DREHER, Barbara Bender, 1933-
THE PREDICTION OF CHILDREN'S NARRATIVE AND
DIRECTIVE LANGUAGE.

The Ohio State University, Ph.D., 1966
Speech

University Microfilms, Inc., Ann Arbor, Michigan

THE PREDICTION OF CHILDREN'S NARRATIVE
AND DIRECTIVE LANGUAGE

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the
Degree Doctor of Philosophy in the Graduate School of
The Ohio State University

By

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* * * * *

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CONTENTS

	Page
TABLES	v
FIGURES	vi
 Chapter	
I. INTRODUCTION	
The Problem	1
Statement of the Purposes	4
Statement of the Hypotheses	6
Background Explanations	6
Organization of the Study	10
II. REVIEW OF THE LITERATURE	
Children's Language	11
Statistics of the Language	18
Language Prediction	24
III. METHODS AND PROCEDURES	
Recapitulation of the Purposes	36
Stimulus Materials	36
Reliability	39
Subjects	41
Experimental Procedure	41
Recording the Results	43
Summary	44
IV. ANALYSIS AND RESULTS	
Recapitulation of the Purposes	45
Data Presentation	45
Treatment of the Data	53
Measures of Predicting Ability	53
Measures of Predictability Attributed to Age Groups	59
Comparison of Imaginative and Random Words	60
Comparisons of Children's Language with Adults' Language	63

Chapter	Page
V. DISCUSSION AND SUMMARY	
Recapitulation of the Purposes	70
Recapitulation of the Procedures	70
Discussion of the Results	71
Summary	77
Suggestions for Further Research	79
APPENDIX A	
Four Lists Totaling 100 Phrases Used as Stimulus Material for Adult Predictors ...	81
APPENDIX B	
Representative Samples of the Children's Responses to the Two Verbal Tasks from which Test Phrases were Drawn	86
APPENDIX C	
Instructions to the Predictors	108
Sample Answer Sheet	109
APPENDIX D	
List of Words Classified as Imaginative and Words Chosen Randomly	110
APPENDIX E	
Data Charts for 100 Phrases	112
BIBLIOGRAPHY	130

TABLES

Table	Page
1. Example of Tabulated Responses to Word Prediction, Showing Individual Predictor's Response (Number 1 Indicating Correct, 0 Indicating Incorrect), Individual Totals, Group Totals, Mean Redundancy, and Mean Correct Prediction Per Space	47
2. Summary of Each Predictor's Correct Responses Across Twenty Spaces Pooled According to the Principal Classifications under Comparison and Arranged for Lindquist's "Mixed" Design Type VI	49
3. Summary of Correct Responses Across Twenty Spaces Attributed to the Phrases of Four- and Five-year-old Children, Pooled According to the Principal Classifications under Comparison--Syntax (Correct or Error) and Type of Phrase (Narrative or Directive)--and Arranged for Lindquist's "Mixed" Design Type VI	51
4. Summary of Analysis of Variance; Lindquist's "Mixed" Design Type VI, Applied to Scores of Correct Predictions and Analyzed into the Principal Components--Syntax (Correct or Error), Type of Phrase (Narrative or Directive), Predictor Group (Parent, Non-Parent, or Teacher)--and Interactions Among Them	55
5. Composite Values for All Predictors Under the Significant Conditions of Syntax and Type of Phrase and Interaction Summarized in Table 4 Expressed in Mean Percent Redundancy	56
6. Summary of Analysis of Variance; Lindquist's "Mixed" Design Type VI, Applied to Scores of Correct Predictions Attributed to the Phrases of Four- and Five-year-old Children and Analyzed into the Principal Components--Syntax (Correct or Error), Type of Phrase (Narrative or Directive), Age of Child (Four or Five Years)--and the Interactions Among Them	61

FIGURES

Figure	Page
1. Relative Effects Based on Mean Redundancies of Significant Parameters in Adult Prediction of Children's Language	58
2. Comparison of Percentage Correct First Guesses on Narrative Phrases from Child and Adult Sources	65
3. Comparison of Percentage Correct First Guesses on Directive Phrases from Child and Adult Sources	68
4. Mean Redundancies of Selected Phrases from Child and Adult Sources	69

CHAPTER I

Introduction

The problem

The phenomenon of language is as simple or complex as the observer's point of reference. Both semantically and linguistically, any speech act is a combination of predictable and novel elements. A quantitative approach to this matter of the expected versus the unexpected in language was supplied by Claude Shannon. According to his mathematical theory, information is associated with the statistical rarity of the signal transmitted, while redundancy is the reduction in information imposed by the rules of language. A mechanical encoder would select units in the order of their increasing conditional probability and the decoder would reverse the process. Shannon found that human decoders, while not ideal, were very efficient at reconstructing unknown messages. He asked subjects to predict successive letters of an unknown text and measured their success. Letter-prediction became a basis for estimating the relative amounts of information and redundancy in a message.¹

¹Claude Shannon, "Prediction and Entropy of Printed English," Bell System Technical Journal, 30 (1951), 50-64.

Language-prediction, the method used in this study, is an extension of Shannon's procedure to meaningful units rather than orthographic units. It recognizes the fact that predictors have a word in mind as they predict successive spaces. As an experimental method, prediction can be interpreted in several ways. On the linguistic level, it tests assimilation of the rules of spelling, structure, parts of speech, word order, tense, and agreement. On the semantic level, it tests awareness of the situation and ability to make realistic and sensible wholes out of fragments.

In this study prediction is being used to test adult knowledge of children's language as a sublanguage which is limited in vocabulary and grammatical form. Linguistic theory would claim that many of the structural aberrations are truly unique to the sublanguage. Certainly, children's oral compositions are short in over-all length, in their segments, and in word length. These features make them apt for analysis by prediction which operates most efficiently on texts at least fifteen to twenty spaces long.² However, the technique is slow-motion, because it

²Donald Morehead, "The Predictability of Letters and Spaces as a Function of Rate of Deletion from Balanced Phrases and Sentences" (unpublished Master's thesis, Department of Speech, Ohio State University, 1964), p. 49.

proceeds letter by letter. It must be assumed that reaction to language transmitted in such a piecemeal fashion is somewhat indicative of the reaction at a natural pace.

Although the method and the stimuli are specialized, the possible influences of the whole course of a child's development cannot be excluded from the study. The complexity of this development has been compared with the programming of an electronic computer. A multi-sided psyche reacting to the innumerable combinations of environmental factors creates unique features. The vast number of circumstances and experiences shared with others in the culture creates generalized features. Linguistic behavior is one of these generalized features. Mastering the sound and structure of language is a gradual, accumulative process. It requires the maturing and refining of the sensory channels and the brain coder, as well as the provision in the environment of stimuli organized to promote learning. By the age of four, the child's speech is much like the adult's speech except for the size of his vocabulary and the complexity of his sentences. His articulation is intelligible and he can express his needs in a volley of functional words and simple sentences. But can the child who has developed language as a tool now use it as a toy? This does not refer to babbling for fun, but to choosing words and phrases for their effect in giving

pleasure, enhancing his ego. To play with words is not restricted to adults and artists. It is a unique feature within the generalized behavior called language.

In a sense, this study attempts to measure creativity. Of course, the child is learning the adult language and his production will be compared with conventional printed sources. But he displays creativity in syntax by his approximation to adult rules. He also displays creativity in a semantic sense by his imaginative narration. If there are unique features, they should stand out against the backdrop of a common language which has been assimilated rather than created by the child. The pattern of language prediction shows such peaks and valleys of novelty. Literally, and figuratively, it seems to be a highly appropriate method for measuring the necessary generality and precious singularity of children's language.

Statement of the purposes

The primary purpose of this study was to determine how well adults could predict the language of preschool children. The sample was composed of narrative and directive messages phrased in correct and erroneous syntax. The predictors were divided into three groups: parents, other adults, and primary grade teachers. It was assumed that these groups represent a wide range in both kind and amount of experience with children. The predictor's degree

of success was considered a measure of his awareness and understanding of the stages of language development.

A second purpose was based on the assumption that narration elicits more imaginative vocabulary than giving directions. The predictability of words classified as imaginative was compared with the predictability of words of similar length chosen randomly from the sample.

A third purpose was to compare the predictability of children's speech with earlier findings on adults' printed language. Omitting the items of erroneous syntax, children's narration was expected to parallel adults' newspaper phrases in predictability. Likewise, correct responses to children's directive phrases were expected to parallel those to adults' flight instructions.

Answering the experimental questions required the following steps:

1. collecting a speech sample large enough to be reliable,
2. creating a test with defined categories,
3. administering the test to three groups of adults chosen for the exclusiveness with which they assumed a particular role in relation to children,
4. tabulating and analyzing the results,
5. comparing the results with earlier studies, and
6. drawing conclusions based on statistical analyses of the data.

Statement of the hypotheses

The following null hypotheses were proposed.

1. There is no difference among the correct response scores for three groups of adults: parents, adults inexperienced with children, and preschool and primary grade teachers.
2. There is no difference between correct response scores in predicting correct and erroneous syntax.
3. There is no difference between correct response scores in predicting narrative and directive types of phrase.
4. There is no difference between correct response scores attributed to the phrases of four- and five-year-old children.
5. There is no difference between the correct response scores for words classified as imaginative and others of similar length chosen randomly from the whole test.
6. There is no difference between the percentage of correct responses per space in predicting children's narration and adults' newspaper phrases.
7. There is no difference between the percentage of correct responses for each space in predicting children's directions and adults' flight instructions.

Background explanations

The mathematical theory of communication as developed by Shannon takes account of the statistical

probabilities of language as the information source.

Information refers to the a priori uncertainty in selecting a message and is defined as the logarithm of the number of alternatives when all responses are equally probable. The information content of a symbol represents its potential for selecting responses in the receiver. A symbol with high information content would elicit a wide range of responses from the receiver. Since information is freedom of choice in selecting units, it reaches a maximum when the number of choices, equally likely, is the same as the number of circumstances.³

³Claude Shannon and W. Weaver, The Mathematical Theory of Communication (Urbana, Illinois: University Press, 1949).

The English language, however, limits the number of choices by imposing rules of grammar and spelling. Because natural languages develop organically and change with time, they lack the neat efficiency of a code. Verbal habits impose a familiar form on a message and guard against misinterpretation. The reduction in information caused by linguistic and semantic constraints is called the redundancy. Mathematically, redundancy equals unity minus the ratio of the actual information per symbol to the maximum information per symbol.

Since Shannon introduced letter-prediction as a technique for measuring the information and redundancy in

a message, the method has been varied. This experiment adopted Black's variation in which the subject was required to predict a word for each space.⁴ After each prediction

⁴John W. Black, P. Guberina, U. Cinquini, T. Ancona, and E. Jancosek, "Applications of Language-Prediction Techniques to Speech and Hearing," Folia Phoniatrica, 17 (1965), 33-39.

the subject was given the correct response for that particular space. Apprised of the proper letter, he either repeated or revised his word prediction for the next space. This procedure measures not only the predictive ability of the users of language, but also the predictability of the particular type of text being scrutinized.

In language prediction information is associated with the uncertain elements--those that cannot be predicted at the first opportunity for any particular space of the message. Hence, when only one prediction is made at each space an incorrect response, marked zero, signifies information. If repeated predictions were made at that same space without cues the succession of units should represent decreasing probabilities of occurrence and a computation for amount of information in bits would be possible.

The method of language prediction used in this study does not allow a strict application of Shannon's definition of redundancy either. But the concept has been

broadly interpreted to measure linguistic and semantic constraints when information was not calculated in binary digits.⁵ These researchers estimated redundancy in

⁵F. C. Frick and W. Sumby, "Control Tower Language," The Journal of the Acoustical Society of America, 24 (1952), 595-596.

percent. It amounted to the complement of the percentage of uncertainty, their expression for actual information in a message compared to the maximum possible when no restrictions exist. In this study redundancy is associated with the elements that can be predicted at the first opportunity for that space of the message. Because only one prediction is made at each space, a correct response, marked one, signifies redundancy. The percentage of redundancy is the number of correct responses summed across twenty spaces, divided by the total possible correct responses, and multiplied by 100. It is a measure of the a priori knowledge of a message attributable to linguistic and semantic restraints.

The stimulus material in this study was of two types--narrative and directive. Narration, being the art or practice of relating stories or accounts of events, was chosen to parallel a prediction study of newspaper writing. Directions, instructions, and advice are related to the imperative mood, but lack its immediacy and force. This type was chosen to parallel flight instructions.

Because the stimulus material came from the unedited speeches of children, the syntax was variable. Two levels were distinguished. "Correct" syntax designated structures similar to conventionally accepted adult speech. The standard for informal conversation among educated adults was most applicable. "Error" syntax designated structures exhibiting a child's imperfect assimilation of the rules of adult speech. Such substandard grammatical usage also occurs in dialects of low socioeconomic status.

Organization of the study

This study is divided into five parts. Chapter I includes orientation and delineation of the scope of the research. Chapter II is a review of the related literature on children's language, statistics of the language, and language prediction. Chapter III concerns the detailed methods and procedures, while Chapter IV deals with the statistical analysis of the results. Discussion of the results and a brief summary of the whole study are given in the final chapter.

CHAPTER II

Review of the Literature

Any study about language, children, parents, and teachers is influenced by the work of many researchers. It would be impossible to know all their studies. Merely listing the related books and journals would be a sizeable task. While many deserve recognition, only the sources that had a strong bearing on the present study will be discussed in detail. The wide scope of the pertinent literature can be subdivided into three categories: children's language, statistics of the language, and language prediction.

Children's language

Because this study is concerned with the language of four- and five-year-old children, reports of extensive research in speech and language development at much earlier or later age levels will be omitted.

Outstanding in this area is the work of Dorothea McCarthy.¹ Her procedure for securing a sample of 50

¹Dorothea A. McCarthy, "Language Development in Children," in Leonard Carmichael, Manual of Child Psychology (New York: Wiley Co., 1954), Chap. 9.

utterances and measuring their length, structural complexity, and vocabulary has been widely applied.

Mildred Templin measured large, well-selected samples on which tables of normative data are based.² Her

²Mildred C. Templin, "Certain Language Skills in Children: Their Development and Interrelationships," Child Welfare Monographs, No. 26 (Minneapolis: University of Minnesota Press, 1957).

study described the growth in children from three to eight years old of four aspects of language: articulation of speech sounds, speech sound discrimination, sentence structure, and vocabulary. However, to apply norms fairly to the language of a particular individual, his utterances must be elicited, recorded, and analyzed in manners similar to the normative sample. In both McCarthy's and Templin's studies the speech sample represented the child's spontaneous remarks when confronted with toys, books, and the tester.

In gathering data for speech profiles, Ruth Metraux recorded illustrative excerpts of nursery conversation. She noted the use of language during activity, the use of repetitions and "tensional outlets," and the use of language in relation to others. Under this last category she describes a typical child of four and one-half years, thus:

Speech is now a more facile tool. . . . He gives a good deal of spontaneous information about what

"I can do," and with slight stimulation will tell a long story about himself or his environment. This story may be complete improvisation and the other person may be forgotten while the story goes on indefinitely.³

³Ruth W. Metraux, "Speech Profiles of the Pre-School Child 18-54 Months," Journal of Speech and Hearing Disorders, 15 (1957), 50.

This description harmonizes with Arnold Gesell's classic profile of the four-year-old as a brash, boastful speaker.

Fitting into the larger picture of the child's developmental stages are the more recent observations of Paula Menyuk.⁴ She asked children to correct sentences

⁴Paula Menyuk, "Syntactical Rules Used by Children: Pre-School to First Grade," Journal of Child Development, 35 (1964), 533-540.

containing common restricted (error) forms. More four-year-olds than five-year-olds made corrections. She suggests that the younger group is evaluating and producing sentences at a more external level. She further suggests that five may be an age for establishing correct usage of rules already incorporated, because at that age there is less use of restricted forms.

The way in which a child acquires syntax was described by Bellugi and Brown.⁵ Their longitudinal study

⁵Roger Brown and Ursula Bellugi, "Three Processes in the Child's Acquisition of Syntax," Harvard Educational Review, 34 (1964), 133-52.

of a boy and a girl from 18 to 36 months revealed progressive differentiation in usage of words and syntactic classes concurrent with a progressive integration of phrase structure into the range of positions earlier occupied by isolated words. This generalization was supported by exposition of three processes. The first is the child's imitation of adult language which involves the same limit on length as his own spontaneous utterances. When the adult says, "It's time for Billy's lunch," the child may imitate, "Billy lunch." He always preserves the word order of the adult model, but reduces it to telegraphic properties by repeating the stressed, content-carrying forms only. The adult in turn imitates the child's speech and expands his utterance in tune with the circumstances and according to the obligatory rules of English grammar. When the child says, "Daddy car," the mother may elaborate, "Here comes Daddy's car." The third process is the most complex. The child's errors show that he is inducing the regularities of syntax from what he has heard. Should he say "eated" he is not imitating, but overgeneralizing the regular past inflection he has heard so often. This process has not been thoroughly explained by present learning theories.

A broader study by Menyuk dealt with 159 bright children ranging in age from two years, ten months, to

seven years. Her speech sample, a minimum of 50 sentences, was elicited in three situations: response to pictures, conversation with the examiner, and conversation with peers in family play. There seems to be a broader base for analysis than earlier studies and Menyuk justifies her approach this way:

The children's usage of grammar did become increasingly complex over the age range studied. This complexity was not related simply to increasing sentence length or proportion of usage of what has been termed compound or complex sentences, or, in the terms of a generative model of grammar, general transformations. These are extensions of behavior without additional rules in the grammar. . . . To delete and substitute as in relative clauses needs the same application of rules whether it is done once in ten minutes or three times. This increasing complexity is also dependent on the child's ability to proceed from the application of the most general rule to the application of increasingly difficult rules, in a certain order, to produce a particular syntactic structure.⁶

⁶Paula Menyuk, "Alternation of Rules in Children's Grammar," Journal of Verbal Learning, 3 (1964), 480-89.

Because Menyuk is trained in linguistics, she applies Chomsky's⁷ generative model of grammar to her data.

⁷Noam Chomsky, Syntactic Structures (Gravenhage: Mouton Co., 1957).

An underlying assumption is that language acquisition depends, not on imitation alone, but on organizing and differentiating sets of rules from the heard data. For

example, when a child says "was broke" he may be imitating the usage of some adults, but when he says "broke" he is making a creative, but imperfect approximation to adult usage. Her data show that while all children could use grammatically acceptable forms at the phrase structure and morphology levels, they did not do so all the time. There were differences in the number and kinds of transformations they could produce. The instances of non-grammatical usage were designated as structures restricted to a child's approximation to adult rules. Such forms were relatively infrequent in the total sample. Menyuk admits that the restricted forms can be found in the grammar of some adults (usually of low socio-economic status), and that they are not outside a set of possible sentences.

Although she uses the terms omission, substitution, and addition in a manner familiar to speech therapists, Menyuk ranks these kinds of errors under the three levels of grammar. For instance, "preposition omission" is a restriction at the phrase structure level, while "contraction deletion" is an error at the transformational level.

In the present study the 50 items of non-grammatical usage were not easily classified according to Menyuk's model, because more than one kind of error

occurred in many phrases. The colloquial use of "got" was considered an error when it omitted any form of the auxiliary verb, "has" or "have." As in Templin's survey, double negatives and disagreement between subject and verb were the most common errors.⁸

⁸Templin, Child Welfare Monographs, No. 26.

A study which elicited a language sample without using pictures or toys to direct the imagination was made by Jean Betzner.⁹ Five-year-old children dictated stories

⁹Jean Betzner, Content and Form of Original Compositions Dictated by Children from Five to Eight Years of Age (New York: Teacher's College, Columbia University, 1930).

to friendly amanuenses who later typed and edited them. Hence, 193 stories were analyzed for main idea, kind of treatment, source of subject matter, characterization, conversation, repetition, time sequence, cause and effect episodes, organization, and number of words. Of particular interest was the fact that 98 percent of the stories were judged to be narrative and serious. Slightly less than one-half of these were imaginative, as opposed to realistic. Formal analysis showed that only 14 percent of the stories used pleasing names and unusual phrases, while 7 percent showed vivid sense impressions.

Apparently, even young children could make a conscious choice of words to embellish their speech.

Statistics of the language

The prediction of language depends, in part, on a familiar verbal context. It is this shared knowledge of the language that makes communication possible, because it codes the output in a recognizable form.

Miller defines the verbal context of any particular verbal unit as "the communicative acts that surround it."¹⁰

¹⁰George Miller, Language and Communication (New York: McGraw-Hill Book Company, Inc., 1951), 81.

These are determined by the structure of the language, and the conventions of word order, spelling and punctuation. The verbal units can be letters, phonemes, morphemes, syllables, words, phrases, sentences, paragraphs, parts of speech, or other designations. Many of these units have been counted and ranked separately and in combinations, to yield probabilities of occurrence. Such quantitative measurement gives a statistical description of the language.

A pioneer study in the quantification of language was motivated by the need for recording speech rapidly. The shorthand expert, Dewey, tabulated the relative frequency of occurrence of words, syllables, vowels, and

consonants from a wide variety of printed sources. He found that ten words accounted for 25 percent of the total words in the sample, and nine phonemes made up 50 percent of the total sounds. The most frequently used sounds were [ɪ, n, t, r, ə, s].¹¹

¹¹Godfrey Dewey, Relative Frequency of English Speech Sounds (Cambridge, Mass.: Harvard University Press, 1923).

More recently, Black analyzed 3500 common one and two syllable words by information theory to determine the probabilities of each sound, each pair of sounds, and each digram. He found that phonetic elements of English in root forms have dissimilar frequencies in the language both in isolation and in digrams. These frequencies are determined somewhat by context. He observed that short words contained more information than longer words.¹²

¹²John W. Black, "The Information of Sounds and Phonetic Digrams of One- and Two-Syllable Words," Journal of Speech and Hearing Disorders, 19 (1954), 397-411.

John B. Carroll at Harvard also preferred to count phonemes rather than spelling letters. Aiming for the realism of spoken language he chose his sample from eleven different plays that had been published in a drama magazine for young people. From a corpus of 20,032 phonemes, tables of two and three phoneme sequences were

made. Using the same body of data Hultzen, Allen, and Miron have computed the transitional frequencies of four phoneme sequences.¹³

¹³Lee S. Hultzen, Joseph D. Allen, Jr., and Murray Miron, Transitional Frequencies of English Phonemes (Urbana, Illinois: University of Illinois Press, 1964).

Other experimenters have made frequency counts of spoken English and compared them with counts based on printed sources. While "the" is the most common word in writing, "I" and "you" are most often used in telephone conversation. Of a total 80,000 words spoken over the telephone, only 737 constituted 96 percent of all the different words used.¹⁴

¹⁴N. R. French, C. Carter, and W. Koenig, "The Words and Sounds of Telephone Conversations," Bell System Technical Journal, 9 (1930), 290-324.

A frequency count of the spoken language of children was made in 1925. "The Commonest Words in the Spoken Vocabulary of Children Up to and Including 6 Years of Age" is a list based on over 300,000 running words from three investigations by Ernest Horn, his wife, and P. C. Packer. The 5,000 different words were reduced to the published list of approximately 1,000 by including only those which occurred 15 or more times. The list was

published to apprise teachers of the words a child speaks and understands before actually learning to read.¹⁵

¹⁵Ernest Horn, "The Commonest Words in the Spoken Vocabulary of Children Up to and Including 6 Years of Age," Report of the National Committee on Reading, Twenty-fourth Yearbook of the National Society for the Study of Education, Part I (Bloomington, Ill.: Public School Publishing Co., 1925), 186-198.

A convenient way of showing the amount of use people give particular speech units is the type-token ratio. The token is the particular occurrence of that word or unit, and repetitions of it are classed together to form a type. The ratio is taken, customarily, of the number of different words to the total number of words in the passage. A passage of 500 words is the usual size. The telephone survey showed that articles, prepositions, conjunctions, pronouns, and auxiliary verbs make up only 5 percent of the different words, yet 57 percent of the word tokens used. Miller explains that these parts of speech determine the general form of a statement and are used repeatedly to carry different contents. The content parts of speech--nouns, verbs, adjectives, and adverbs--contribute 95 percent of the different words and convey most of the information.

The repetitious use of a few words in comparison with the half million words available in our language has

been found to be a common trait in other languages, too. Zipf demonstrated this tendency on a graph by plotting the frequency of occurrence against the rank order, from most to least frequent word. With logarithmic coordinates, the slope equals minus one. A standard curve of English words was made and the technique applied to other samples and other verbal units with more or less success.¹⁶

¹⁶G. K. Zipf, Human Behavior and the Principle of Least Effort (Cambridge, Mass.: Addison-Wesley, 1949).

Researchers have used statistical counts to reveal differences in different types of writing. Prominent among these measures is the adjective-verb quotient. It represents the ratio of qualitative to active constructions in a passage. Boder used it to describe changes with time in the style of Emerson's journals. For the types of writing he studied, he found the largest difference between legal statutes and scientific monographs. The former exhibited five verbs for each adjective, while the latter had 1.3 verbs for every adjective.¹⁷

¹⁷David P. Boder, "The Adjective-Verb Quotient; A Contribution to the Psychology of Language," Psychological Record, 3 (1940), 309-343.

DeVito has analyzed the differences between speech and writing by counting the frequency of specialized word

types. The six types represented psychogrammatical features, such as precise numerical terms or self-reference terms. Samples of oral and written discourse from the same informants showed significant differences in the mean number of allness terms, qualification terms, pseudo-quantification terms, and self-reference terms.¹⁸

¹⁸Joseph DeVito, "Psychogrammatical Factors in Oral and Written Discourse by Skilled Communicators," Speech Monographs, 33 (1966), 73-76.

Because they could show difference between types of writing, statistical indices were used in studies of personality. Sanford demonstrated that broad use of many indices could give a rounded picture of an individual's style. The items he measured were mechanical (speed, quantity), grammatical, lexical, psychological, and combinations of these. Among other things he distinguished number and kinds of verbs, repetitions, clauses, characterizations, tenses, qualifiers, and type-token ratio. In all, he tabulated over 200 variables on the speech samples of two young men. Many statistics delineated a distinctive verbal style for each individual.¹⁹

¹⁹Fillmore Sanford, "Speech and Personality," Psychological Bulletin, 39 (1942), 811-845.

Returning to the importance of statistics of the language to the predictive process, Shannon, himself, has

made qualifications. In reporting his first experiment utilizing prediction to the Seventh Conference on Cybernetics, he says:

All of this work simplifies the complexity of English a great deal in that we say there is one kind of English and there is one set of statistics for English. Actually, English is really many different languages, each with different statistics.²⁰

²⁰Claude Shannon, "The Redundancy of English," Cybernetics, Transactions of the Seventh Conference, Josiah Macy, Jr. Foundation (New York, 1950), 123-158.

Language prediction

Because the native speaker of a language has internalized its statistical characteristics and utilizes this knowledge in a conscious search for semantic content, he can predict messages. The more constraints on the missing elements, the more likely he is to guess them. This predictive ability is demonstrated in two related experimental techniques.

In prediction, by letter or word, the subject begins with no clues and makes successive predictions after each of which the correct unit is given and marked. The subject moves forward by looking back at the correct text spun out behind him. In ideal prediction the units would be guessed in the order of their decreasing conditional probability.

In recovery, or reconstruction, the subject is presented with a reduced text showing blanks where elements are removed. There might be blanks where correct first guesses had occurred and letters or numbers where more predictions had been necessary. Usually the length of the segments is indicated, but other clues are not sequential or complete. There may be no indication of deletion. A skeleton is presented and the subject can start anywhere to fill it in without benefit of advice or assurance in the process.

For a mechanical system there would be no difference in the relative difficulty of the tasks. A reversible transducer could as easily decode as encode the original text, so only a reduced text need be transmitted. Human subjects, in contrast, judge only on their experience of a particular method detailed to a researcher's desires. Ease of responding would depend on those details, motivation, and general verbal ability. It has been demonstrated that there is no significant difference in performance scores when subjects predict character by character and when they reconstruct a text with some letters provided by a programmed automatic typewriter. Comparing several lengths and patterns of reduced text, Morehead found that sentences of fifteen to twenty characters were

reconstructed in the shortest amount of time with fewest errors.²¹

²¹Donald Morehead, "The Predictability of Letters and Spaces As A Function of Rate of Deletion from Balanced Phrases and Sentences" (unpublished Master's thesis, Department of Speech, Ohio State University, 1964), p. 49.

Shannon deserves the credit for the original letter-predicting technique. By having subjects continue predicting until they gave the correct letter, he built a table of probabilities. It shows the percentage of correct responses at any particular stage of a text (up to fifteen spaces long) with a particular number of preceding letters known at each successive guess (up to 27). For example, at the third space in a text with two preceding letters known, the correct letter was obtained on the fourth guess seven times out of 100.²²

²²Claude Shannon, "Prediction and Entropy of Printed English," Bell System Technical Journal, 30 (1951), 50-64.

Shannon also calculated the average amount of information produced for each letter of a text from the known statistics of the English language. Expressed in binary digits, his measure of information, H , is equal to the logarithm of the number of circumstances, to the base 2. When the number of letters in the source is 26 plus a

space and all choices are equally likely, his estimate is $H = \log_2 27$ or 4.76 bits for each letter. Estimating from the Zipf curve of the frequency of English words, he showed that the average length word yields 2.14 bits for each letter. This amount is less than an estimate based on the probabilities of the average 4.5 component letters occurring in sequence, because a word has strong internal statistical influences. He concludes thus:

When statistical effects over not more than eight letters are considered the entropy is roughly 2.3 bits per letter, the redundancy about 50%. . . . In ordinary literary English, the long range statistical effects (up to 100 letters) reduce the entropy to something of the order of one bit per letter, with a corresponding redundancy of roughly 75%. The redundancy may be still higher when structure extending over paragraphs, chapters, etc. is included. However, as the lengths involved are increased, the parameters in question become more erratic and uncertain, and they depend more critically on the type of text involved.²³

²³Ibid., 50.

Reconstruction at the word level was used by Black and Morrison when they asked subjects to supply one to six words which had been deleted from twelve-word sentences. Arrangements of the stimulus material were increasingly difficult, ranging from original word order with blanks to indicate deletions, to scrambled word order with no indication of deletions. Results showed that the responses to one word deletions were 50 percent

correct when the original word order was retained. The scores decrease as context is reduced until five and six word deletions yield scores no greater than the chance type-token ratio of any sentence. Predicting the idea (semantic content) had only slight advantage over predicting the correct word, at most 20 percent. The sentences, however, came from classroom speeches in which a wide variety of content and style could be expected. Summing up, the 50 percent redundancy in word prediction without letter cues indicates that it is a more difficult task than letter prediction.²⁴

²⁴H. M. Morrison and J. W. Black, "Prediction of Missing Words in Sentences," Journal of Speech and Hearing Disorders, 22 (1957), 236-240.

The same twelve-word sentences were presented aurally with the one to four word deletions credited three different periods of silence. Again, the ability to reconstruct the words or their meanings decreased as the number of deletions increased. No interval of silence allowed for the deletion was also a significant condition for lowering scores. A morphemic analysis of the correct responses showed no advantage over tabulating the percentage of correct responses on a word basis. Listeners' responses to one-word deletions were 44 percent correct compared with 50 percent in Black's and Morrison's study.

In reconstruction, subjects who listened scored consistently lower than subjects who read the same stimuli.²⁵

²⁵Edward G. Bradley, "Reconstruction of Fragmentary Sentences Presented Aurally" (unpublished Ph.D. dissertation, Department of Speech, Ohio State University, 1963).

A simple word-deletion technique, the Cloze procedure, was developed by Taylor to measure readability of printed language.²⁶ "Cloze" was derived from the term

²⁶Wilson L. Taylor, "'Cloze Procedure': A New Tool for Measuring Readability," Journalism Quarterly, 30 (1953), 415-433.

"closure" applied by Gestalt psychologists to the human tendency to complete a familiar, but not quite finished pattern. The procedure deletes words in a definite pattern or at random and inserts a line of standard length. The unit scored when a subject supplies the correct word is considered a true measure of the underlying continuum of relative appropriateness. Cloze data are not considered independent because of successive increases in context. This method was found to be as reliable and more flexible than earlier ways of assessing readability. It was more sensitive at distinguishing levels of difficulty in material and, concomitantly, levels of difficulty to particular populations doing the predicting. The

materials were presented visually and the scores also showed significant differences between the reading ability of individuals.

Cloze material derived from tape recordings was used to study children's understanding of teacher and peer speech.²⁷ Appropriate passages were presented

²⁷Estelle C. Peisach, "Children's Comprehension of Teacher and Peer Speech," Child Development, 36 (1965), 476-480.

aurally to first-grade children and both aurally and visually to fifth-grade children. Qualitatively, the auditory form of presentation was more difficult. In all cases where Cloze measures correlated .40 or above with intelligence there were significant social-class differences in the reception of teachers' speech. Concerning peer speech, lower-class children were significantly inferior at replacing words in middle-class speech. Because findings were not consistent across all measures, Peisach feels that the Cloze technique needs further refinement.

Another study involved reconstruction of prose passages widely different in style and content. Ease of prediction did not necessarily coincide with readability. The two easiest passages were from popular magazines (Life and Parents), while the two hardest were a discussion of

Fascism and an anatomy text. Chapanis, the researcher, proposed that the amount of redundancy was the causal factor. His subjects were a heterogeneous group and five naval code experts. Their ability to reconstruct the passages correlated .68 with scores on the Cooperative English Test.²⁸

²⁸Alphonse Chapanis, "The Reconstruction of Abbreviated Printed Messages," Journal of Experimental Psychology, 48 (1954), 496-510.

Rather than whole words, Chapanis deleted letters, spaces, and punctuation marks, in amounts from 10 to 67 percent and in both regular and random patterns. The subjects were not told about the amount or kind of deletions made. Results showed that when 10 percent of the text was deleted, 80 percent of the items predicted were correct. When 50 percent was deleted, only 60 percent was recovered. The percentage decreased markedly as greater amounts of text were omitted. The subjects' grasp of the idea (semantic content) of the passage suffered seriously when a third or more of the text was removed.

Chapanis' results accord with the study by Morrison and Black. Although the kind of deletion was different, the amounts and sources were roughly comparable. Both procedures gave no cues. Their agreement on the fragility of the "idea" and on a lower estimate of

redundancy than Shannon's 75 percent is noteworthy. Later, Chapanis was able to reconcile his results with Shannon by correspondence. The latter agreed that 80 percent of a message could be restored if the 50 percent removed were every other item. Another condition was that the subject must have a high verbal intelligence, and must be aware of and use the deletion pattern.

In contrast to these reconstruction experiments, Frick and Sumby gave cues. They considered air control tower language as a subset of all possible English sentences, and supplied letters for such messages. Surprisingly, they found that a group not practiced in the technical patois predicted about as well as control operators.²⁹ The implication for the present study is

²⁹F. C. Frick and W. H. Sumby, "Control Tower Language," Journal of the Acoustical Society of America, 24 (1952), 595-596.

that children's sublanguage may have been so well absorbed into our linguistic culture that no one group of subjects is expert at predicting it.

Because in actual experience a message is not generated at random, a third group of subjects, pilots, were asked to predict content units according to described situations. These subjects were further constrained by a technical procedure which fixed the order in which units

made up whole messages. From a semantic level, then, situational and technical constraints reduced the gross uncertainty about 86 percent. Accounting for linguistic rules further increased the redundancy to 96 percent.

In an experiment by Black, knowledge of the source of the material gave a 3.5 percent mean advantage to the predictors. When flight phrases were called "newspaper language" they were less predictable than otherwise, but still more predictable than newspaper phrases. Because both types of material were carefully balanced in number of letters, syllables, words, and different words, the resultant difference in predictability suggests an intrinsic difference in source. The possibility that instructions are couched in a verbal style distinctive from a reporter's narrative is tenable.³⁰

³⁰J. W. Black, "Predicting the Content of Short Phrases," The Quarterly Journal of Speech, 45 (1959), 299-303.

The method of predicting words used in Black's experiment allowed for the computation of information in bits. Subjects predicted successive letters, and if they were wrong, continued guessing through ten trials before being given the correct letter. Results showed that the initial letter of a phrase was guessed correctly in 10 percent of the instances, and final letters, 76 percent.

Longer units, either words or phrases, were more accurately predicted than shorter units, and successive words, more accurately predicted than preceding words.

Although the subject in a reconstruction experiment may respond with letters, he is thinking of a specific word. The spelling is subsidiary to a semantic configuration. In another experiment, Black required the subject to supply the word, and after each single prediction the tester supplied the correct letter for that space.³¹

³¹J. W. Black, P. Guberina, U. Cinquini, T. Ancona, and E. Jancosek, "Applications of Language-Prediction Techniques to Speech and Hearing," Folia Phoniatrica, 17 (1965), 33-39.

The subjects represented three language groups--Italian, American, and Yugoslavian. Their stimulus material was 18-42 space phrases from their own newspapers. A composite figure showed a sharp rise in correct predictions through the first five spaces, a slow rise to space 17, a steady state through space 30, and a general rise to space 47 where 86 percent of the responses were correct. Differences in success were more related to the particular word under consideration than to individuals. Within the same culture a group of only ten subjects gave the same results as a group of 25.

Because the responses were whole words, the wrong predictions could be examined for consensus in their use.

The three groups showed similar proportions of agreement on the first, second, and third error responses. The predicted words also reflected the functional vocabulary of the subjects. When the words were plotted in the Zipf manner, frequency against rank order, the first 100 were relatively overused.³²

³²John W. Black, "Language Barriers and Language Training," Communication Processes, Proceedings of a Symposium (Washington, D.C., 1963), 101-127.

When all three language groups responded to four English phrases they gave essentially the same proportions of correct responses. Because the Yugoslavians and Italians had studied English their prediction was similar to that of the native speakers. The fact that study and self-confidence equated the scores reinforces the finding by Frick and Sumby that experts have no outstanding advantage in predicting a sublanguage.³³ It supports a

³³Frick and Sumby, loc. cit.

null hypothesis for the group factor in this particular study.

CHAPTER III

Methods and Procedures

Recapitulation of the purposes

There were three objectives for the research project described here. One was to determine how well adults predict the language of preschool children. The relative importance of source, syntactic structure, and type of phrase, as well as experience of the predictors was measured. Another objective was to compare the predictability of words classified as imaginative with those of similar length chosen randomly. A final purpose was to compare the predictability of children's speech with earlier findings on adults' printed language of similar type.

Stimulus materials

The source of the language sample was a group of ten white children from a suburban nursery school in Southwestern Ohio. Five of these children ranged in age from 4 years, 3 months, to 4 years, 9 months, while the other five ranged in age from 5 years, 2 months, to 5 years, 11 months. Two girls and three boys were in the younger

group, and three girls and two boys in the other. No child had any obvious physical or mental handicap, and each one's school experience had not exceeded three months. The children represented the middle socioeconomic class and General American dialect.

The children were asked to perform two verbal tasks. The first was narrating a story, either purely imaginative, personal experience, or a known tale. Occasional use of "Once upon a time" as a starter may have formalized the style somewhat. It did not seem to curb variety in content, and only two children retold traditional tales. The second verbal task was giving directions. This covered a wide range, including sports, household chores, art and craft projects. It was suggested to the children that they tell an imaginary visitor at home or school how to do something. Reference to school activities in which they had participated also stimulated ideas.

In order to record accurately and entirely the responses of the children, a tape recorder was used. This procedure which was used by Winitz allows the tester to maintain eye contact and display proper empathy toward the speaker.¹

¹Harris Winitz, "Language Skills of Male and Female Kindergarten Children," Journal of Speech and Hearing Research, 2 (1959), 377-386.

After two practice sessions the children became accustomed to speaking into the microphone and performing the required tasks. Praise increased their self-assurance, which, in turn, contributed to greater length in the responses. Because of short attention spans, many subsequent recording sessions were necessary to build a reservoir of 50 remarks from each child. This classic number was not chosen merely to parallel earlier language studies. Since the tasks were intended to show the child's actual level of verbal power, they should be reliable. Darley and Moll found that 50 responses was the smallest sample affording adequate reliability for mean length of response scores.²

²F. L. Darley and K. L. Moll, "Reliability of Language Measures and Size of Language Sample," Journal of Speech and Hearing Research, 3 (1960), 166-173.

A typescript of the responses was made by playing and replaying the original tape. The complete language samples from several children are included in Appendix B. From the samples for each child ten short phrases were selected. Five of these were from the narrative task and five, from the directive task. The ten items were also divided in terms of syntax: half were typically adult in usage and half were errors typical of a child's grammatical approximations. The five error items consisted of two

narrative types and three directive types more often than the reverse proportion. On the whole test 30 rather than 25 of the error items were directive. This imbalance was due to the difficulty of eliciting errors from certain of the children. Of course, only mean scores were used for the final analysis of data. The means were based on 30 narrative-correct, 20 directive-correct, 20 narrative-error, and 30 directive-error items.

The 100 test items were 20-25 spaces long. They were chosen on the basis of no inherent punctuation, no uncommon proper nouns, and variety in syntax. Although children use many short sentences, clauses and modifying phrases were chosen over self-contained units. Approximately 45 percent of the items could qualify as sentences.

The total number of items was assigned consecutive numbers and then reordered according to arbitrary use of a random number table. On a trial run it was noticed that the predictors seemed to become exasperated and discouraged when too many of the error phrases occurred in succession. Blocks of three or more errors were broken up and re-distributed throughout the test.

Reliability

Because the experimenter had to judge test items as exhibiting correct or error syntax, there was a possibility of error. Personal standards of language usage might be

considerably higher or lower than those of the general population. To establish trustworthy categories of syntax, the experimenter's judgment must be unbiased. His reliability was estimated by comparing his judgments with a large number of repeated judgments by a group of well-educated adults.

The group judgment covered 50 items in which the correct and error levels of syntax were randomly arranged. The class of 30 graduate students in speech and hearing science were instructed in this manner:

These are phrases selected from longer samples of children's speech. Discounting the subject matter, you are to judge each phrase for its similarity to adult syntax. Mark plus (+) if the phrase represents conventional adult usage. Mark minus (-) if the phrase represents sub-standard, or strictly children's usage. When in doubt, try to reconstruct a sentence in which a phrase could occur. Take your time.

The examiner's judgments disagreed with the majority four times. However, the 92 percent agreement obtained was considered sufficient in an area where personal and social prejudices have such strong influence.

Expert advice on syntax was also solicited. Dr. Donald Bateman of the Bureau of Educational Research and Service at Ohio State University examined all 50 error items. There were substitutions, omissions, and redundancies at all three levels of grammar. He noted that some phrases violated rules at both the phrase structure and transformational levels. Dr. Bateman found that all items were

imperfect approximations of accepted usage, whether they represented the incomplete learning of basic rules of structure or the imitation of adult errors.

Subjects

There were three groups of adult predictors. Group I consisted of seven parents with at least one child in the sampled age range. Group II consisted of seven married people who had no children of their own and little experience with other children. Group III was composed of seven teachers who had had from one to ten years experience teaching kindergarten, first grade, or nursery school. Excluded from this group were teachers who were also parents.

The first two groups were approximately matched in age, sex, and education. The group of teachers, however, consisted of all college graduates and only one male. The scarcity of male primary grade teachers was not considered sufficient cause for administering the test to women only. Such a limitation would have reduced the interest, generality, and applicability of the results.

Experimental procedure

Because word prediction of 100 phrases is a long, sometimes tedious task for any adult, the test was given to each individual on two separate occasions, about two

weeks apart. On each occasion there were two, fifty-minute sessions separated by a break of half an hour.

The test was administered individually. Each participant was informed that the text came from children's responses to "Tell me a story" and "Tell me how to make, or do, something." He was also informed that, although pronunciation was made to conform to adult spelling, grammar was edited in no way. Instructions to the subjects are in Appendix C.

The predictor's task is not easily explained. Demonstration of the process on an extraneous phrase was essential. After such practice the subject went on to the regular test. He predicted the first word without clues. Then the tester supplied the correct letter and the subject either revised or repeated his previous guess. The prepared answer sheet had special columns for recording the characters supplied and the words predicted. The tester used as non-committal a voice as possible. To maintain concentration, letters were supplied as rapidly as the predictor moved. There was a ten-second time limit for choosing a word. If the subject felt unable to respond, he marked his sheet with a small box.

To reduce any learning effect, the test was divided into quarters which were given in random order. A brief review of the predicting technique and the source was given before each session.

Recording the results

After the test was administered, the examiner had 34 answer sheets from each individual. They contained the predicted words for 100 phrases, as well as the correct letters supplied by the tester. From the total 714 sheets charts were made for each phrase, showing the number one for correct or zero for incorrect prediction of each space through twenty spaces. In the type of prediction used in this study the whole word determines the score. In order to be correct, the word must have the same number and tense inflections as the original text. The correct response for a particular space is counted as incorrect if it is part of an incorrect word guess. Charts of the data are included in Appendix E.

Table 1 shows the tabulating procedures required for each test item. As it indicates, the correct responses were summed in two ways. Summing across the spaces yielded a total of correct responses for a particular individual on a particular phrase. These individual totals were reserved for a three-way analysis of variance. Grand totals, pooling all individuals, were made to facilitate analysis of the role of age differences. Also the grand totals were transformed to percentages for more comprehensive interpretation. To distinguish this percentage of correct responses for a phrase from the percentage of correct

responses for a space (a measure necessary for comparison with antecedent studies) it was termed redundancy. The percentage of correct responses for each space was derived from the second method of summing. The correct responses of all individuals were summed down through each space. This yielded a grand total for each of the twenty spaces in each phrase. Transformed to percentage it indicates the group's relative success progressing through each space of the message.

Summary of Chapter III

The stimuli for this experiment consisted of 100 phrases culled from the responses of ten children, aged four and five, to two verbal tasks. These tasks elicited narrative and directive messages, constructed in both adult and childish syntax. They were revealed letter by letter to adults who anticipated each clue by predicting a likely word. The three groups of predictors were seven parents, seven other adults, and seven teachers. Length of the test for each individual required almost four hours spaced into two, fifty-minute sessions on two occasions. Participants wrote down their word predictions and the subsequently supplied correct letters for each of twenty or more spaces on prepared answer sheets.

CHAPTER IV

Analysis of the Data

Recapitulation of the purposes

The purposes of the study reported here were threefold. The first was to determine the predictive ability of adults when confronted with the language of four- and five-year-old children. The relative importance of source, syntactic structure, and type of phrase, as well as experience of the predictors was investigated. A second purpose was to compare the predictability of words classified as imaginative with the predictability of words of similar length chosen randomly from the whole test. A third purpose was to compare the predictability of children's speech with earlier findings on adults' printed language of similar type.

Data presentation

The responses to each phrase can be interpreted as a measure of the ability of the experimental subject or group of subjects to predict the material, or as a measure of the predictability of the material itself. While the former interpretation was the primary interest of the study, the latter has not been neglected.

The method of language prediction used in this experiment was introduced by Black in 1964.¹ It requires

¹J. W. Black, et al., Folia Phoniatica, 17, 33.

the subject to predict words at each successive space in a message. In this study the whole word, including tense and number inflections, had to duplicate exactly the original text. The correct letter for a particular space was counted as incorrect if it was part of an incorrect word prediction. Once a correct word-response was given the following spaces assigned to that word were considered correct. In contrast to scoring on a letter basis, scoring on a word basis penalizes through five spaces the predictor who proffers "broken" where "broke" was the actual word; the tester announces spaces just as he announces successively the correct letters. As used in the present study, scoring by word gives credit to the predictor who is aware that children omit, add, and substitute words and inflections in their attempts to use adult syntax.

As seen in Table 1, which is an example of the scoring procedure for a particular phrase, when a correct word-response is given, a value of one is placed in the appropriate spaces. Zero represents an incorrect prediction and "B" stands for "box," the subject's sign

TABLE I

EXAMPLE OF TABULATED RESPONSES TO WORD PREDICTION, SHOWING INDIVIDUAL PREDICTOR'S RESPONSE (NUMBER 1 INDICATING CORRECT, 0 INDICATING INCORRECT), INDIVIDUAL TOTALS, GROUP TOTALS, MEAN REDUNDANCY, AND MEAN CORRECT PREDICTION PER SPACE.

Group	Predictor	Group Mean Redundancy	Group Totals	Individual Predictor's Response	Individual Total
3 Dir. correct				then you get a spoon	
Parents	1			00001011100110100011	9
	2			00001000001110100001	6
	3			00001000000110000001	4
	4			00001011100110100000	7
	5			00001011100110000000	6
	6			00001011100110100111	10
	7			00001011100110000011	8
		35.7%	50	00007055501770400135	Space Totals
Non-Parents	8			00001011100110100011	9
	9			0000101110011000BB01	7
	10			000010111111111100000	10
	11			00001011100110000001	8
	12			00001011100110100011	9
	13			00001011100B10100B11	8
	14			0111101110011111B0000	11
		44.3%	62	01117077711672500045	Space Totals
Teachers	15			000010111001111100000	8
	16			000010111001101B0001	8
	17			00001011100110100111	10
	18			0000101110011010B111	10
	19			00001011101111100000	9
	20			00001011100110100B11	9
	21			0000101110B110100011	9
		45.0%	63	00007077701772700245	Space Totals
Phrase then you get a spoon					
Grand Totals 0111121019191320214160031115					
Mean Correct Prediction					
Per Space (Percent). . . . 05551000212125145100197600143271					

for inability to predict. Only the one's are counted, hence the predictor's score equals the number of spaces credited to correct word predictions. Similar charts for each of the 100 phrases are included in Appendix E.

Scores of predictors. The correct responses from each individual were totaled for each phrase. Because each phrase consisted of twenty spaces the highest possible score was twenty. The number of correct responses ranged from three to seventeen. These individual totals were pooled in keeping with the principal classifications under comparison. Hence, there was a mean score for each predictor on each type of material, at each level of syntax. These means were cast into a matrix which is presented in Table 2. It shows, for example, that Predictor #1, a parent, scored an average of 8.7 correct spaces on narrative type, correct syntax items, and 8.4 on narrative type, erroneous syntax items. These means were tested by analysis of variance for repeated measures. Also the scores were combined to show differences in group performances and further combined to show the performance of all predictors.

Scores attributed to the children. The test items were separated into two groups: those contributed by four-year-old children and those contributed by five-year-old children. The pooled scores of all predictors were

TABLE 2
SUMMARY OF EACH PREDICTOR'S CORRECT RESPONSES ACROSS
TWENTY SPACES POOLED ACCORDING TO THE PRINCIPAL
CLASSIFICATIONS UNDER COMPARISON AND ARRANGED FOR
LINDQUIST'S "MIXED" DESIGN TYPE VI

Predictor		Correct Syntax		Error Syntax	
		Narrative	Directive	Narrative	Directive
Group I	1	8.7	11.0	8.4	8.4
	2	9.1	10.3	7.6	7.8
	3	9.8	10.0	8.6	8.3
	4	8.8	11.3	8.5	8.6
	5	8.8	9.3	8.4	8.8
	6	8.6	10.1	7.8	7.5
	7	8.9	10.0	8.4	8.5
Group II	8	9.6	10.4	8.2	7.5
	9	8.6	9.2	9.1	8.1
	10	8.7	10.1	8.1	8.2
	11	8.7	9.9	8.1	8.2
	12	9.7	11.3	9.7	8.8
	13	9.0	10.1	8.4	8.5
	14	8.8	10.1	8.5	8.2
Group III	15	9.5	10.5	9.0	8.5
	16	9.3	11.4	8.8	8.8
	17	9.8	11.6	9.0	8.9
	18	9.7	11.0	8.0	8.2
	19	9.3	11.1	9.1	8.1
	20	8.5	9.3	8.2	7.7
	21	9.6	10.5	9.0	8.1

considered indicative of the predictability of the phrases from each group. The pooled scores on the ten items uttered by each child were combined and averaged according to type of phrase and syntax. These means were cast into a matrix which separated the age groups. For example, Child #1, four-years-old, earned an average of 9.9 correct predictions on directive type, correct syntax, and 6.4 correct predictions on directive type, erroneous syntax. The means for all the children are presented in Table 3.²

²Because the means in Tables 2 and 3 are based on the same 100 test items, their sums should be proportional. Actually, there was less than 2 percent difference between the composite means from each table for the effects of "type" and "syntax." The discrepancy can be attributed to rounding errors.

Percentage of redundancy. Whereas the number of correct predictions cannot be readily interpreted, it was expressed as a percentage which allows the success to be stated in terms of the whole task. This permits comparing results among different studies. For example, Black has shown that the percentage of correct responses hardly differed between spaces eleven and thirty, indicating a comparison for the results of the twenty-space items reported here.³

³Black, et al., Folia Phoniatrica, 17, 35.

TABLE 3

SUMMARY OF CORRECT RESPONSES ACROSS TWENTY SPACES
 ATTRIBUTED TO THE PHRASES OF FOUR- AND FIVE-YEAR-OLD
 CHILDREN, POOLED ACCORDING TO THE PRINCIPAL CLASSIFI-
 CATIONS UNDER COMPARISON--SYNTAX (CORRECT OR ERROR) AND
 TYPE OF PHRASE (NARRATIVE OR DIRECTIVE)--AND ARRANGED FOR
 LINDQUIST'S "MIXED" DESIGN TYPE VI

Child	Correct Syntax		Error Syntax	
	Narrative	Directive	Narrative	Directive
1	8.0	9.9	8.0	6.4
2	8.6	10.9	8.0	6.3
3	9.3	10.7	8.0	10.1
4	7.6	12.8	10.1	8.7
5	11.3	10.7	7.0	6.5
6	10.5	10.4	8.5	9.1
7	8.9	10.3	9.3	7.1
8	9.6	9.9	8.8	12.4
9	8.8	8.1	6.5	8.8
10	9.5	10.5	10.2	9.8

The correct responses of each predictor were summed through the twenty spaces of each phrase, divided by the total possible correct predictions, and multiplied by 100 to yield a percentage. Because this percentage of correct predictions represents familiarity with the language, it is termed, for convenience, the percentage of redundancy. The mathematical definition of redundancy given in Chapter One is not strictly applicable here because the method of predicting and scoring used in this experiment does not allow for computation of information in bits. However, Frick and Sumby demonstrated the usefulness of a broad interpretation of the term when they estimated the percentage of redundancy and its complement the percentage of uncertainty in control tower messages.⁴

⁴F. C. Frick and W. Sumby, Journal of the Acoustical Society of America, 24, 596.

Mean redundancy refers to these percentages after they have been totaled for individuals or groups of individuals and averaged according to the conditions of the test. In Table 5 the mean redundancy for all individuals on erroneous syntax is 42 percent. The mean correct response scores in Table 2 can be transformed to mean redundancies by multiplying by five (i.e. $100/20$).

Treatment of the data

The means for individual predictors were transferred to IBM data cards and analyzed on a digital computer system (IBM, 7094). An analysis of variance, specifically Lindquist's "Mixed" Design, Type VI, was used. All combinations of two of the treatments were administered to the individuals at each group level. A second analysis of this type was performed on a desk calculator with the means representing the predictability of the phrases of four- and five-year-old children.

Measures of predicting ability

Three hypotheses were tested with respect to the ability of individuals to make correct predictions.

Hypothesis: There is no difference among the correct response scores for three groups of adults: parents, adults inexperienced with children, and preschool and primary grade teachers.

Lindquist's "Mixed" Design, Type VI was applied to the mean scores of the predictors shown in Table 2. It analyzed the variance attributable to level of syntax, type of phrase, and group membership. The results are summarized in Table 4. This hypothesis of "group influence" was not rejected.

Hypothesis: There is no difference between correct response scores in predicting correct and erroneous syntax.

Reference to Table 4 shows that this hypothesis was rejected at the 1 percent level of confidence. The F-ratio of 165.44 (F at .01 = 8.28, 1/18 df) indicated a significant difference between mean scores. Scores were higher under the condition of correct syntax, 9.8 versus 8.4.

Hypothesis: There is no difference between correct response scores in predicting narrative and directive types of phrase.

This hypothesis was rejected. The F-ratio of 35.78 (1/18 df) was significant at the 1 percent level. Scores were higher under the condition of directive type, 9.3 versus 8.8.

The interaction of syntax and type was also statistically significant. Table 5 shows the mean redundancies (pooled for all three groups) under the conditions that were associated with significant F-values. The interaction term was based on the deviation of the observed cell means from the expected ones. Where the interaction effect is significantly different there is some special contribution to the final score. Higher scores occurred for the combinations error-narrative and correct-directive. Under error conditions, subjects predicted narrative phrases better than directive ones. When the syntax was correct, the directive items were the more predictable ones.

TABLE 4

SUMMARY OF ANALYSIS OF VARIANCE; LINDQUIST'S "MIXED" DESIGN
 TYPE VI, APPLIED TO SCORES OF CORRECT PREDICTIONS AND
 ANALYZED INTO THE PRINCIPAL COMPONENTS--SYNTAX (CORRECT OR
 ERROR), TYPE OF PHRASE (NARRATIVE OR DIRECTIVE), PREDICTOR
 GROUP (PARENT, NON-PARENT, OR TEACHER)--AND INTERACTIONS
 AMONG THEM

Source of Variance	d.f.	Sum Squares	Variance	F-Score
Between Subjects	20	12.39		
Groups 1, 2, 3	2	2.13	1.06	1.87
Error (b)	18	10.26	.57	
Within Subjects	63	68.52		
Syntax	1	39.37	39.37	165.44**
Type	1	5.72	5.72	35.78**
Syntax-Type	1	13.19	13.19	114.33**
Syntax-Groups	2	0.54	.27	1.14
Type-Groups	2	0.30	.148	0.93
Syntax-Type-Groups	2	0.16	.078	0.67
Error (w)	54	9.24		
Error 1(w)	18	4.29	.238	
Error 2(w)	18	2.87	.160	
Error 3(w)	18	2.08	.115	
Total	83	80.91		

**Significant at the .01 level of confidence.
 F at .01 = 8.28 (1.18 df).

TABLE 5

COMPOSITE VALUES FOR ALL PREDICTORS UNDER THE SIGNIFICANT
CONDITIONS OF SYNTAX AND TYPE OF PHRASE AND INTERACTION
SUMMARIZED IN TABLE 4 EXPRESSED IN MEAN PERCENT REDUNDANCY

	Directive	Narrative	
Error	cell mean		
	41.3%	42.6%	42.0%
	interaction		
	-1.9	+1.9	
Correct	51.9%	45.7%	48.8%
	+1.9	-1.9	
	46.6%	44.2%	45.4% Grand Mean

Since the Lindquist test showed group classification lacked significance, the correct responses for all predictors were pooled. The gross means were transformed into percentages of redundancy for each phrase to allow for a more comprehensive interpretation of the test results. These percentage values were grouped and averaged according to the conditions evaluated by the analysis of variance. As shown in Table 5, the significant effect of type of phrase scored 44.2 percent redundancy on narrative and 46.6 percent on directive items. The ratio of these two percentages implied a 5 percent increase in predictability for directions. The significant effect of syntax showed 42.0 percent redundancy for error items and 48.8 percent for correct ones. This ratio implied a 16 percent advantage for phrases approximating adult grammar.

The effects of the significant interaction were quantified in the same manner. Under correct conditions, directions had a 13 percent advantage over narration. However, under error conditions narrative phrases had a 3 percent advantage over directive. Hence, narration appeared to be less predictable in general, but more resistant to the effects of error syntax. Error conditions created a 26 percent disadvantage for directions.

To clarify and summarize the relative effects of the significant conditions, a bar graph was constructed, utilizing mean redundancy scores (Figure 1). The

Figure 1. RELATIVE EFFECTS BASED ON MEAN REDUNDANCIES OF SIGNIFICANT PARAMETERS IN ADULT PREDICTION OF CHILDREN'S LANGUAGE

composite scores used for the last two bars show the concentrated effect of either syntax or type of material. These ratios are based on the row and column means in Table 5, while the first four ratios are based on the cell means.

Although the Lindquist test showed no significance in the differences among three groups of predictors, numerically they did not perform equally well. By comparing the mean redundancies scored by each group on the whole test, the teachers showed a 4 percent advantage. Ranked in order of predicting ability, teachers come first and parents, last. However, the advantage of adults inexperienced with children over parents was less than 1 percent.

Measures of predictability
attributed to age groups

Hypothesis: There is no difference between correct response scores attributed to the phrases of four- and five-year-old children.

Another Lindquist's "Mixed" Design Type VI was used to determine which of the two age groups produced the more predictable language. The three-way classification of variables analyzed the predictability scores for material of both narrative and directive type composed in both correct and erroneous syntax by children of two age

levels. As shown in Table 6, the group effect was not significant and, therefore, the null hypothesis was not rejected.

As a supplementary result of this analysis, syntax was the one condition found to be significant beyond the 1 percent level of confidence. The F-ratio was 11.4 (F at .01 = 11.26, 1/8 df). It indicates that children's predictability scores on phrases using correct syntax are significantly better than those on phrases using error syntax. Any individual child is easier to predict when he uses adult grammar, whether he is telling a story or giving directions, and whether he is four or five years old. Within the limits of this experiment, it seems that the child's ability to communicate with adults depends on his ability to use adult grammar.

Comparison of imaginative and random words

Hypothesis: There is no difference between the correct response scores for words classified as imaginative and others of similar length chosen randomly from the whole test.

Because "type of phrase" proved to be a significant part of this study, the data was examined for other contrasts. It has been suggested that the verbal tasks from which the phrases were drawn represent a conscious

TABLE 6.

SUMMARY OF ANALYSIS OF VARIANCE; LINDQUIST'S "MIXED" DESIGN TYPE VI, APPLIED TO SCORES OF CORRECT PREDICTIONS ATTRIBUTED TO THE PHRASES OF FOUR- AND FIVE-YEAR-OLD CHILDREN AND ANALYZED INTO THE PRINCIPAL COMPONENTS--SYNTAX (CORRECT OR ERROR), TYPE OF PHRASE (NARRATIVE OR DIRECTIVE), AGE OF CHILD (FOUR OR FIVE YEARS)--AND THE INTERACTIONS AMONG THEM

Source of Variance	d.f.	Sum Squares	Variance	F-Score
Between Subjects	9	21.8		
Groups (4 yr./5yr.)	1	1.6	1.6	.64
Error (b)	8	20.2	2.5	
Within Subjects	30	74.3		
Syntax	1	17.7	17.7	11.40**
Type of Phrase	1	4.1	4.1	4.31
Syntax-Type	1	3.1	3.1	3.35
Syntax-Groups	1	5.7	5.7	4.57
Type-Groups	1	.03	.03	.01
Syntax-Type-Groups	1	7.0	7.0	3.35
Error {w}	24	36.7		
Error 1 {w}	8	12.4	1.6	
Error 2 {w}	8	7.6	1.0	
Error 3 {w}	8	16.7	2.1	
Total	39	96.1		

**Significant at the .01 level of confidence.
F at .01 = 11.26 (1/8 df).

attempt to communicate for practical and pleasurable purposes. This hypothesis is based on the assumption that young children have both the desire and the ability to choose words deliberately. It was tested in the following manner.

After predicting the whole test, three teachers were asked to study the phrases as fragments of creative composition. They were to choose ten words that seemed imaginative, appealing, or aroused their curiosity in some way. The twelve words that were chosen most frequently were matched with twelve other words of the same length picked randomly from the four sets of test items. These 24 words are listed in Appendix D. Of the imaginative list, 75 percent of the words came from the narrative phrases.

Each predictor's correct responses over the spaces appropriate for the 24 words were tabulated. The mean values for each of 21 predictors on the two lists were subjected to a t-test for significance of difference between correlated samples. The value of t was 18.2 with 20 df, significant beyond the .001 level of confidence. The hypothesis was rejected.

The mean percentage of redundancy for imaginative words was 35, while words of match length scored 54. The ratio suggests that random words were approximately 50 percent more predictable than words considered to be

creative. The greater uncertainty in the latter type is also shown by the number of times the predictors drew a box to show they were frustrated, exasperated, or otherwise unable to make a response within the time limit. There were four times as many boxes marked in the imaginative spaces than in the random groups.

In matching the words, no attempt was made to duplicate position in the phrase, although it is known that prediction improves as more of the preceding letters and words are known. Black has provided a table which shows the mean number of correct first responses per letter for words of different number of letters.⁵

⁵Black, The Quarterly Journal of Speech, 45, 303.

Generally, the longer the word, the better the prediction. His percentages for words comparable in length to the words in this study ranged from 43 to 70 depending on their position in the phrase. Percentages as low or lower than the 35 scored by imaginative words occurred only on short words in first or second position. In this frame of reference, the redundancy of an imaginative word is about the same as the redundancy of a two-letter word coming second in a phrase.

Comparisons of children's language with adults' language

Hypotheses: There is no difference between the percentage of correct responses per space in predicting

children's narration and adults' newspaper phrases. There is no difference between the percentage of correct responses per space in predicting children's directions and adults' flight instructions.

The two hypotheses refer directly to antecedent studies and assume the comparability of children's spoken language with adults' written language. They can be tested by inspection of the graphs of Figures 2 and 3.

To prepare the graph it was necessary to have a mean percentage of correct responses per space for the 50 correct syntax phrases. This was obtained by summing all individual scores in each of the 20 spaces of a phrase and dividing by the total of predictors (21). These 20 figures were summed and averaged for all the correct phrases of the same type. For instance, the ordinate value of 50 percent for the sixth space as shown in Figure 2 is the space sum of all predictors' responses to all narrative type, correct syntax phrases, divided by the product of the number of predictors (21) and the number of applicable phrases (30), and finally multiplied by 100.

Figure 2 compares children's narration, predicted and scored by words, with earlier data on adult newspaper phrases, predicted and scored by letter,⁶ and with later

⁶Black, The Quarterly Journal of Speech, 45, 303.

Figure 2. COMPARISON OF PERCENTAGE CORRECT FIRST GUESSES ON NARRATIVE PHRASES FROM CHILD AND ADULT SOURCES.

data on the same newspaper phrases, predicted and scored by words.⁷ The ordinates for the graphs representing

⁷Black, et al., Folia Phoniatrica, 17, 34.

adult sources were taken from charts and graphs in the original studies. The percentage of correct responses had been derived similarly. The line representing adult sources were taken from charts and graphs in the original studies. The percentage of correct responses had been derived similarly. The line representing children as a source rises faster, makes larger excursions, and terminates between the lines representing adult sources. Line variations may reflect shorter length of words, imaginative vocabulary, or inherent differences in structure. The mean correct response over the 20 spaces for adult letter prediction, adult word prediction, and children's word prediction were 51, 45, and 46 percent respectively. Considering only the studies that used word prediction, children's narration had a slight 2 percent advantage over newspaper phrases. A test for significance was not performed because the data taken from Black's graph could only be read with an accuracy near 2 percent. Because there was no significant difference between word prediction scores on children's narration and similar scores on adults' newspaper phrases, the hypothesis was not rejected.

On the graph comparing adult flight instructions with children's directions (Figure 3), the line representing children as a source rises faster, shadows the adult line until the fifteenth space, then drops considerably. The greater conformity here, compared to Figure 2, may reflect the contribution of situational context or a basic similarity in vocabulary and syntax. However, the scores on flight instructions were obtained by letter, not word, prediction. Thus, to compare the two sources a measure must be established to transform the letter prediction scores to equivalent word prediction scores. If the results of Figure 2 are valid, then the letter prediction scores should be multiplied by the ratio 45/51. Applying this ratio to flight phrases results in a mean correct response of approximately 50 percent. This result again indicated a 2 percent advantage for children. This is considered insufficient to reject the null hypothesis.

A bar graph is presented in Figure 4 to illustrate the differences in mean redundancy for various conditions and types of material in the studies on adults' and children's language. Scores on error syntax and composite scores are also included.

Figure 3. COMPARISON OF PERCENTAGE CORRECT FIRST GUESSES ON DIRECTIVE PHRASES FROM ADULT AND CHILD SOURCES.

Figure 4. MEAN REDUNDANCIES OF SELECTED PHRASES FROM CHILD AND ADULT SOURCES.

CHAPTER V

Discussion and Summary

Recapitulation of the purposes

This experiment had three objectives. The first was to measure the predictive ability of adults when confronted with children's narrative and directive messages phrased in correct and erroneous syntax. The second purpose was to compare the correct response scores for words classified as imaginative with the correct response scores for words chosen randomly from the sample. The third purpose was to compare the predictability of children's narrative and directive speech with adults' printed messages of the same type.

Recapitulation of the procedures

The stimuli for this experiment consisted of 100 phrases culled from the responses of ten children, aged four and five, to two verbal tasks. These tasks elicited narrative and directive messages, constructed in both adult and childish syntax. They were revealed letter by letter to adults who anticipated each clue by predicting a likely word. The three groups of predictors were seven parents, seven adults, and seven teachers. Length of the

test for each individual required almost four hours spaced into two, fifty-minute sessions on two occasions. Participants wrote down their word predictions and the subsequently supplied correct letters for each of twenty or more spaces on prepared answer sheets.

Discussion of the results

Seven null hypotheses were proposed in Chapter One. Three of these were rejected at the 1 percent level of confidence. Statistical tests revealed that there were significant differences between narrative and directive types of phrase, between correct and erroneous syntax, and between imaginative and random words.

Four of the null hypotheses to be tested were not rejected at the 5 percent level of confidence. Numerical differences existed in the expected directions, but not of appreciable magnitude. Two analyses of variance showed; the three groups of adult predictors were not dissimilar, nor were the two groups of children from whom the test items were elicited.

In the case of the three groups of adults, the experimenter made group membership as exclusive as possible for adults who played only a specific role in relation to children. But there seems to be no advantage in the kind or amount of experience with children. If the phrases represent a sublanguage in our culture, neither teachers,

nor parents, nor others are experts at interpreting it. Perhaps the promulgation of childish patois in certain comic strips, cartoons, and television comedies makes it unlikely that any adult can be unfamiliar with it. Similarly, in an earlier study by Frick and Sumbly, there were no experts on control tower language.¹ Perhaps the

¹Frick and Sumbly, Journal of the Acoustical Society of America, 24, 595.

methodology and scoring procedure in the test were too gross to show refinements such as the predictor's attitude and semantic expectations. Furthermore, Chapanis² showed

²Chapanis, Journal of Experimental Psychology, 48, 510.

a high correlation between verbal ability and the ability to reconstruct language. This leads to the speculation that while parents, due to broad daily contact, might have an advantage on a semantic level, non-parents could have an advantage on the linguistic level if they had high verbal ability. Teachers, however, could have an advantage at both levels due to education and experience. But none of these possible advantages was statistically significant. In terms of linguistic theory, if children have a restricted grammar, either it does not represent specialized information or there are no specialists in recognizing it.

There was some grounds for expecting a significant difference between age groups. Four-year-old children are expected to have a smaller vocabulary (about 300 words less) and less structural complexity than five-year-old children. These factors might make prediction easier, although Black demonstrated that short words yield lower predictive scores than long words.³

³Black, The Quarterly Journal of Speech, 45, 303.

Syntax was the main artificiality imposed by the test. Half of the items contained errors, while in Templin's broader study of global speech behavior only one-third of the material contained errors.⁴ Menyuk found

⁴Templin, Child Welfare Monographs, No. 26.

that kind and amount of errors vary with age, four-year-olds making more errors than five-year-olds.⁵ The present

⁵Menyuk, Journal of Verbal Learning, 3, 485.

researcher found it particularly difficult to elicit errors from some children. Furthermore, there is no established hierarchy of errors in terms of their predictability.

Although the large sample from each child (see Appendix B) might have revealed individual or age group profiles, the goal of this study was adult awareness of

certain elements of this behavior. Phrases were chosen by type, syntax, length, and variety, to form a highly structured test. Since the test items were not truly representative, the differences between age groups were too small to pass the test for significance.

The list of imaginative words seemed to present a semantic hurdle to adults. Recognition came intuitively and quickly, or linguistically and laboriously. For example, the predictor who has progressed in the phrase "between a baby _____" guesses "and," assuming the preceding word is a noun. When "g" is subsequently supplied, he guesses "girl," assuming the preceding word must now be an adjective. When "o" is subsequently supplied, his problem becomes one of spelling: what noun starts with "go?" Taking phonetic cues, he might guess "goat." The succeeding letters, "r," "i," "l," usually elicit frustration signs. With an intuitive, semantic leap, the word "gorilla" can be grasped after the "o." On the linguistic level, recognition came after the first or second "l."

Predictors seem to refuse the intuitive path and even deny linguistic cues because they "seem ridiculous" or "don't make sense." Such judgments, of course, are based on an adult point of view. Where situational context is better defined, semantic judgments might be less personal and more appropriate.

The list of random words was more readily predicted. Their advantage may be due to rather common occurrence in daily conversation and clichés. Because they present no semantic hurdle, they proceed "trippingly on the tongue" with each linguistic clue.

The decided difference in favor of directive phrases may be caused by having more situational cues (see "Instructions to Subjects" in Appendix C). The narrative task stirred only a common heritage of fairy tales. Phrases like "there was once a little" seem to flow easily because of remembered conventions. However, the wide range of possible subjects and vocabulary are difficult to predict. Although Betzner found only 10 percent of the stories told by children used figurative language, she classifies almost half of them as imaginative.⁶ Similes and metaphors were too rare in the

⁶Betzner, Content and Form of Original Compositions.

present sample to warrant attention, but 75 percent of the imaginative words measured existed in the narrative phrases. Their difficulty probably contributed to the lower scores in this category.

The different nature of the two verbal tasks might be attributed to their form. There were more self-contained items in the directive sample, because directions are

usually sequential and accumulative. The connective "and" strings together many small actions. In narration the child's thoughts are not as structured by reality. He makes false starts and diversions. He rambles and revises. He makes few short, self-contained statements.

Morehead⁷ found that sentences were more quickly

⁷Morehead, p. 44.

and easily predicted than phrases of the same length. Applying the following definition of a sentence: subject expressed or understood, plus verb, plus complete thought, this researcher noted 40 percent of the narrative items could qualify, and 52 percent of the directive items. This formal difference in the two types may play a part in the significant interaction. Difficulty in predicting type is further confounded by the presence of error syntax. Kind of error is not analyzed, but perhaps substandard adult usage and childish approximations are not equally unpredictable to literate adults. The special contribution under these conditions cannot be defined.

It is difficult to compare the results of this study with antecedent studies on adult language because of differences in experimental techniques, materials, and details. But the recent research by Black has enough

similarity to justify comparison.⁸ Graphic analysis on

⁸Black et al., Folia Phoniatica, 17, 34.

Figures 2 and 3 shows more variation in correct prediction levels space by space for children's language than for adults'. The course for predicting adult sources runs more smoothly. Only after fourteen preceding letters are known, are the chances near 50-50 that the next prediction of a child's message will be correct. Over phrases of the same length there is essentially no difference between percentages of correct responses when adult printed language is matched with children's correctly structured phrases of similar type.

In terms of communication theory, directions, whether from an adult or from a child, yield less information in bits than narration. It would seem that directive messages require the fewest binary choices. Contrarily, presence of syntactic errors requires the system to transmit more bits to overcome the receiver's greater uncertainty.

Summary

The purpose of this study was to determine how well adults can predict the language of preschool children. The relative importance of source, syntactic structure,

and type of phrase, as well as experience of the predictors, was assessed. A second purpose was to compare the predictability of imaginative and random words. A third purpose was to compare the predictability of children's speech with earlier findings on adult printed language.

The stimulus material for this experiment consisted of 100 short phrases culled from the responses of ten children, aged four and five, to two verbal tasks. These tasks elicited narrative and directive messages, constructed with both erroneous and correct syntax. The test items were revealed, letter by letter, to adults who anticipated each cue by predicting a likely word. The three groups of predictors were seven teachers, seven parents, and seven non-parents.

Statistical analysis of the results revealed significant differences between:

1. the correct response scores for error and correct syntax;
2. the correct response scores for narrative and directive types;
3. the interaction of syntax and type, favoring directive type under correct syntax conditions, and narrative type under erroneous syntax conditions; and
4. the correct response scores for words classified as imaginative and those of similar length chosen randomly.

No appreciable differences were noted between the predictability of children's speech and adults' printed language of similar type when only correct syntax items were considered. Word prediction of adults' newspaper phrases and children's narration scored approximately the same. The mean correct responses to adults' flight instructions were not significantly different from the mean correct responses to children's directions.

In conclusion, it appears that the level of predicting ability is not influenced by the role an adult plays in relation to children, nor the age of the child contributing the material. It is affected by the type of phrase, narrative or directive, and the level of syntax. Prediction of children's language, as it is actually uttered, yields, at best, 50 percent redundancy.

Suggestions for further research

Results of this study suggest three areas for further investigation. One is analysis of the inherent differences between narrative and directive message types since such differences seem to exist in both adults' and children's language. Another is analysis of the kinds of syntactical errors children make and a rank ordering of their impedance values in communication with the older

generation. The latter might be accomplished through prediction techniques. The third area for investigation is the sensitivity of prediction as a tool for measuring the effectiveness of communication.

APPENDIX A

FOUR LISTS TOTALING 100 PHRASES USED AS STIMULUS MATERIAL
FOR ADULT PREDICTORS

List I

1234567890123456789012345

1	once me and daddy went	RP ne
2	she breaked the glass	VS ne
3	then you get a spoon	PS d
4	frosting was fell off	NL de
5	turn the little knob	LJ d
6	get bited by that shark	BS ne
7	wheel with grease grease	CG de
8	when you see the light	JM d
9	you supposed to make	BS de
10	and prints from pigs	RP n
11	when her says no I cant	LJ de
12	eyes and nose and mouth	NL d
13	she sleeps and waked	VS ne
14	get all the seeds out	PS d
15	mommy got out and looked	JM n
16	thing what I wash in	LJ de
17	in the prickly stuff	VS n
18	he got loose the rope	NL ne
19	dropping banana peels	CG n
20	I being good all the	RP ne
21	if you want a flag to	DS d
22	with a piece of chalk	NL d
23	then he shaked it off	BS ne
24	put the Christmas tree	BS d
25	put it out the next	DS d

List II

1234567890123456789012345

26	I sets it on the table	PS de
27	after supper then you	JM de
28	there was once a little	JM n
29	helped mommy clean up	RP n
30	we taked our pet cat	CS de
31	make the eyes and cut	DS d
32	draw a line around it	PS d
33	with three triangles	CG d
34	be nice and happy ever	DS ne
35	write your name on it	RP d
36	holded the door open	PS ne
37	to look the light on	VS de
38	whoever broke it down	CS d
39	you draw it for a hat	RP de
40	then you get a thing	PS d
41	about something scary	LJ n
42	you dont got much hair	LJ de
43	you get a design thing	VS d
44	she has to stay died	JM ne
45	airplanes out of paper	CG d
46	went up at my house	PS ne
47	it want to have a joke	DS ne
48	has her tree lighted	CS n
49	its for to dig out the	RP de
50	the rider suggest to	CG ne

List III

1234567890123456789012345

51	riding on the merry go	NL n
52	the snow falling down	CS n
53	people were drowned	JM ne
54	place where you want	CG de
55	we dont got any stairs	RP ne
56	snowballs at the cars	CS n
57	got meaner and meaner	DS n
58	a chain was broke so	CG ne
59	you make like a lip	DS de
60	another one through it	VS d
61	down at the hall closet	LJ n
62	he writed happy birthday	NL ne
63	like to sled with it	CS ne
64	he has sharp teeth and	BS n
65	was a bulb blewn out	CG ne
66	get a pencil and draw	JM d
67	she always gives mes a	CS ne
68	he build him a house	LJ ne
69	staple a handle on it	JM d
70	tickle her on her stomach	LJ d
71	a belt and some stuff	BS d
72	turn it around this way	VS d
73	dough in the frigerator	VS de
74	the house is on fire	BS n
75	triangles it that way	BS de

List IV

1234567890123456789012345

76	it didn't broke down	LJ ne
77	put the raisins on the	PS d
78	she got stinged from	NL ne
79	between a baby gorilla	PS n
80	start with the jungle	CG n
81	get a ball and racket	CS d
82	she losted her skipper	VS ne
83	we eated and we fished	BS ne
84	get different colors	RP d
85	piece of paper and cut	RP d
86	she didnt have no food	DS ne
87	first you cut a lid	NL d
88	you roll up the snow	CS d
89	I didnt see no horse	JM ne
90	only have mouses now	PS ne
91	the dog swimmmed away	DS ne
92	little girl named sissy	LJ n
93	you cooks it for a hour	JM de
94	killed the Indians and	NL n
95	over in the woods and	VS n
96	who hits and theyre	CS de
97	saddle begin to get	CG ne
98	when I thought it was	PS n
99	take a scissor and cut	DS de
100	it still bes messy but	NL de

APPENDIX B

**REPRESENTATIVE SAMPLES OF THE CHILDREN'S RESPONSES
TO THE TWO VERBAL TASKS FROM WHICH TEST
PHRASES WERE DRAWN**

R. P. 4 yrs. 8 mos. Male

Directive

You get a pencil. You make a eye and a mouth. You make two teeths and one mouth. And you draw it. You draw it for a hat. You . . . you one, two, three psst and you cut. Start and cut the edge. It's for to dig out the seeds. You put it on the paper and put it in a box. We don't got any stairs. Put it out.

You get a piece of paper and cut it out. Get the handle. Then go psst. Then write your name on it.

First you take out the stick. Then you push down little things. Then you get different colors you want. Throw it. Who gets them in is the winner. We don't got any. My grandma does it.

Narrative

Once our dog was sick. You know what? She up-chucks all the time. Then we take her to the doctor like, . . . the vet. You get a needle. Get something around it real tight and you poke it in. Then we came
b . . .

I being good all the time. I helped Mommy clean
up. Then she gets me something at the store. When she
goes to Dayton downtown. But I can't go with her.

Once me and Daddy went camping. And we went
fishing. And we set up the tent. At nighttime something
came. We found three pigs and prints from pigs.

C. S. 4 yrs. 3 mos. Female

Directive

You roll up the snow . . . into a big ball. Then into a big one. Put little eye drops in him, . . . two of them, and one more and lots more to make his mouth. And make his hat out of snow.

We have badminton. You get a ball and a racket. And you put that set up. You hit the birdie with the racket and then you . . . another one hits it. Whoever hits it last . . . whoever . . . who hits and they're tired is the winner.

You're not the boss. You have to make it straight. If I'm going to color it I'm going to have to have help. Whoever broke it down has to help.

Narrative

We taked our pet cat and our dog to the doctor. The doctor shot . . . gave him a shot. It didn't hurt. Pogo doesn't care.

I like the snow falling down . . . with a snowman in it. We got our tree but we didn't decorate it. Because it's out in the park. Grandma has her tree lighted.

She always give mes a hot ball. . . . I get a hot ball
when I help her.

Once we went out in the snow. I like to sled with
it. But Peter makes me pull the sled. We go down a lot.
And then we throw snowballs at the cars.

P. S. 5 yrs. 8 Mos. Male

Directive

You draw a line around in a circle and then you cut it around. Then you draw the eyes and cut the eyes out. And then you draw the nose and cut it out. Draw the mouth and cut it out. And then you get a spoon and get all the seeds out.

Get a round apple. And toothpicks and raisins. Make a head. I sets it on the table. Then put the raisins on the toothpicks. Put olives on it. Can make a dog or a horse. Mine's a turkey.

We put up lights. Me and Dad . . . We put them on our roof sometimes. Put nails through the wood. Bill didn't help.

Narrative

Once there was a fight between one baby gorilla and one father gorilla. They kept fighting until the papa got tired and he gave up. So the baby gorilla was the strongest in the jungle.

Bradley went up at my house. We played out in the barn. He holded the door open til I got in the upstairs. To trap a mouse and eat it. OOO, that smarts! The mice

held on to their tails and feet. I went down and konked my coconut. We only have mouses now, not mice. I tried to throw them up in the clouds and then come down a lot more times.

One time when I thought it was Christmas and Halloween. And I dropped my Christmas tree, little Christmas tree and I dropped it on my foot. Then I brought another big Christmas tree and I dropped it on my foot again. Ummmm. Then I got a little pumpkin in and ow that hurts when I dropped it on me. Ow!

One time I was riding Mister Pony and I fell off him and he kicked me right in the face.

B. S. 4 yrs. 9 mos. Male

Directive

You get some water . . . and a bucket. Then you get a thing and put the Christmas tree in. We get it at the fire station. My dad gets it in the truck.

You supposed to make a triangle . . . and a belt. .
. and some stuff and a board, to make it straight. I
triangles it that way.

Narrative

Well, my dad shot a bear. And then we went hunting for some rabbits. He shot one and he shaked it off. Then here came a kitten. He had some matches but he wouldn't fire them. But he took them home. Something happened, but he don't know.

Once when we went out to a park, we eated and we fished. And then my dad went to work. He shoots wolves and bears. We bring them home and eat them. He go hunting for rabbits.

There was a fish pulling a boat. For pulling a boat with a chain. He's going to take them to Cincinnati. I would get bited by that shark,that's what. He has sharp teeth and . . . I would kill that shark with a spear.

When people talk they say the house is on fire.
And the firemans come. Eeeeeee. They got a truck and a
lot of stuff for water.

N. L. 4 yrs. 4 mos. Female

Directive

First, you cut a lid. And then some eyes, a mouth, and some teeth. And nose. We did it with a spoon. I got some, a knife, at home. My dad. I made a pumpkin. We got all of them out. I put them in my room. You put them in your back yard. And then comes a pumpkin. With eyes and nose and mouth.

Make circles. You have to do it with a piece of chalk. You make a big circle. And then jump in it. He want me to pull him out. But you jump in it.

I like to make cookies. Once Daddy made a cake. All the frosting was fell off. It wouldn't stay on. He didn't even do nothing to keep it staying on. It still be's messy but I don't care. Every time I was happy. He writed Happy Birthday on it. For my mommy. She didn't even know.

Narrative

There was a little boy. He was afraid because the Indians got him. The Indians caught him and tied him up. He was afraid cause he wanted to have his mother and his daddy. And they didn't even come. They were gone so he

was really afraid. Then he got loose the rope and killed the Indians and found his mother and daddy. They were at the park. There the boy was. He saw them. They were riding on the merry-go-round.

Once Mommy went on a picnic. There was woods all over. And she got stinged from ants. They were always bothering me.

D. S. 5 yrs. 11 mos. Female

Directive

Well, you make like a lip. You take two triangles and go around. If you want a flag to carry, you can cut it out. Or you can make kind of a boat. Take a scissor and cut it out.

You get a pumpkin and you get a knife and you get a pencil and you get a spoon. And you cut him a head around. And then you cut around it. And then you make the eyes and cut around them, . . . cut out them. And then you make a nose and cut out that, and a mouth and cut out that. And dig the seeds, and . . . then let it sit out to dry. And then the next day put it out on the table.

Narrative

There was an old mother that lived in a cupboard. She didn't have no food. She gave, . . . she got out, . . . she put some bread. And she gave her children some food. And she whipped them and she put them to bed. And then she ate some, then, and then her children got up and then she had to give all her children all her food.

Somebody's pet fell out of the boat and drowned. A boy thought it wanted a life-saver. But it want to have a joke. Or maybe a life-saver. The dog swimmmed away.

It was deep water. All the parents and all the children and all the pets, they finally could swim. After their bite he was a mean dog. He got meaner and meaner every day. And a fairy came along and told that dog to be nice and happy ever after.

Once when a dog was at my grandma's it licked me on the head and on my cheek. It licked me under my chin. What was the matter with that dog? All it wanted to do was lay down and go to sleep. That's what it was trying to tell me. Arf, arf.

I went to the dentist the other day, . . . that day when there was no school. He gave me a rubber chipmunk and David got a bunny. He didn't like it. But I don't mind. Next time I get a bunny.

J. M. 4 yrs. 8 mos. Male

Directive

First you get a piece of paper and make it into round things. You cut down the paper and you fold it up. Get a handle. Staple a handle on it.

You get a pumpkin and get a pencil and draw the eyes. And then get a steak knife and cut the eyes and the mouth out. Then cut around the top. And then pick out the seeds. Then we took it outside. And then it dries in the inside.

I like to make cookies. First you get some cookie dough. Then put some, . . . then put it in the oven. When you see the light go on, then it's done. You cooks it for a hour. Then you put the icing on, . . . and after supper then you eat it.

Narrative

My grandma told me a secret. There was this lady. She went to the beach and people were drowned. She thought the boat was going to tip over and spill in the water. And she did, too. But she's still died. She can't come back alive. She has to stay died her whole life.

There was once a little white horse. I didn't see
no horse, but; . . .

Then when we went to the river, I said, "Why did
you stop?" Mommy got out and looked and kicked the tires.
Then Lisa came out to the car. Then she saw we had a
flat tire.

I wanted to go catch monkeys. But I heard a
strange noise. One crept in my house. I chased him.
That was pretty hard work.

C. G. 5 yrs. 10 mos. Male

Directive

First draw the lines, then cut out the head. Then cut out the eye; then the other eye; then the nose; then the mouth; then the teeth. Pull the lid out; then put a candle on,-in, it. Get the icky stuff out; then the seeds and save it.

Once was a white horse with still his horseshoes on. He was steaming. Then the rider suggest to trade-in the horse. The saddle begin to get wet and slippery and fall off the horse. And get a brown horse. Or get a black stallion. There are five boys and they had to take turns riding four horses.

Once my dad fixed the television. Was a bulb blewn out. He had to go to the store. You know where.

You set up the pins, one in front and nine in back. Stick your fingers in the holes. Let the ball slide out of your fingers. Greased in their holes with grease-grease. All's I know, is you must throw it. See the place where you want to head it. It hits on the bar. You have to wear some kind of tennis shoes. You get a piece of paper the man gives you for the bowling. My dad does it all the time.

I made a Christmas tree with three triangles.

Then I made a stem. I drew them with oil paint. Sometimes I made airplanes out of paper.

Narrative

Once upon a time there was a little kid had a bike. He need the wheels greased and he couldn't get riding so his chain was broke. And then his tricycle wouldn't go. Then he asks his dad to fix it.

Our kitten's name is Midnight. He's all black. He came home with a sore foot. We took him to the doctor, cat doctor, that is. The doctor shot, . . . gave him a shot.

V. S. 5 yrs. 2 mos. Female

Directive

We get to do some cooking. We get some sugar.
And some colored sugar. Put the dough in the frigerator.
Then we start cooking. So what do you do with that?
Well, we got some different kind of . . . color them.
So we print this stuff real hard. And you get a design
thing. Put them in the oven. Then you take them out.
Then you eat some of them. Then make some more and get
another pan. So we put them in the oven again.

We don't got our Christmas tree yet. You look
the light on. (making chains) Take a scissor and get some
paper and cut. You make a hole and then you put another
one through it. You stick it on with glue, paste, I
mean. We get some stuff and we get a pin. Then we put
it in there.

There's a bell and a leaf and you turn it around
this way.

Narrative

We went in a path over in the woods. And we went
in another woods and I got stuck, stuck in the prickly
stuff. So they helped me.

This man went on a trip. He didn't know where he was and he went back to school. He was home and he went to school and he thought that was his home.

This started when she sleeps and she waked up. She gives her some mice. So then she went to the ball. And then she losted her slipper. And it was straight twelve. When morning came she was locked in her room. Because she . . . The king came to see some. One tried. The slipper, it was glass. Well, she breaked the glass. And that thing tipped over. So, and then it went. And then she was left in her room. And so the mice got that key and let her out.

L. J. 5 yrs. 4 mos. Female

Directive

I wash the dishes with soapy water. I don't got a little thing what I wash in and I don't got no soap. Only I just use Mommie's soap. I use her soap. Her keep it down this low where I could reach it. Down at the hall closet I go and get a rag and dust the dresser.

I put curlers with no water and it didn't do. But next morning I did put water and it did do, - a little. Get a thing with round, - the ones all got a hole in the middle. Roll up on this side and then all my hair. On the sides I roll it up and roll it up here, too. But you don't got much hair. I can't make a pony tail at the back. Only when I get long hair.

Get me make-up and something to put on my face - lipstick and powder. And, only I go and ask her. So I could put it on me. When her says "no", I can't and when her says "yes", I can. Turn the little knob and put it on. Except one time when we was having company.

Narrative

There was three piggies. One met a man with a bundle of straw. He build him a house. Knock. There is

a wolf. "I will huff and puff and blow your house down."
The other little piggy met a man with a bundle of sticks.
"Let me in." "No, no, by hair my chinnychin chin." It
didn't broke down. He climbed down. The little piggy
opened the boiler water. He went down in the boiler water.
He got ate up.

Across the street we got a little girl named
Sissy who got a brother named Sonny. She likes David.
But David don't like her.

David had a dream. It was about something scary.
We couldn't go back to sleep. He didn't really see the
devil. Because he got horns. He dreamed about it and
he went in Mommy's room and get in bed. We always do
that. In the middle. And he couldn't go back to sleep.

Only I had a dream about that old cat, Boo.
Sometime her bites us and Grandma says, "You know what
I'd do to her? I'll set her up and tickle her on her
stomach."

APPENDIX C

INSTRUCTIONS TO THE PREDICTORS

SAMPLE ANSWER SHEET

You are to guess the words in these short phrases. Put the number of the phrase in the first column and proceed to list words in the third column. After each guess you make I will supply the correct letter for that space and you will write it in the second column.

When I say "Space", draw a diagonal line through the appropriate box in the letter column and guess the next word. Then I will proceed to supply letters as clues.

	1	2	3
(EXAMINE THIS EXAMPLE TOGETHER)		w	the
		h	we
		e	where
		n	"
		/	when
		h	I
		e	he
		/	"
		t	comes
		e	tries
		l	tells
		l	"
		s	"
			"

There is a 10 second time limit for each guess. If you cannot think of anything, draw a box ☐ in that space to indicate frustration. Then I will proceed with the next letter.

These phrases come from the actual remarks of 4 and 5 year old children in school. They were given two verbal tasks: to tell a story and to give directions for some craft or sport or art project. Their remarks were tape recorded, then typed, exactly as they spoke them. Mispronunciations were correctly spelled, but no other attempts were made to edit the language.

No	Letter	Word	No	Letter	Word	No	Letter	Word
31		he	32		eat	33		look ¹⁰⁹
	m	my		d	did		t	the
	a	make		r	dry		r	try
	k	"		a	drank		e	street
	e	"		w	draw		e	trees
	\	a		\	a		\	\$
	t	the		a	"		w	was
	h	"		\	funny		i	ll
	e	"		l	little		t	with
	\	toy		i	"		h	"
	e	egg		n	line		\	leaves
	y	eyes		e	"		t	□
	e	"		\	for		h	things
	s	"		a	around		r	three
	\	open		r	"		e	"
	a	again		o	"		e	"
	n	and		u	"		\	bells
	d	"		h	"		t	toys
	\	nose.		d	"		r	trunks
	c	cap		\	it		i	tr □
	u	curls		i	"		a	triangle
	t	cut		n	in		n	"
							g	"
							l	"
							e	"
							s	"

APPENDIX D

LIST OF WORDS CLASSIFIED AS IMAGINATIVE
AND WORDS CHOSEN RANDOMLY

IMAGINATIVE WORDS

grease
shark
prickly
triangles
scary
meaner
tickle
gorilla
jungle
Indians
saddle
messy

WORDS CHOSEN RANDOMLY

supper
daddy
falling
different
piece
around
staple
between
people
whoever
little
clean

APPENDIX E

DATA CHARTS FOR 100 PHRASES

1ne	2ne	3d
once me and daddy went	she brokeed the glass	then you get a spoon
00011001011101111111 13	0011000BB00101110011 8	00001011100110100011 9
00011001111100001111 11	0001000BB01100BB0011 5	00001000001110100001 6
11111000001100001111 11	0000000000B101110B11 6	00001000000110000001 4
00011000111111111111 14	0001000B001101110011 8	00001011100110100000 7
0111100B00B101111111 12	0011000B001111111111 12	00001011100110000000 6
00011001011101111111 13	0001000B001101110111 9	00001011100110100111 10
00011001111101111111 14	00010000001111110111 10	00001011100110000011 8
12277004356715557777 62.9%	00260000005726661377 41.4%	00007055501770400135 35.7%
01111001001100001111 11	01110000001101110011 10	00001011100110100011 9
00011001011100001100 8	0011000B001111110111 11	0000101110011000BB01 7
00011001111100001111 11	0011000B011111110B11 11	00001011111111100000 10
00011011000100001111 9	00110000011101110011 10	00001011100110000011 8
00011001011101111111 13	00110000011111110111 12	00001011100110100011 9
0001100B000100011111 8	0B11000BB11100110011 9	00001011100B10100B11 8
01111001111101111111 16	00110B0B00B101110B11 8	011110111001111B0000 11
02277016245702237766 54.3%	01770000046736770277 50.7%	01117077711672500045 44.3%
00011001111100001111 11	00110000001101111111 11	00001011100111100000 8
00011001011101111111 13	01110000001111110111 12	000010111001101B0001 8
00011001011101111111 13	00110000001111110111 11	00001011100110100111 10
1111100B001101111111 14	00010000000100110B11 6	0000101110011010B111 10
11111001111101111111 17	0001000B1111011100B1 9	00001011101111100000 9
00011001011100111111 12	00110000001101110111 10	00001011100110100B11 9
00011011111101111111 15	00110B0B000101110011 8	0000101110B110100011 9
22277016367705667777 67.9%	01570000115726771467 47.8%	00007077701772700245 45.0%

4de	5d	6ne
frosting was fell off	turn the little knob	bited by that shark
000000111001100B1100 7	00B01011100011110B11 10	00001111100011000001 8
00000011100110BBBBO 5	00B11111100001110000 9	000001111000B1000BB1 6
000000011001100BB000 4	00011011100011110111 12	0000010010001100BB11 6
00000011101110000B00 6	00001011100011111111 12	000001011000110BBB11 7
00001111100010000001 7	00011000100001111111 10	000B0100000011000001 4
00000011100110000000 5	00B11111100011110111 13	00001101101111000001 9
00000001101110000001 6	00011011100111110000 10	00001111100011000001 8
00001157702670001102 28.6%	00057266700157772455 54.3%	00002735601167000027 33.6%
000000111001100BBB00 5	00001011100011110001 9	00B00101100011000B01 6
000000111001100B1100 7	00011011100001110000 8	00B0010110001100BBB1 6
000000111001100B1100 7	00011111100011110000 10	0000111110001100B111 10
00000011101110001100 8	00011011100011110011 11	00000111100011000B01 7
00000011100110000001 6	00011011100011110011 11	0000111110001100B111 10
00000011100110BBB111 8	00001111100B11111111 13	00B0010B1000110B00B1 5
00BBB01110BB100BB101 6	000110111B001111BB01 10	000111111000110B0B01 9
00000077701670003513 33.6%	00057277700067771135 51.4%	000013746700077000227 37.8%
00000011111110BB0111 10	00111111100011110000 11	000011011000110B0111 9
00001111100110001100 9	00011111100011111111 14	00000111100011000001 7
00000011100B10BBB000 4	00111111100011111111 15	000011011000110B0B01 7
000000111011100B0100 7	00111000100011110111 11	0000010B10001100B011 6
00B000BB101110BB0B00 4	00111000100011110111 11	0000010110001100BB11 7
000000B11111100BBB00 6	00B01111100011110001 10	00000111100011000011 8
0000111110B0100B1100 8	00BB111110BB0110B00 8	000BB10B100111000BB1 6
00002256724570002411 34.3%	00457555700067772445 57.1%	00002725700177000147 35.7%

7de		8d		9de	
wheel with grease grease		when you see the light		you supposed to make	
00001100111000001100	7	00111111100110111001	13	01110000000010010011	7
00001100B1100000B100	5	0111111110011BBB1011	13	011100B000BB10010001	6
00001100111000001100	7	00111011100111111011	14	01110000000010010111	8
00001100011011111100	10	00001011100111111000	10	011100B0000010010011	7
000001000B1000000000	2	01111011101110001000	11	01110000000011110111	10
00000000011000000100	3	00011011100111111000	11	011100B0000011110001	8
00000100111000001100	6	00011000000000111000	5	01110000000010010111	8
00004600367011114600	28.6%	02467266601663557023	55.0%	07770000000072270357	38.6%
00001100011001111100	9	00001011100111111000	10	01110000000010010001	6
00001100011000001100	6	11111011100001111011	14	111100B0000011110111	11
00001101111000001100	8	00011111100110111011	13	01110000000011110111	10
00001100011000001100	6	00011011100011111000	10	01110000000010010011	7
00001100011000001100	6	00001011100111111000	10	01110000011111110111	13
00000100011000001100	5	00111011100010111000	10	01110000000011110011	9
00001100B110B1111100	9	00001111100B101110B1	10	01110000000010010001	6
00006701177002227700	35.0%	11247277700364777023	55.0%	17770000011174470357	44.2%
0000B100111000C00100	5	11111111100011111000	14	01110000000010010111	8
000011000110000B1100	6	00011011100111111001	12	01110000000011110111	10
00001100011000C01100	6	00111111100111111011	15	011100B0000011110011	9
00001100111000001100	7	00011011101110111000	11	01110000000011110111	10
00000100011000001100	5	11111011100010111001	13	01110000000010010001	6
00001100111000001100	8	11111011111110111000	15	01110000000010010001	6
000011001110B0001100	7	0011101110B111111001	13	011100B0000011110011	9
00005700477000016700	31.4%	33577277712574777014	66.4%	07770000000074470357	41.4%

10n		11de		12d	
and prints from pigs		when her says no I cant		eyes and nose and mouth	
01110000001001110001	8	01111000100011000000	7	00111001111111111111	16
00010000001011110001	7	01111000000011000000	6	00B11001101111011100	11
00010000001001110001	6	00011000100B11011000	7	00111001101111111101	14
00010000001001110000	5	01111000100011011000	9	00111001111111111101	15
001100000010011100B0	7	01111000100111111110	13	0B001001100011001111	9
0011000000100BB10B00	4	01111000100011011010	10	00001001101111111101	12
00010000001001110001	6	01111000100111111110	13	00001001101111001101	10
01370000007016670004	30.0%	06677000600277255230	46.4%	00347007726677457726	62.1%
00010000001011110001	7	01111000100011000010	8	00B11001101111001101	11
001100B0001001110000	6	00111000100001000000	5	00001001101111001111	11
00110000001001110001	7	00011000100011011000	7	001110111111111001101	14
00010000001001110001	6	00011000100001011000	6	00001000101111111101	11
0011000B0010011100B0	6	00111000100001011010	8	00001001101111001101	10
001100B0001000110000	5	01111000100011011110	11	00001011111111111111	15
0011000B00100B010B00	4	011110001B0001011010	9	00001001111111001111	11
00570000007015670003	29.3%	03577000700037055140	42.1%	00127026737777227737	60.0%
011100B00010011100BB	7	00111000100B01011010	8	00001001101111001101	10
0111000000100111000B	7	00001000000001000010	3	00111011111111101111	16
011100B0001011110000	8	00111000100001000010	6	00B0100111111111111	14
00110000001001110001	8	000010001000011110B1	7	00111001101111111101	14
00110000001001110000	6	00001000100B11011010	7	00001001101111001101	10
00110000001001110000	6	11111000100001000000	7	00001011101111011111	13
011100B0001001110B01	8	001110011BBB1100000B	7	000B111111111111110B	14
04770000007017770002	35.0%	11447001600027133041	32.1%	00227137737777357736	65.0%

13ne		14d		15n	
she sleeps and waked		get all the seeds out		mommy got out and looked	
01110011111011100000	10	01110011111100BB1100	11	00011100010111011100	10
00010000001000100000	3	00110011111100011100	11	00011101110011000101	10
000100BB111011100000	7	00110001001100BB110B	7	00011100010001000100	6
01110000111001100000	8	00110001111100B01100	9	00011101110011000101	10
01110011111001100000	10	00110011000100B01100	7	00001100010011001100	7
11110011111011100000	12	00110011011100BB1100	9	00011100010011001101	9
01110001111011100000	10	01110011000000011100	8	00011100010011000101	8
15570034667046700000	43.6%	02770057345600027700	44.3%	00067702270067013704	42.1%
0011000111100110B000	8	00110001111100B01100	9	00011100010111000100	8
11110000001001100000	7	00110011111100B00100	9	00001101110011011100	10
01110000001011100000	7	01110011111100111101	14	0000110111001100110B	9
00110000001000100000	4	0011001100110B000101	8	00001100010001011100	7
01110000001011100000	7	0111000111110B111101	13	00011101110111001100	11
011100B011101110B000	9	00B1001111110B011100	10	00011100010011001101	9
01110111111001100000	11	01110011011100BB1100	10	00011101110111001100	11
15770112337036700000	37.8%	03670057567700235703	52.1%	00047704470367026701	46.4%
00110000001001100000	5	00110011111100B11111	13	00011100110001001101	9
00110000001011100000	6	01110011111100011101	13	00011111110011011101	13
00110000001111100000	7	00110011111100001100	10	00011100010011011101	10
00010000001001100000	4	00110001111101111101	13	00011100010111000101	9
00110000001011100000	6	00110011111100BB1100	10	00011101110011011101	12
01110000001011100000	7	00110011011100000100	8	00001100010011011100	8
01110011111011100000	11	01110B0011110B111100	11	00011100010011011101	10
02670011117157700000	32.9%	02770056677701246713	55.6%	00067712370167056706	50.7%

16de		17n		18ne	
thing what I wash in		in the prickly stuff		he got loose the rope	
00000000011000000001	3	00100010000000100001	4	01100010001110000111	9
00000000011000000011	4	00111110000001100001	8	00001110000111111111	12
00000000011000000001	3	001111100BBB010B001	7	0010111000111000B011	9
00000000011000000100	3	001111100000111000B1	9	01100010000110000111	8
00000100111010000000	5	001000000B00BB100001	3	00000010000110001000	4
00000000111000000000	3	00101110B00011100BB1	8	0010001000011000100B	5
00000000011000111101	7	00100010000000100111	6	00100010000110111011	9
00000100277010111214	20.0%	00734460000023700117	32.1%	02502270002771224355	40.0%
000000000110000000B0	2	001111100B0000100B11	8	00000010000110000000	3
00000100111000000101	6	001111100B0001100B01	8	00101110000110000000	6
00000100111000000100	5	001111100B000010BB01	7	01101110B00110011111	12
00000000011000000100	3	00111110000011100B01	9	01101110000110011000	9
00000100111000000000	4	0011111000001110B011	10	11101110111110001011	14
00011100011010000100	7	001111100BB001100001	8	00000110000110111000	7
00000000011000000100	3	000111100BB01110B0B1	8	0000111000011011100B	8
00011400377010000501	21.4%	00677770000035700027	41.4%	13405670111770245122	42.1%
00000100011000000101	5	011111100B001110BB01	10	001001100001100000B0	5
00000000111000000000	3	001111100B0000100B11	8	00101110000110001000	7
00001101111010000000	7	0011111000B0B0100B01	7	0110111000000000000B	5
00000100111010000100	6	0011111000000110B011	9	00000110001110000001	6
00000000011000000000	2	001111100B000110B0B1	8	0000111000011000000B	5
000001001110B0000100	5	01111110000001100111	11	00100010000110111000	7
000000000110100000BB	3	01111110BB00BB10B0B1	8	0110001000B110BBB000	5
00001401477030000301	22.1%	03777770000014700137	43.6%	02503570001660112001	38.6%

19n		20ne		21d	
dropping banana peels		I being good all the		if you want a flag to	
00000011100001110000	6	00000111111110011111	13	00111110011101000010	10
00000011100001110000	6	01000111011110001111	12	00111110001100000010	8
00000011100000001111	7	01000B11011110011001	10	00101110111101000010	10
00000011100001110000	6	01000111000110001001	8	001111100111010B1110	12
000000111000B1110000	6	01000111000110001001	8	00111111111101000010	12
000000111000B1110000	6	00000111000110011011	9	00101111111101000010	11
00000011100001110000	6	01000011000111111111	12	00111110111100000010	10
00000077700006661111	30.7%	05000577033771147347	50.7%	00757772467705001170	52.1%
00000011100001110111	9	00000111000110001111	9	00101110001101B0B010	8
00000011100001110000	6	01000111011110011111	13	00111110001101000010	9
00000011100000000111	6	00000111000110011011	9	00111110111111000111	14
00000011100001110000	6	00000111011110011011	11	00111110011111000011	12
000000111000B1110011	8	01000111011110011111	13	00111111111101000010	12
0000011110000B110000	6	01000111000110011000	8	001011100011010B0010	8
000000111000B1110000	6	00000B11011110011111	11	00001110111101000010	9
00000177700005660233	33.5%	03000677044770067466	52.8%	00647771347727000172	51.4%
0000001110B0B0000111	6	00000011000110111111	10	00111110011101001111	13
00000011100001111111	10	00000111011110011001	10	00101110011101000011	10
0000001110B001111111	10	00000011000110011111	9	00101110111100000111	11
00000111100000001111	8	00000B11111110001111	11	00101110111100000110	10
000000111000B0000111	6	01000111111110111000	12	00111110111111000111	14
00000011100001110000	6	01000111011110011001	11	00111110001101000110	10
000000B1100001110011	7	0000B11100BB10001111	8	00101110001100B0001B	7
00000167700004443566	37.8%	02000477244670257446	50.7%	00737770357714001574	53.5%

22d		23ne		24d	
with a piece of chalk		then he shook it off		put the christmas tree	
01111010011111110011	14	00001001000B11111101	9	01110111000B11111111	14
00011010000111110011	10	00001011000000100100	5	00110001000BB1111100	8
00011010000111110011	10	01111000000B11100101	9	00010111000111111111	13
00011010111111110001	12	00001000000000100100	3	01111111000B11111111	15
000110100B0111110011	10	00001011000011100101	8	00B10001000BB1111111	9
00011010000111110011	10	00001011000111100100	8	01110111000B11111100	12
00011010000111110011	10	00001011000011111100	9	01110011000011111111	13
01177070122777770067	54.3%	01117045000155722703	36.4%	04571457000157777755	60.0%
00011110000111110000	9	00001011000011100100	7	00111111000B11111111	14
00011010000111110001	9	00001011000111101101	10	01111111000BBB111111	13
00111110000111110111	13	00001011000B11101100	8	01111111000111111111	16
00011110000111110011	11	00001000000011100100	5	01110111000111111111	15
00011010111111110001	12	11111011000B11111100	13	01110111000111111111	15
00011110000111110111	12	00001011000B00100100	5	01111111000B11111111	15
00011010B00111110011	10	01111011000011101101	12	00111111000B11111111	14
00177470111777770246	54.3%	12227066000166714702	42.8%	05775777000366777777	72.9%
00111010000111110000	9	00011011000B11101100	9	01110111000B1111110B	12
00111110001111110111	14	00001001000011101100	7	01110001000BB1111111	11
00011010001111110000	9	00001011000011100100	7	01111111000111111111	16
00011010000111110011	10	00001011000011101100	8	01110011000011111111	13
0001111000111111000B	10	00001011000B11100100	7	01111111000B11111100	13
0011101B00B11111000B	9	00001001000000100101	5	00111111000B00011111	11
0011101BB0B1111100BB	9	00001011000B0110110B	7	011101110BBB11111111	14
00477270003777770122	50.0%	00017057000056704701	35.7%	06773567000156677755	64.2%

25d	26de	27de
put it out the next	I sets it on the table	after supper then you
01110110011000000011 9	010000111111111111 15	00111100B11110000101 10
01110010011001100011 10	010000101101111111 13	00111100111110011101 13
01111110011000000011 10	010000111111111111 15	00011100011110000101 9
0011011001101110B011 11	010000101111111111 14	00111100111110000101 11
00B1011001101110B111 11	01000010011111111011 12	00111100111110000101 11
0111111001100000BB11 10	000000111111111111 14	00111100B11110000101 10
01110110011011100011 12	000000101111111111 13	00111100111110000101 11
05672670077034400177 52.1%	05000073676777777677 68.5%	00677700477770011707 53.5%
0111011011111110B111 15	01000010110111111001 11	00111100111110000101 11
000101100110B110BB11 9	000000100111111110B1 10	00111100111110000101 11
000111100010000B0011 7	0100001011011111111 13	00111100111110000101 11
01110110011001100011 11	0000001001111111111 12	00111100111110000111 12
01110110011001101111 13	01000010011111111011 12	00111100111110000101 11
01110010011001100011 10	01000010011110011111 11	00111100011110000101 10
00110110111000100011 10	01000010111111111011 13	00111100111110000101 11
04571670267115601277 53.5%	05000070375776677357 58.5%	00777700677770000717 55.0%
0011111001100000B111 10	0000001111111111111 14	00111100111110000101 11
0111011011101110B011 13	0000001111001111111 12	00111100111110000111 12
0111011001101110B011 12	0000001001111111111 12	0011110B111110000101 11
00111111111001100111 14	0000001011001111111 11	00111100111110000101 11
01110110011011100011 12	0100001111001111111 13	00111100011110111101 13
1111011001101110B011 13	010000100100111110B1 9	00111100011110000101 10
01110110011011100011 12	010000101111111110B1 12	00111100011110000101 10
15772771277056600277 61.4%	03000073573377777557 59.3%	00777700477770111717 55.7%

28n	29n	30de
there was once a little	helped mommy clean up	we taked our pet cat
000011001100011111011 10	00000110111110011110 11	00100011100010011011 9
000011001100011111001 9	00000010000110011110 7	00000000100010001011 5
00001100110001100001 7	00000110001110111110 10	01100011100010B110BB 8
00001100110001111111 11	00000110000110011110 8	00000000100110000011 5
00001111110001111111 13	00000010011110001110 8	011000011011100B1000 8
000011011100011111001 10	00000110001110011111 10	0010001110C010000000 5
000011111100011111001 11	00000110011110011110 10	00100000100010000011 5
00007723770007766237 50.6%	00000570135770167771 45.7%	02500034701270024044 32.1%
000011001100011111011 10	00000010000110011110 7	00100000100010001011 6
00001101110001101000 8	00000110000110111110 9	01100000100010C0C0B0 4
0000111111000B111000 9	00000110000110000010 5	00000000101110001011 7
000011001100011111011 10	00000110000110011110 8	01100000100110111011 10
000011001100011111011 10	00000110011110011110 10	01100000111110000011 9
000011011100011111011 11	00000010011110111110 10	01100000101110011011 10
000011011100011111011 11	00000110001111111110 11	00100000101110B000B1 6
00007714770006767055 49.2%	00000570023771366670 42.8%	04600000714570124056 37.1%
000011001100011111011 10	00000110000110011110 8	01100000100010B00001 5
00001111110001111111 13	00000110001110111110 10	00100011100010000011 7
000011111100011111011 12	00011110011110011110 12	111001111011100000B1 11
00001111110001111111 13	00000010001110011110 8	00100000100010000011 5
000011111101111111011 14	00000010001110011111 9	001001111111100000B1 10
00001101110001111000 9	00000110001110011110 9	000000001000100000B0 2
000011111101111111011 14	00000110000110001111 8	01100000100010B00B00 4
00007756770227777266 60.6%	00011570015770167772 45.0%	13600233712270000025 31.4%

31d	32d	33d
make the eyes and cut	draw a line around it	with three triangles
00111011100111011100 12	00011010001100111111 11	0111100011100000BB11 9
0001100000B11101110B 8	00111011111100011110 13	01111000111000B01111 11
0001101110000100110B 8	00001010B0B100B11111 8	00111000B11000BB0000 5
0011101110011100110B 11	00001110001100111110 10	01111000111000BBB111 10
00111000100001001100 7	00001110001100111110 10	00111000111000000000 6
00111001100011011101 11	00111110001100111110 12	001110001110BBB11111 11
00111001100111001100 10	00001010001100111110 9	01111000111000000111 10
00577035600457037701 47.8%	00237371116700577772 52.1%	04777000677000012455 44.2%
0001101110000100110B 8	00111011111100B11111 14	00111000111000001111 10
0001111110B001001100 9	00111000001100111110 10	00011000111000BB0B00 5
00011011100001000100 7	0011101000B100111110 10	00011000111000BB00111 8
00011111100001000100 8	00111110011100011110 12	00011000111000000000 5
00111001100001011101 10	00111011111100111110 14	00111000111000B11111 11
0011101110011100110B 11	000B1110001100111110 10	00111000111000B00000 6
001110111BB1110011BB 11	0011101000110B111110 11	0B011000111000BBB000 5
00377267700227015701 45.7%	00667262236700577771 57.8%	00377000777000012333 35.7%
011110111000010B1101 11	00111110111100111110 14	00111000111000B11111 11
00111011100111111101 14	00001110011100111110 11	01111000111000011111 12
00111111100111000100 11	01111110001101111110 14	B01110001110B0B11111 11
00111011100111001100 11	00001110001101111111 12	000110B0111000B11111 10
00011011100111011100 11	00001110001100111111 11	00111001111000BB1111 11
000110111001110B010B 9	0000101000B100011110 7	00111000111000BB0000 6
0001101110B0010BB100 7	000B1110001100B11110 9	001110001110B0BB1111 10
01477177700557124702 52.9%	01227670126702577772 55.7%	01677001777000046666 50.7%

34ne	35d	36ne
be nice and happy ever	write your name on it	holded the door open
00000011111100011100 9	00B11101111111110111 15	00000110111000B11111 10
00101111100110000010B 8	00111101111111111110 16	00000011111100011111 11
00100111011100111100 11	00B01101111100B110110 10	00000110111000111111 11
01100111011100011100 11	00011101111111111110 15	00000110111011110011 11
00000111001100011100 8	00011101111111111110 15	00000110111011111111 13
01100111001100011100 10	00111101111011110110 14	00000010111000110111 9
01100111011100011100 11	00111101111111110110 15	00000010001000110011 6
03501677147700166700 48.5%	00367707777566773771 71.5%	000000471667022674577 50.7%
011001110001000B110B 8	00111101111111110010 14	00000111111100011111 12
00000B1101110001110B 8	00111111111111111110 17	00000110111000111111 11
0000111111110001110B 11	00111100001011111110 12	00000111111100011111 12
0110111101110001110B 12	00111101111111111110 16	00000011111000110011 9
00101111001100011100 10	00111101111111111110 16	00000110111000111111 11
0000111101110001110B 10	00001101111111110010 12	00000111111100011111 12
0000111101110B1111B0 11	00111101111111111110 16	00000010111000111111 10
02305677156700167700 50.0%	00667716667677775570 73.6%	000000574777000776677 55.0%
00101111001101111100 12	000B1101111111110110 13	00000110111000111111 11
00001111011100111100 11	00001101111111111110 14	00000110111000B11111 10
00100111111101111100 13	00111101111111111110 16	000001111111000110011 10
00001111011100011100 10	00001101111111110110 13	00000110111000110011 9
00101111011111111100 14	00001111111111110111 15	00000010011000B11111 8
0000000100010011110B 6	00B0110111111110110 13	000001100BB0BB11111 8
00100B1111110001110B 10	00111111111111111111 18	0000011111110BB11111 12
00404567256713577700 54.4%	00227727777777773772 72.9%	000000672566000575577 48.5%

37de		38d		39de	
to look the light on		whoever broke it down		you draw it for a hat	
00100011011100011101	10	0000B111000011001000	6	111100111111001100B0	12
00100111000100000000	5	0000BBB1000011111000	6	0111001110110011010B	11
00101111000000011111	10	0000B1110111110110B0	10	01110000011111110100	11
00000111000000011101	7	00000111000111011000	8	011100011011001101B0	10
00101111000000111100	9	00001111000000011000	6	01110000001101110100	9
00101111011100011101	12	00000111000011011000	7	01110000001100110100	8
001011110000B0011111	10	00000001000011011011	7	01110000100100110100	8
00604677022300166625	45.0%	00001557011266167011	35.7%	17770023426712770600	49.2%
0010111101110B011100	10	000001110000110010B0	6	01110000101100B1010B	8
001000110001B0011101	8	00000BB10000B1011000	4	011100011011011100B0	10
00100B01000000011100	5	000C0111000111011000	8	01110001101100110100	10
00100011001100011101	9	00000111000011001000	6	11110001101101110100	12
00000111000000011101	7	00000111000011011000	7	01110111101100110101	13
001001110111000B1100	9	0000BB11000011011000	6	01110000101100010100	8
001000110011B0B11101	9	0000B11100B1110110B0	8	01110011101111110BB0	12
00601367024500067704	41.4%	00000567000267057000	33.1%	17770125707713570501	52.1%
001011110001011111B0	11	0000B111000011011000	7	0111000B1011011101BB	10
00101111001101111101	13	00001111000011011011	10	011100111011011101B0	12
0010111101110B0111B1	12	0000B111000111011011	10	0111011110110011000B	11
000011110B1100011101	10	00001111000111001011	10	0111000110110011000B	9
0000111100000B011101	8	00001111000011011000	8	01110000100001110100	8
00100111011101111100	12	0000BBB1000111011000	6	01110001101100B10100	9
00100111000101111111	12	00000111000111111B01	10	01110001111100B11100	11
00505777024604477715	55.6%	00003667000477167034	43.6%	07770125716603571500	50.0%

40d		41n		42de	
then you get a thing		about something scary		you dont got much hair	
0000111110111110B000	9	0001110B00011111000B	8	11110001100010011100	10
00001111100110100000	8	000BB1000001111100BB	6	00000001100010011100	6
00001011100110100111	10	00B111000001111100B0	8	01110011100010011101	11
00001011100110100111	10	001111000001111100BB	9	0111000110001001110B	9
000110111001111000B0	9	0011110000011111000B	9	01110011100010011100	10
00001011100111100B11	10	00111100000111110001	10	00000011100010011100	7
00001011100110100111	10	00111100000111110011	11	01110011100010011100	10
00017277701773700344	47.8%	00466700000777770012	43.6%	15550047700070077701	44.0%
000010111001111000B1	9	0001110B011111110000	10	01110011100110001100	10
000011111001101B0111	11	00001100000111110000	7	01110111100010011100	11
00001111100111100B00	9	001111000000111100BB	8	01110001100010001100	8
00001111100110000000	7	00111100000111110000	9	01110001100010011100	9
00111111101111101111	16	00111100000111110001	10	01110000100010111100	9
00001011100B1110B011	9	00111100B000111100BB	8	011100001000100B1100	7
00001011101111100BB1	10	00BB11000001111100B1	8	011101111001100111B1	13
00117477702675601235	50.7%	00457700011577770002	42.8%	07770235700270147701	47.8%
00001111101111100000	10	00111000001111100111	11	0111011110001001110B	11
00001011100111100111	11	00111100000111110B00	9	01110011101110111100	13
00001111100111100B11	11	0011110000000111000B	7	0111001110001001110B	10
00001011101111100000	9	00111100000111110011	11	01110001100010011100	9
01111111101111100011	16	00BB0100000111110011	8	01110000100110011100	9
0000111110011010B001	9	000B11000000111100BB	6	011100001000100BB100	6
00001011100110100011	9	00111100000111110001	10	0111000010001BB1110B	8
01117477703775700145	52.8%	00556700000567770034	44.2%	07770134701270166700	47.2%

43d	44ne	45d
you get a design thing	she has to stay died	airplanes out of paper
01110111110000B11000 10	111101110010000100B1 10	0000111111001100000B 8
00000011010000111000 6	001100010010000100B1 6	00001111110011111011 13
01110111010000B11000 9	001100110010011100B1 9	000000000100110000B0 3
01110011010000B11000 8	011100110010111100B0 10	00000000010011001111 7
01110011010000111000 9	011101110010001100B1 10	00000000010011000000 3
01110011010000B11000 8	000101110010000100B1 7	00000000010011001000 4
011101110100B0011000 9	00010111000001110001 8	00001111110011001011 11
06660377170000277000 42.1%	13570467006013470006 42.8%	00003333370077114133 35.0%
0111001101B000B11000 8	00010111001001110001 9	00011111110111001000 11
0000001100B0B00B1000 3	000100111110001100B1 9	00000000010111000000 4
01110111110000B11000 10	011100010010001100B1 8	000000000100110010B0 4
01110011110B00111000 10	0111000101100B010000 7	00000000010011111001 7
01110111110000111000 11	011100010010000100B1 7	00000000010011111011 8
011100111100B0011000 9	01110111001001110000 10	0000000001011100000B 4
011101110100B0B1000 8	00110111000B001100B1 8	00111111110011B0100B 11
06660377460000257000 42.1%	04570347126002570005 41.4%	0012222270377225012 35.0%
0111001111B0B0B11000 9	011111110010001100B1 11	00000000010011111000 6
11110111110000111000 12	011100010110011100B1 10	00000000010111111001 8
11110011110000111000 11	001101110110000100B1 9	000000000100110000B0 3
01110011010000B11000 8	001100010010011100B1 8	00B11111110000011011 11
01110111110000B11000 10	000101110010011100B1 9	00B00000010011111111 9
011100110100B0B1000 7	0011000100100BB100B1 6	00B000000100110000B1 4
011100110100B0B11000 8	00010011001B001100B1 7	00B00000010011001BB1 5
27770277470000267000 46.4%	02571347027003570007 42.8%	000111111170166345125 32.8%

46ne	47ne	48n
went up at my house	it want to have a joke	has her tree lighted
000B1011001011111111 12	01100000011001110100 8	000101110B111000000B 7
00011011001001111111 12	00100000111001110100 8	00010111000110000001 7
00111001001001111111 12	00100000001011110100 7	00110001000110001111 9
01111011001011111111 15	00100011111011110100 11	00010001000110000001 5
00011001001001011111 10	00100000111001111101 10	00010001000110000001 5
000110010010B1011111 10	0010000001101111010B 8	00010001001110000001 6
00011011001B01111111 12	00100000011011110100 8	00010111001110000001 8
01267047007027577777 59.2%	01700011367047771701 42.8%	00170337003770001116 33.5%
00011001001011111111 12	00100000001011110100 7	00010001001110001111 9
00011011011011011111 13	01100111111001110000 11	00010001000110000001 5
00111001001B11111111 13	00100000001011111101 9	00010001000B10001111 7
00011011001011111111 13	01100000111000111100 9	00010001000000000001 3
00011011001011111111 13	00100000111011111101 11	00010111000110B00001 7
00011011001011111111 13	00100000111011111100 10	00010011000110000000 5
0001100100B001011111 9	00100000B11011110100 8	00010001B0BB10000001 4
00177047016067577777 61.4%	02700111457056774602 46.4%	00070127001460002226 38.5%
00011011001001011111 11	0010001111101111110B 12	00010001B00110000001 5
00011011001001111111 12	00100000111011111100 10	00010001001110000001 6
00011111000011011111 12	00100000B010111111B0 8	00010000B0B010001111 6
00011001001011000111 9	001000001110011100B0 7	00010001000110000000 4
00011011001111011111 13	00100000111011111100 10	00010001000110000001 5
00011011001001011111 11	01100011001001110100 9	00010001001110000001 6
00011011001011111111 13	011001111110011101B0 12	00010001000110000001 5
00077167006147266777 57.8%	02700133557047774600 48.6%	00070006002670001116 26.4%

49de		50ne		51n	
its for to dig out the		the rider suggest to		riding on the merry	
00010011001001100110	8	01110000010000000000	4	0000BB1011001100BB11	7
00010011000001100110	7	011100000100B0000000	4	0000BB10110011000111	8
000100B0000000100110	4	111100000100B0000000	5	00001110110111001111	12
0001001100000B100010	5	111100000100BB000011	7	000011101101110B1111	12
00010111001000101110	9	01110000010001111111	11	00B0BB10111111000111	10
00010001001000101110	7	011100000100B0000000	4	0000BB1011001100B111	8
00010111000000101110	8	011100011100B1110001	10	00000110011111000111	10
00070256003002703670	34.3%	27770001170002221123	32.1%	00002370672477002677	47.8%
00010011000B0BB00110	5	0000B000010000000000	1	00001110111111111111	15
00010111001001100110	9	111100011100B1111100	12	0000BB1011111100B111	10
00000011001001100010	6	01110000010000000000	4	000001101101110BBB11	9
00010111001000100010	7	011100000100B0000000	4	0000011001001100B111	8
00010111001001101111	11	1111000111000B000000	7	000011100111110B1111	11
00010111000000101110	8	011100000100B1111100	9	0000111011111100B111	12
000100B1000001100110	6	000000000100B0000000	1	00001110010011000111	9
00060467004004602571	37.1%	25550002270002222200	27.2%	00004670474577112677	53.5%
0001001100BB0B101110	7	000100000100BB000000	2	00001110110111111111	14
0001001100100B100110	7	11110000010000000001	6	0000BB1111011100B111	10
00010000001001100111	7	011100000100B0000000	4	00001110110011000111	10
00010001000011101110	8	000000000100BB000000	1	000011101100110BB111	10
00010111001000101110	9	011100000100B0000000	4	00001110011111001111	12
00010011001000100110	7	01110000010001111100	9	0000111011011100B111	11
00010011001000100110	7	01110000010000000000	4	000011111101110BBB11	11
00070156005012703771	37.1%	15560000070001111101	21.4%	00006673671577114677	57.9%

52n		53ne		54de	
the snow falling down		people were drowned		place where you want	
01110011100111111111	15	000111100111000BB0B0	7	00001100111101110111	12
01110011100111111011	14	00011110001100000000	6	00001101111101110001	11
01110011100000111011	11	00011110001100000000	6	00001101111101110001	11
11110001100B00111011	11	000111101111000BB000	8	00001100111101111111	13
0111001110B011111011	13	00B111100011000BB000	6	00111100011111111111	15
11110011100000111011	12	00011110001100000000	6	00001100011101110111	11
11110011100000111011	12	00B011100011000000B0	5	00011100011101110001	10
37770067700233777177	62.8%	00067770127700000000	31.4%	00127702477717772447	59.2%
01110000100000111111	10	00011110011100000000	7	00001101111101110000	10
01110011100B00111011	11	00B1111001110000000	7	0001110B111101110011	12
01110011100000111000	9	00B1111000110000B000	6	0B00110B011101110011	10
01110011100000111011	11	00011110001100000000	6	00001100011111110011	11
11110011100000111011	12	00011110001100000000	6	00001101111101110011	12
11110001100000111111	12	00001111111100000000	8	0011110011110111000B	11
01110001100000111011	10	00011110001100000000	6	00001100011111110011	11
27770046700000777266	53.5%	00067771137700000000	32.9%	00127702477727770055	55.0%
00000011100000111011	8	00011110011100000000	7	0000110011110111000B	9
01110011100000111111	12	00111110001100000000	7	00001101111101110011	12
11110011100000111011	12	00011110001100000000	6	00011100011101110011	11
11110001100000111111	12	00011110001100000000	6	00001101111101110001	11
01110011100000111111	12	000B111000110000B000	5	00001111111101110111	14
01110001100011111111	13	00011110111100B00000	8	00011111111101110011	14
11110001100000111011	11	00011110001100000000	6	00001100001101110000	7
37770047700011777477	59.2%	00167770127700000000	32.1%	00027724567707770145	55.7%

55ne	56n	57n
we dont got any stairs	snowballs at the cars	got meaner and meaner
0000001100010001000B 4	00B00B11111001011100B 8	000100000B1001111111 9
00000111000111110000 8	00000111110011111011 12	00000000001001111111 8
01101111000111110000 11	00000111110010111000 9	00010000011111111111 12
001000110001011100BB 7	00000000010110111000 6	00010000011001111111 10
00000111000100B10000 5	00B00B00010010111000 5	0011000000B011111111 10
00100011000111110B00 8	00000000010011111000 6	000100000B1001101111 8
01101111000B00110011 10	00000000010010000011 4	00000000001001111111 8
02402477000634570011 38.6%	00000233370172666022 35.7%	00150000026127767777 46.4%
001000110011111100B0 9	00000000010011111000 6	00010000001001111111 9
0010001100010111000B 7	00000111110011111000 10	000100000010B1100111 7
000000110001000100B0 4	000001111100B1110000 9	0001000B0B10BB100111 6
01100011000111110000 9	00000111110010001001 7	00010000001001101111 8
00001111000111110000 9	00000111110010000000 6	00010000011111111111 12
01100001000100010000 5	00000B000100111110B0 6	01110000001111111111 13
00000111000100010000 5	00000001110010000000 4	00010000001001101111 8
02401267001734470000 34.3%	00000445570073445001 35.0%	01170000017226735777 45.0%
00100111000101110000 8	00000111110010000000 6	00010000011111111111 12
00100011000101110000 7	00000000010010111000 5	00010000011001111111 10
00001111000111110000 9	0000000001001000000B 2	000100000110011B1111 9
011001110001011100B0 9	000001111100B0011000 7	00010000011001111111 10
0010111100010111000B 9	000000000100100010BB 3	000100000B1011111111 10
00100001001111110000 8	00000000010010111000 5	01110000001001100011 8
0110B01100011111B00B 9	000000B00100111110B1 7	00010000001B11111111 10
02602467001737770000 42.1%	000000222270061345001 25.0%	01170000047137756677 49.2%

58ne	59de	60d
a chain was broke so	you make like a lip	another one through it
0000BB11000100000000B 3	11110B0110001111000B 10	0001111111110B0B1111 13
00000001011100000000 4	00000001100011110001 7	00111111011100000111 12
01000001001100000000 4	01110001100111110001 11	00011111001100011111 12
01000001111100001101 8	01110111100011010001 11	00011111111100011111 14
0100000111110B00000BB 6	01110111101111010B0B 12	00011111111100001111 13
00000001001100001101 5	0111000110B111010001 10	00011111111100000111 12
01000001000100111100 7	01110001100111110001 11	00011111000100001111 10
04000017235700113302 27.9%	16660227701477470005 51.4%	00177777456700025777 61.3%
01001111001111111100 13	0111000110001111B001 10	00011111000100000111 9
010000B10011000000001 5	0111011110001101000B 10	00011111000100001111 10
01000001001100000000B 4	0111000110001111000B 9	000111110001000B0111 9
00000001111100000001 6	01110001100011010001 9	0000B11101110000B111 9
00000001111100001101 8	0111000110001111000B 9	00011111000100000111 9
0100000100110000000BB 4	01110001100011110001 10	00011111000100001111 10
00000001011100000000 4	01110001100011010001 9	00001111011100000111 10
0400111172377111112203 31.4%	07770117700077470004 47.1%	000567777022700002777 47.1%
0000000101110111110B 9	01110111100011110001 12	00001111111100001111 12
000000010011000000001 4	01110001100011110001 10	00011111011100001111 12
01000001011100001101 8	01110111100111010001 12	00011111000100011111 11
01000001001100000000 4	011101111000B0110001 10	00011111000100001111 10
0100001100B10000110B 6	01110001100011010001 9	00011111001100000111 10
010000010001000011B0 5	01110001100011B10001 9	00011111000100001111 10
0100B00100010000000B0 3	011100BB1B0111110001 10	000111110B1100001111 11
05000017024701114402 27.9%	07770336700266470007 51.4%	00067777124700016777 54.2%

61n		62ne		63ne	
down at the hall closet		he writed happy birthday		like to sled with it	
00011001111100B11BBB	9	00100BB00100B1110B01	6	00011001000010111101	9
01111001111100001000	10	00000000010001110000	4	00011011000000011100	7
00011011111100011011	12	00000000010001111111	8	00111001000000111100	8
00011001111100B11011	11	00000011110001110B00	7	00111001000010111101	10
00111001111100B11111	13	00000B00010001111111	8	01111001000B01111101	11
00011001111100111001	11	001000000100011100B1	6	00111001000000111101	9
00111011011100111001	12	00000000010011110001	6	00011011000110000100	7
01377027677700267135	55.6%	00200011170017772225	31.4%	01477027000131566704	43.6%
00011001111100000011	9	00100000010011110111	9	00111001000010011101	9
00011011111100B11000	10	000000B00100B1110000	4	0011100100011011110B	10
00011001111100111011	12	00100B000100B00100B0	3	0001100B00001011110B	7
00011001111101111000	11	00100000010001110000	5	00111000001110111100	10
00011011111100B01000	9	01100000010001110111	9	00111001000110111101	11
0001100111110B011001	10	011000000100B1110B11	8	00B11001001110011100	9
00011001111101111000	11	00000000010001110000	4	00111000001110111100	10
00077027777702356023	51.4%	02500000070016670233	30.0%	00577004003570577702	47.1%
00011011111100B11000	10	001000B0010001110111	8	0011100100B01011110B	9
00011001111100111011	12	00000000010001110011	6	00111000000010111100	8
00011011111100111011	13	00000B000100B1111111	8	00111011000110011100	10
000110011111001110B1	11	000000000100B1111111	8	00011001000010111100	8
000110010111001110B1	10	00100000010001110111	8	00111001000110111101	11
00011001111100011000	9	00100B111100BB110000	7	00011001000111111101	11
00011001111100B110B1	10	11100B000100BB111111	10	01111001B00010011101	10
00077027677700477025	53.5%	11400011170005773566	37.3%	01577016000371577703	47.8%

64n		65ne		66d	
he has sharp teeth and		was a bulb blewn out		get a pencil and draw	
001011100BB010011110	9	00010100001000001111	7	001101111111101110B1	14
0000111000B011111110	10	00110000001000001111	7	00111100001110111000	10
00000110001110011110	9	00010000001000001111	6	00110100001111111011	12
0110001000B000111111	9	00110100001000B01011	7	00111100011111111011	14
000011100BB0100B1110	7	00010100001000B01111	7	0011010000B1101110B1	9
00101110000010111111	11	00010100111000B01001	7	00110100B11110111011	12
000011100000100B1110	7	00110000B01000001111	7	00110000001110011011	10
01305670001161357772	44.2%	00370400117000007567	34.3%	00772611146772677046	57.9%
00101110000001111111	11	00110000001000B01111	7	01110100011111111011	14
00001110000010B11111	9	00010000B0B000001111	5	00110000B01111111001	10
0010111000B011111110	11	00010100001000001001	5	00110100111110011011	12
01100010000110111110	10	00010100001000001111	7	00110100001110111001	10
00101110001110111110	12	00110000001000001111	7	00110000001110011011	9
0110111000B011111111	13	00110100B01000B01111	8	0011010B001111111011	12
01100010000110111110	10	00010100001000001111	7	00110100001110111001	10
03605570001363677773	54.2%	00370400006000007667	32.9%	01770500127773577047	55.0%
00101110000010111111	11	00010100001000B01111	7	00110100011110111011	12
0010111000B010111110	10	001100B0001000001111	7	00110100111111111001	13
0000111000B011111111	11	00010000B01BB0B11111	7	001100B0B11111111011	12
011011100B0010011110	10	00010100001000001111	7	00110000001110111011	10
0110011000B011111110	11	00011100B01000001111	8	00111100011110111011	12
0010001000B010011110	7	00010100001000001001	5	00110100011111111011	12
01101110000B10011110	10	00010100B010BBB01011	6	001101000011101110BB	9
03605670000072477772	50.0%	00171500007000017567	33.6%	00771500157773777056	58.5%

67ne	68ne	69d
she always give mes a	he build him a house	staple a handle on it
0001000BB1100000000B 3	00100BB0000010111111 8	0000B11010B011111111 11
00010001111000000000 5	00000000000011111111 8	00000000000001111110 5
00010111111000000001 8	00100000000001101111 7	00001110100000111111 10
00110011111000000001 8	01100000000011101111 9	00001110100000110110 8
00010001111000000001 6	01100000001111101111 11	0000BB10100B11111110 9
00010001111000000001 6	00100B00000011111111 9	0000B000100000111110 6
00010011111000010000 7	00000000000010111111 7	00001110100011110000 8
00170136677000010004 30.7%	02500000001165747777 42.1%	00003450600033775662 40.7%
0001011111100B00000B 7	011000B0100011111111 11	0000111010B011111111 12
00000011111000000001 6	01100011100001111111 12	0000B110000000111110 7
00010B1111100000000B 6	01100000000001101111 8	00001110100011111110 11
01110001111000000001 8	01100000000011101111 9	00000110100000110110 7
00010011111000000000 6	01100000000011111111 10	0000111010B011111110 11
00110011111000000001 8	011000B0001111101111 11	00001110100B00111110 9
01110001111000000001 8	01100000000011101111 9	00000110100000110110 7
02360157777000000004 35.0%	07700011201157737777 50.0%	00004770600033775771 45.7%
00010011111000000001 7	01100000000011111111 10	0000000010B001110110 6
00010011111000000001 7	01100000000010111111 9	00001110100011111110 11
00010011111000000001 7	01100000000011101111 9	0000111010B011111110 11
00110011111000000001 8	01100000000011111111 10	00001110100000111110 9
00010011111000000001 7	11100B00000011111111 11	0000111010B000111111 10
00010001111000000001 6	00100011100011111111 12	0000B110100000111110 8
01110011111000000001 9	01100000000011101111 9	0000111010B000111111 10
01270067777000000007 36.4%	16700011100076757777 50.0%	00005660700023776772 46.3%

70d	71d	72d
tickle her on her	belt and some stuff	turn it around this way
000111100110110B1100 10	0B001111100111000B11 10	00B110110011111000B1 10
00000110111011001100 9	00011011100111000011 10	00111011001111100001 11
00000110011011011101 10	00001001100011000111 8	00111011011111101111 15
0000011001101101110B 9	00001111100011011111 12	00011011001111100011 11
00011110111011111100 13	0001101110B0110B0B01 8	00111001001111100011 11
00B11110001011011100 10	0B0010111000110B0B11 8	00111011001111100011 12
00011110011011011100 11	0001100110001100B111 9	00111011011111100011 13
00044770267077157701 51.4%	00037257700277011367 46.4%	00577067027777701157 59.2%
000011101111101110B 12	00001011100000000111 7	00001011111111100011 12
00B00110011011011100 9	00B01001100B11000B11 7	00011001001111100011 10
000001100B1001011100 7	00B0100110001100BB11 7	000110110111111000B1 11
00001110011011011100 10	0000101110111100BB11 10	00001001111111100011 11
00011110011011011100 11	0000100110011100BB11 8	00001011011111100011 11
0000011000101101110B 8	0000101110001100B111 9	00111011001111100001 11
00001110011011011100 10	00001011101111000011 10	00001001011111100011 10
00014770157167077700 47.8%	00007047702366000277 41.4%	00137047257777700057 54.2%
00001110111011011100 11	0000100110BB00000111 6	00111001111111100011 13
00000110111111011100 11	00001011100111000B11 9	00001011011111100011 11
000001100B00110111B1 8	B00010011011110B0B11 9	00001001011111100011 10
00000110011011011100 9	00001001100011000B11 7	00111011011111100011 14
00001110011011000100 8	00001011100111000111 10	00111011011111100011 13
00B00110001001011101 8	000010111011110BB111 11	00B01011001111100011 10
0001111000101101110B 10	000010111000110BB111 9	00B01001111111000B1 10
00013770246167066702 46.4%	00007047702466000477 43.6%	00337047267777700167 57.8%

73de	74n	75de
dough in the frigerator	the house is on fire	triangles it that way
00000000111110001111 9	01110111111110110111 16	00B000000010010000100 3
0000110011111000B111 10	11110000111110110011 13	000111111110000001101 10
00011100111110001111 12	01110111111011111011 16	000000000010010000100 3
0000000011111000B111 8	1111000B110010010B01 9	000000000010010001111 6
000BB1B01111100BB011 8	01110011111110110111 15	00000BB0010010001100 4
00000000100010B00111 5	0001B001111110111111 13	00000000001001B001100 4
000B00001111100000B1 6	00010000110011111111 11	0000000000100100011B0 4
00012300766670002567 41.4%	25570234774572672567 66.4%	0000111111170060005712 24.3%
00000000111110000111 9	11110001111110110111 15	00000000001001BB01100 4
0000B1001111100B0011 8	000101111111101100B1 12	00000BB0010010001100 4
00001101111110B00111 11	01110111111110010011 14	000000000010010001100 4
0001110011111000B011 10	11110000110010110000 9	000000000010010001100 4
000000001111100B1111 9	11110111111011001011 15	0000011111100B0001100 7
000B0101111110B00001 8	1111001111100101100B1 12	000BB0000010010001100 4
0000B1011111100000B1 8	00000111111110110111 13	000000000010010001100 4
00012504777770001357 45.0%	45560456774570570346 64.2%	0000001111170060007700 22.1%
0000110011111000B111 10	01110111111011111111 17	000000000010010001100 4
00011100111110000001 9	11110011111110010011 14	000000000010010001100 4
00011101111110BBB111 12	0111000B110110110B11 11	000000000010010BB11B0 4
00001100111110000001 9	00110111111001011011 13	000000000010010001101 5
000B11001000000000111 6	00000011111110010111 11	000B0000001001B001111 6
000BBB0110111000B001 6	00000011110010010111 9	000000000010110001100 5
000000B1111110000111 9	11110001110B10B10000 9	000000000010010001100 4
00025503756660000457 43.6%	24550256772471371466 60.0%	000000000070170007712 22.8%

76ne	77	78ne
it didnt broke down	put the raisins on the	she got stinged from
011000011000B1101111 10	01110011000011110110 11	0111000100BBB1110111 10
00000001100011100111 8	00110001000000001110 7	01110111000011110011 12
01101111100011100111 13	00010000000011110110 7	00010001000011110111 9
00100001100001100011 7	00110111000B11110111 12	01110001000B11110111 11
01100001100000001111 8	011101110000BB010111 10	11110111000B00110111 12
00100001100001100011 7	00110001000000001011 7	00010111000000010011 7
00100001100011101111 10	00011111000011110111 12	00010111000000110001 8
03601117700036603577 45.0%	02571346000044471774 47.1%	14470447000035670467 49.3%
01100001100011100011 9	00111111100000001011 10	00010111000111110111 12
00100001100001101111 9	0111111110B0B0001011 11	01110111000111110111 14
0110000110B0B110BB11 8	00111111100000001011 10	0001B001000BB0110011 6
00100001100001100011 7	01110111000B00110111 11	00110111000000110111 10
01100001100001100111 9	01111111100B00001111 12	00010001000111110011 9
0010000110001110B011 8	0111011110B000001111 11	011101110B0B00B10011 9
00100001100001100011 7	01110111000000001111 11	001101111000000010011 8
03700007700027701277 40.7%	05774777000000173777 54.2%	02470557000333570377 48.5%
00100001100011101111 10	01110111000000001011 10	01110111000011110011 12
01100001100011100011 9	01110001000000001011 8	01110001000011110111 11
00100111100011101111 12	0111011100B011110111 13	00010001000111110111 10
00100001100011100011 8	01111111100000001010 10	00110111000000110111 10
01100001100011101111 11	00110001000B00010111 7	00010001000011110111 9
0110000110B001101111 10	011101110000000010010 8	00010001000000110011 6
00100111100011101111 12	011111111000000010110 10	0111000100BB11110111 11
03700227700067705577 51.4%	06772557000011170674 47.1%	03470227000155770577 49.3%

79n	80n	81d
between a baby gorilla	start with the jungle	get a ball and racket
00001111000B001000BB 5	0000B101111000100001 7	00110100011111100001 10
00001111010001100B11 9	00001111111011100011 12	01110101111111101111 16
000011110100011000B1 8	00011101111011100011 12	00110100011001100001 8
0000111101000110BB11 9	00000101111000101111 10	00111100111111100001 12
000011110100011000BB 7	000011000B1111100011 9	00110000011001100BB0 6
000011110100011000BB 7	00000100111111100B01 9	00110100111001100000 8
00001111010001100000 7	00000100111111100001 9	01110100011111101111 14
00007777060006700023 37.1%	00013714667355701147 48.6%	02771601377447702225 52.8%
0000111101B001100011 9	00000100111011100001 8	01110100000111101111 12
000011110100011000BB 7	00001101111111100001 11	001101000111111000B0 9
00001111010001100011 9	00000100111011100011 9	00111100011001100B00 8
000011110100011000B1 8	00000101111011100000 8	00111100011000100011 9
0000111101B001100011 9	00011101111000100001 9	00110101111111100001 12
000011110100011000B1 8	0000010111101110000B 8	0011010B001111100B11 10
00001111010001100001 8	00000101111011100000 8	00110100001001100011 8
00007777070007700036 41.4%	00012705777166700014 43.6%	01772701146446701145 48.6%
000011110100011000B1 8	0000010011101110B001 8	00110100011111100B11 11
000011110100011000B1 8	00000101111000100001 7	00110100111011100111 12
000011110100011000BB 7	0000010011111110BBB1 9	01110111111111100B0B 13
000111110100111000B1 10	00001101111000100001 8	00110101111011100001 11
00001111010001100011 9	0000110001100010B011 7	00111100111111100111 14
000011110100011000B1 8	00000100111000100011 7	001101B0011011100001 9
00001111010001100BBB 7	0001110011100010B111 10	001101B00110B110000B 7
00017777070017700015 40.7%	00013702677122700137 40.0%	01771712477367700235 55.0%

82ne	83ne	84d
she losted her slipper	we eated and we fished	get different colors
01110000011011100000 8	01100000101110000011 8	011100B111111000011 12
01110000011011100001 9	00100000100110000BB1 5	0111000111111000011 12
00010000011111100001 8	00100001100110000001 6	0111000111111000001 11
0111000001111110B000 9	0010000110001000000B 4	001100B111111000111 12
01110000011000100000 6	00100001100110000001 6	0111000111111000BB1 11
01110000011011100001 9	0010000110011000000B 5	0011000111111000011 11
00010000011111100001 8	00000000100010000001 3	0111000111111000011 12
05570000077366700004 40.7%	01600004701570000015 26.4%	05770007777777000157 57.8%
00010000011111100001 8	00000001100010000001 4	00110000011110BB011 9
01110000011111100B01 10	00000001100110000001 5	011100B111111000000 10
0001000001101110B000 6	00100001100110000B11 7	011100BB011110B0011 10
00010000011011100B11 8	01100001100010110001 8	0011000111111000011 11
00010000011111100B00 7	00100001100110010B11 8	01110001111110000B1 11
01110000011111100000 9	00100001100010000B01 5	001100011111100B011 11
00010000011011100000 6	00100001100010000001 5	0011000111111000011 11
02270000077477700013 38.5%	01500007700370120027 30.0%	03770005577777000056 52.1%
01110000011111100000 9	0110B001100010000BB1 6	00110001111110000B1 10
01110000011111100000 9	00100001100110110001 8	001100B111111000011 11
01110000011111100111 12	00100001100110010B01 7	001100B111111001111 13
00010000011011100111 9	11100001100110000001 8	01110001111111111111 16
11110000011111100001 11	00100001100010110001 7	0011000111111000011 11
01110000011111100001 10	00100001100010010001 6	0011000111111000000 9
01110000011111100000 9	0110B001100110000B01 7	001100B1111110B0011 11
16670000077677700224 49.3%	13700007700470240007 35.0%	01770007777777112256 57.8%

85d	86ne	87d
piece of paper and cut	she didnt have no food	first you cut a lid
0001111111111111110 16	01110000110111100000 9	000B1111110111000000 9
00011111101111101110 14	00010000110011101100 8	00011111110011010001 11
00001111100111111110 13	00010111110111100000 10	00011101110111010001 11
00001111100111111110 13	01110000110111101100 11	01111101110111010001 13
00011101100111100110 11	00110000110001101100 8	000001011100B0010001 6
00B01111101111111110 14	00010000110011100000 6	00001101110011010001 9
00000111100011111110 11	00010000110111100100 8	00001100110001010001 7
00036767713677756770 65.7%	02370111770467703400 42.8%	01136726770356060006 47.1%
00011100101111111110 13	00010000110111101100 9	00001101110011010001 9
00B01100100B11101110 9	11110111110011101100 14	000111011100B1010000 8
00001111100B11101110 11	0001000011011110110B 9	00001100110011010B01 8
00001100100111111110 11	00110000110111101100 10	00011101110011110001 10
00001111100111111110 13	00010111110111101100 12	00011111110011010001 11
00001111100B11111110 12	11110000110111101100 12	000111011100110100B1 10
00001100100111111110 11	00110000110111101100 10	00011101110011010001 10
00017733701477757770 57.1%	22470222770677707700 54.2%	00057716770067170006 47.8%
00001111100111111110 13	01110111110111101100 14	00011101110111000001 10
00000111101111101110 12	01110111110011101100 13	00011101110011000001 9
00011111111111111110 16	00010000110111101100 9	00001101110111000001 9
00000011111111111110 13	01110000110011101100 10	00011111110111000001 11
00001111101111111110 14	01110011110111100100 12	00001111110011110001 11
00001111100111111110 13	11110000110011101100 11	00000111110011010001 9
000111111B1111101110 14	1111011111011110000B 13	00011101110011010B01 10
00025677725777757770 67.9%	26670344770477705600 58.5%	00046737770377130007 49.3%

88d	89ne	90ne
you roll up the snow	I didnt see no horse	only have mouses now
011100B1100111110011 12	00000111001101100011 9	00011001110000001000 6
01110001101111110011 13	00011111001101100011 11	00011000110000001000 5
01110011101101110B11 13	0001111100110110C011 11	00011000110000001000 5
011100B11001111100B1 11	0000001100010110C011 7	00011000110000001000 5
01110001101111110011 13	00000011000101100001 6	0001100011000B001000 5
01110011100101110BB1 11	01000011000111100011 9	00011000110001111000 8
01110000000111110000 8	01000011011101100011 10	000110C0110000111000 7
07770026603757770046 57.9%	02022377014717700067 45.0%	00077001770001227000 29.3%
01110001100111110001 11	010001110011000B0000 6	00011001110000001B11 8
011100011011111100B1 12	0001111100000110B111 10	0001100011000B001000 5
011100B1100111110011 12	01000111001101100011 10	011110C0110000001000 7
01110001100111110B11 12	00000011011101100001 8	00011000110000001000 5
01110001101111110011 13	00011111011101100011 12	00011011110000001011 9
011100B1100111110111 13	0100001100110110B011 9	000110011100000010B0 6
01110001100111110111 13	00000011011101100011 9	00011000110000001000 5
07770007702777770257 61.7%	03022477036606600156 45.7%	01177013770000007022 32.1%
01110001101111110011 13	01000011000101100011 8	00011001110000001000 6
01110011100111110011 13	01011111011101100001 12	000110C0110000001000 5
01110001101111110111 14	01001111001101100011 11	00011011110000111000 9
01110011100111110011 13	01000011011100000011 8	00011000110000111001 8
01110001101100010B11 10	01000011011100100000 7	00011001110000111000 8
01110001100100000001 7	00000011001101100011 8	00011001110000001011 8
01110001101111110B01 12	01001111011101100011 12	000110111100000010B1 8
07770027704755560157 58.5%	06013377046705600056 47.1%	00077025770000337013 37.1%

91ne	92n	93de
the dog swam away	little girl named sissy	you cooks it for a hour
0111011100B111110011 13	00011110000000000100 5	11110000010110001010 9
01110001000011110011 10	00001110000000000100 4	01110000010110001010 8
00110111001111110011 13	00011110000000001100 7	01110000010110111110 11
01110111000001110011 11	01111110000000000100 7	01110000010110111010 10
01111111000000110011 11	000111100000000B1100 7	01110000010110011010 9
00010111000000010011 7	00011110000000000100 5	01110000010010001010 7
00010001000111110001 8	00011110000000001100 7	01110000010010011010 8
04571557001345670067 52.1%	011677700000000033700 30.0%	17770000070570247170 44.3%
0111B111000001110011 11	00011110000000001100 7	0111000001001001101B 8
01111111000111110111 15	00011110000000000100 5	01110000010010111000 8
11110111000111110001 12	001111100000000B00100 6	0111000B011110111011 12
01110001000000110011 8	00011110111100111100 12	01110000010010111010 9
01110111000000010011 9	00011110000000000100 5	01110000010110001010 8
011101110B0000110011 10	0001111000000B111100 8	01110000010110111011 11
01110111000000110011 10	00011110111100111100 12	01110000010010111010 9
17771667000223670167 54.2%	00177770222200344700 39.3%	07770000071370567062 46.3%
0111011100B111110011 13	00001110111100B00100 8	01110000010110111011 11
0111B111000111110011 13	00011110000000000100 5	01110000010110111000 9
01110111000000110011 10	0011111011110B111100 13	01110000010110011001 9
00110111000111111111 14	00111110000000001100 8	01110000010010111110 10
00010111000001111111 11	000111100000000B1100 7	01110000010110011110 10
11110111000001110000 10	00011111111100B00100 10	0111000B010010001010 7
1111011100B0B01B011 10	00011110000000B0010B 5	0111000001B010111010 9
25670777000335672266 57.9%	00267771333300133700 40.0%	07770000070470467252 46.3%

94n	95n	96de
killed the indians and	over in the woods and	who hits and theyre
000001101110B0000010 6	0000100111111111101 13	000100001011100000B1 6
00000011111000000010 6	00111001111101111101 14	00000000101110000011 6
00000110111011111110 12	00111011111111111100 15	00010000010010000011 6
000001111110BBB00010 7	00111001111100000100 9	000100001001100000BB 4
00000110000000000010 3	00111011111100111100 13	00010000100110000011 6
000001101110B0000010 6	00111001111100000100 9	00010000100110000011 6
00000011111000000010 6	00111011111111111100 15	00010000111110000011 8
00000573666011111170 32.9%	00667037777734555702 62.8%	000600000713770000056 30.0%
0000011011100B000010 6	00111011111100111101 14	00010000100010000011 5
00000111111000BBB11B 8	00111011111101111100 14	00010000100110000011 6
00000110111000000010 6	0011101111110B111101 14	011100001B011000B011 8
000000100110BB000011 5	00111011111100011111 14	00110000100010000001 5
00000110111000000010 6	00111001111100000100 9	00010000100110000011 6
0B000110111000000010 6	0011100111110BB11100 11	00010000100010000011 5
00000010011000000011 5	00111011111100011111 14	00110000100010000001 5
00000571577000000172 30.0%	00777057777701366724 64.2%	01370000700370000057 28.5%
000000111110BB000010 6	00111011011101111100 13	00010000100110000011 6
00000111111000000010 7	00111011111111111101 16	01110000100110000011 8
00000011111011111111 13	00111011111101111100 14	000100B0100110000011 6
000001111110BB000010 7	00111011111100111101 14	00010000100010000011 5
00000110111000000010 6	1111100111110011110B 14	00010000100110000011 6
00000110111000000010 6	00111001111100111101 13	00010000101110000011 7
00000110111000000010 6	00001111111100111101 13	0011B000111110000011 9
00000574777011111171 36.4%	11667157677713777704 69.3%	01270000712670000077 33.6%

97ne	98n	99de
saddle begin to get	when I thought it was	take a scissor and cut
0000B110001111110011 10	00001000001111100100 7	00011000000000011111 7
000011100BBB01110111 9	00111000001111111111 13	00111110000000011111 10
00001110001111110111 12	00011010001111101111 12	00111010000000011111 9
00000000B00000110111 5	00111010001111100111 12	0011101000B111111111 13
00001110000111110111 11	11111000111111100111 15	00111010000111111111 13
0000011000B001110011 7	00001000111111111111 13	0001101000B000011111 8
00000110000011110011 8	01111010001111101101 13	01111010000000001111 9
00003660002346770477 44.3%	12457030227777724756 60.6%	01577160000222267777 49.3%
000000100000001100B1 4	011110100BB111100111 12	00111010000B00001111 8
00001110000111110011 10	01111010000000100111 9	0011100000B111101111 11
00001110000001111111 10	00011000001111100111 10	00011010000000011111 8
00001110BBB11110111 10	00011010011111100111 12	0011111000B000011110 9
00001110000001110011 8	01111000001111100100 10	0001111000B000011111 9
0000B110000B11110011 8	0011101000BB00100111 8	00111110BBB000011111 10
00001110000011110111 10	00011010011111100111 12	00111110000000011110 9
00005670000146771367 42.8%	03477050024555700766 53.5%	00577460000111157775 45.7%
00000110000001110011 7	11111000001111100100 11	0011101000B000011111 9
0000B110001110010011 8	00011000001111111101 11	00111010000000011111 9
00001110001110110011 10	0000101000B111100111 9	001110100BB111111111 13
00000000000001110011 5	00001010001111111111 12	00111010000000011111 9
00000110001111110011 10	01111010001111101101 13	00011010000000011111 8
00000110000B10010011 6	00111010001111100100 10	00011010000111111111 12
0000B11B00B001110011 7	0011101000111110B111 12	00111010B0B000011111 9
00001660003340570077 35.0%	12457050006777723735 55.6%	00577070000222277777 49.3%

100de

it still bes messy but

011000B11000B0000110 6

01100011100B00001110 8

00100111100110001110 10

00100011100000000110 6

00100001100010000B10 5

00100001100000000110 6

00101111100000000110 9

02701247700120004670 35.7%

0010000110000000B110 5

001000B11000000B0010 4

00100B011000B000B010 4

00100011100000000110 6

11100001100000000110 8

00100001100000000110 5

00100011100000000110 6

11700027700000001570 27.1%

001000011000B0000010 4

11100001100010000110 8

0010000110B00B00B110 5

00100001100000000010 4

01100001100010001110 8

00100001100010000110 6

00100001100010B0B110 6

12700007700040001570 29.3%

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