

Glyndon D. Riley

SSI-4

Stuttering Severity Instrument

Fourth Edition

Examiner's Manual and Picture Plates



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Fourth Edition

Examiner's Manual

Glyndon D. Riley



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Preface

The original *Stuttering Severity Instrument* (SSI, G. D. Riley, 1972) was developed as a tool to monitor the treatment effects of individuals in clinical practice as well as a research instrument for individuals studying the effects of stuttering. The SSI was modified in 1980 (SSI-R; G. D. Riley, 1980) and again in 1994 as the SSI-3, which was offered “with the recognition that it is only a partial description of severity and that any diagnostic conclusions are the product of careful consideration of all available information” (G. D. Riley, 1994, p. 1). The SSI-4 attempts to offer more avenues of evaluation, including self-reports and additional beyond clinic and telephone samples.

SSI (1972), SSI-R (1980), and SSI-3 (1994)

Early methods of evaluating stuttering severity include scales, self-reports, and numerical formulas. The *Sherman-Lewis Scale* (D. Lewis & Sherman, 1951) used audiotaped samples for comparison and rating. This procedure was complicated and ignored the possible influence of visible behaviors related to stuttering. Visual cues are not very important in determining frequency, but they can be important in clinical and research conditions that require more detailed descriptions of the stutterings (Coyle & Mallard, 1979; Martin, 1965; Martin, Haroldson, & Woessner, 1988; Williams, Wark, & Minifie, 1963). People who stutter might decrease their observable distracting behaviors during treatment but still be assessed as having the same level of severity using audiotaped samples.

The *Scale for Rating Severity of Stuttering* (Johnson, Darley, & Spriestersbach, 1963), which has become known as the “Iowa Scale,” has been widely used by clinicians to rate severity and monitor treatment changes. It incorporates seven parameters. Van Riper (1972) revised the Iowa Scale, regrouping the parameters to provide a profile of frequency, tension, duration, and postponement-avoidance.

Van Riper (1982) noted that the SSI and the SSI-R were widely used in clinical practice and research (Van Riper, 1982). A survey of the *Journal of Speech and Hearing Research*, the *Journal of Speech and Hearing Disorders*, and the *Journal of Fluency Disorders* yielded 53 references to the earlier editions of the SSI. It was used to describe the level of stuttering in experimental groups in 34 studies; it was included in a review of related literature in 7 reports; it was used as part of the description of stuttering or to track treatment effects in 6 articles; and it was reviewed in some depth and compared to other measures in 6 studies (Hall, Lynn, Alteiri, Segers, & Conti, 1987; Healey, 1991; K. E. Lewis, 1995; Mowrer, 1991; G. D. Riley, 1988, 1991). Comments and recommendations in these reviews, as well as correspondence with other professionals, formed the basis for the changes incorporated into the current revision. The Lewis review of the SSI-3, which used 20 graduate students as raters, indicated that the SSI-3

overall judgments of mild, moderate, or severe were useful scores. She also replicated the reliability of the data reported in the SSI-3 manual.

Characteristics of the SSI-4

The *Stuttering Severity Instrument-Fourth Edition* (SSI-4) retains the behavioral measures (frequency, duration, and physical concomitants) that were included in the SSI-3 (G. D. Riley, 1994). Frequency is expressed in percentage of syllables stuttered (%SS) and converted to a scale score of 2-18. Duration of the three longest stuttering events is timed to the nearest tenth of a second and converted to a scale score of 4-18. Four types of physical concomitants are rated on a 0-5 scale of degree of distractibility and then expressed as a score of 0-20. The resulting total score can be 0-56. The tables of normative data remain the same as in the SSI-3.

Several measures and types of judgments have been added to the SSI-4 to provide a more comprehensive assessment of stuttering severity.

1. Beyond clinic speaking samples are recommended.
2. Telephone samples are described and encouraged.
3. The Computerized Scoring of Stuttering Severity (Version 2; CSSS-2.0) has been integrated into the SSI-4.
4. A speech naturalness rating has been added to the Examiner Record Form.
5. The Clinical Use of Self-Reports (CUSR), a scale measuring self-report, is included (Appendix A).

These added features are designed to help users adapt the SSI-4 to meet a variety of clinical and research needs.

Acknowledgments

Jeanna Riley, speech pathologist, psychologist, and wife, is coauthor of the various editions of the SSI in all but name. Development of the SSI would not have been possible without her insights, experiences, and ongoing collection of research-quality data. She operates at a level of understanding and caring that most of us can appreciate but not attain.

Suzanne McCormick and Matt Ronayne, expert clinicians in our private practice, inspired excited verbal exchanges with children that resulted in spontaneous speech samples including abnormal disfluencies. These clinicians helped provide the insights and reliable data required for SSI development.

Long-suffering graduate students at California State University, Fullerton, were an important and necessary ingredient in the development of this instrument. All served as “subjects,” and many produced graduate projects related to improving the reliability and usefulness of the SSI-3 and SSI-4.

1. Introduction to the SSI-4

Professionals who study the stuttering habits of individuals need well-constructed, standardized instruments that assess the severity and improvement of an individual's stuttering habits, specifically, instruments that measure (a) the frequency of stuttering events, (b) the duration of stuttering events, (c) the physical concomitants exhibited by the stutter, and (d) the naturalness of the individual's speech. As documented in the chapters of this manual, the *Stuttering Severity Instrument–Fourth Edition* (SSI-4) has been designed to measure these four areas of speech behavior. In this introductory chapter, we will describe the SSI-4 and the principal uses of the instrument.

Description of the SSI-4

The SSI-4 was normed on a sample of 72 preschool-aged children, 139 school-aged children, and 60 adults. The SSI-4 is a norm-referenced stuttering assessment with proven reliability and validity. The SSI-4 has the following features:

- the Examiner's Manual, which includes the Clinical Use of Self-Report (CUSR; see Appendix A) as well as a set of Stimulus Materials (Picture Plates and Reading Plates)
- 50 Examiner Record Forms
- a CD containing the Computerized Scoring of Stuttering Severity (Version 2; CSSS-2.0) software

Each component is designed to assess and monitor stuttering severity in both children and adults, for clinical and research purposes.

This manual provides administration guidelines, an explanation of the statistical properties of the instrument, a description of each type of score used in the SSI-4, and the CUSR, as well as Picture and Reading Plates to encourage guided conversation. The Examiner Record Form provides a formalized method for measuring and interpreting the individual's frequency, duration, physical concomitants, and severity of stuttered speech. Chapter 4 is devoted to the Clinical Use of Self-Report (CUSR), a screening instrument designed to quantify the selected self-reports of people who stutter prior to, during, and/or following their treatment. The Computerized Scoring of Stuttering Severity (Version 2; CSSS-2.0) CD contains a printed insert describing how to use the software to collect the data necessary to measure an individual's stuttering pattern.

Development of the SSI-4 was guided by the same criteria that were used to develop the original SSI:

1. It must be simple enough to be used by a trained clinician in any reasonable clinical setting.

2. It must be as objective as possible. The behaviors to be judged must be externally visible and/or audible.
3. It must be sensitive enough to register changes in severity that are clinically significant even if the differences are not apparent to an untrained observer.
4. It must have statistical characteristics (reliability and validity) that render it acceptable for clinical and research use.
5. It must have normative data so that a given sample of stuttering can be located on a standardized scale.
6. It should be useful for both children and adults.

The SSI-4 retains the measures of frequency, duration of the three longest stutterings, and physical concomitants; a naturalness rating procedure has been added as part of the routine administration. Naturalness ratings are gaining in popularity because some treatments reduce naturalness in order to reduce stuttering frequency. Martin, Haroldson, and Triden (1984) described a naturalness rating scale; Onslow and Ingham (1987) discuss the usefulness and limitations of such scales. We describe and recommend the use of self-rating measures and other samples taken on the phone and beyond the clinic.

Uses of the SSI-4

The SSI-4 measures stuttering severity in both children and adults and can be used for clinical as well as research purposes. The SSI-4 can also be used in conjunction with the *Stuttering Prediction Instrument for Young Children* (SPI; G. D. Riley, 1981) to evaluate the effects of therapy.

Test Administration

This chapter includes five topics: (a) diagnostic perspective, (b) administration of the SSI-4 to nonreaders, (c) administration of the SSI-4 to readers, (d) optional speaking samples, and (e) interpretation of results.

Diagnostic Perspective

Numerical data such as those resulting from the SSI-4 are an important part of the diagnostic process. Most clinical approaches require several types of information in addition to testing data. Examples of other diagnostic input include (a) an in-depth interview with the person who stutters (and/or the individual's parents or other relative); (b) direct observation and description of the person's speech and language; (c) self-report measures such as the *Subjective Screening of Stuttering Severity, Locus of Control, and Avoidance: Research Edition* (SSS-R; J. Riley, G. D. Riley, & Maguire, 2004); the Clinical Use of Self-Reports (CUSR; Appendix A of this manual); the *Perception of Stuttering Index* (PSI; Woolf, 1967); and the *Overall Assessment of the Speaker's Experience of Stuttering* (OASES; Yaruss & Quesal, 2006); (d) reports of prior speech and language evaluations; (e) audiology assessment; (f) medical and psychological records and reports; and (g) interviews with teachers, coworkers, and/or other professionals.

Administering the SSI-4 to Nonreaders

Administration of the SSI-4 to nonreaders results in the following types of scores: frequency, duration, physical concomitants, naturalness, and total score. Any individual who is below the third grade in reading ability is included in the non-reader group. This section contains information on each of these scores.

Frequency Score

The frequency score is based on the percentage of stuttered syllables (%SS) in normal speech. All speaking samples should be video- or audiotaped. The use of a good microphone rather than a built-in microphone is recommended. Lapel microphones are ideal. If the speaking sample is not videotaped, the examiner needs to take notes on the visual aspects of the stuttering. The physical concomitant descriptors provide an outline for these notes (these are listed under Physical Concomitants on page 1 of the Examiner Record Form).

Collecting Speech Samples

Plates I through IV, found in this manual, contain pictures designed to provide verbal stimulation (however, any stimulus picture that gets the individual to talk can be used). In the pictures provided, something appears to be wrong or out

of place—a pig is flying, a volcano is erupting, a plane is about to crash, and so forth. The examinee is shown a picture and a leading statement is made to encourage the individual to engage in conversation. Avoid questions or statements likely to result in one-word responses. As the examinee talks, interject questions, comments, and mild disagreements to simulate the pressures of normal conversation. The resulting speaking sample is similar to the “standard talking sample” described by Costello and Ingham (1984) and to the “pressure” speaking condition described by Culp (1984).

A sample of dialogue using Plate III follows:

- EXAMINER: That plane looks like it is going to crash. *(Wait. Some individuals need 5 seconds or more to respond.)*
- INDIVIDUAL: It's on fire. It's gonna miss the ship.
- EXAMINER: I think it will hit the box on the ship.
- INDIVIDUAL: N, n, n, no. Th, th, th, that box is too far away.
- EXAMINER: Why can't it just turn or maybe fall apart?
- INDIVIDUAL: *(Continues to talk. If the dialogue contains normal conversational pressure, the individual may demonstrate his or her typical stuttering patterns.)*

Alternative Methods for Collecting Speech Samples

Two clinic speaking samples are required; beyond clinic speaking samples (i.e., samples collected at home, at work, or on the telephone) are optional but encouraged. Most individuals don't become comfortable enough to speak freely during the first visit to the clinic or laboratory. Two clinic visits are often necessary for collecting speech samples. Also, a parent or other relative should be asked to provide a recording of the individual's speech at home. Most families have audio- or video-recording equipment. In some cases the clinician may need to provide an audio recording device and microphone. Instruct the parent or other relative to choose a time when only the individual and one listener (usually a parent or other relative) are in the room. If necessary, send home some stimulus pictures and suggest ways they can be used. The video- or audiotaped speaking samples made in the clinical setting and at home are used to determine frequency and duration measures, which are then converted to scale scores using the appropriate table on page 1 of the Examiner Record Form.

Using the CSSS-2.0 to Record Speech Samples

The Computerized Scoring of Stuttering Severity (Version 2; CSSS-2.0) software is provided to facilitate the calculation of frequency and duration. The CSSS-2.0 requires the user to press the left mouse button once for each fluent syllable and to press and hold down the right mouse button for the duration of each stuttered syllable. This procedure automatically produces a record of the percentage of syllables stuttered (frequency) and the duration of the three longest stuttering events. See the insert included with the CSSS-2.0 for detailed instructions on how to use the software and store the results.

Alternatively, the examiner can count the total syllables and the syllables stuttered either by hand or using the keyboard of a computer. To obtain the %SS, count the total number of syllables and count the stuttered syllables. Typical syllable rates range from two syllables per second in very slow speech to six or more in rapid speech. It is usually impossible to count out loud or “under your breath” fast enough to keep up with syllable production. To perform a syllable count by hand, you can write on the Examiner Record Form or on a blank sheet of paper. Make a dot for each fluent syllable and a slash mark for each stuttered syllable. Or, the examiner can count the syllables and stuttering events using a computer. Use the period and slash keys (located next to each other) to count syllables and stutterings. A sample syllable and stuttering event count looks like this:

This sample contains 92 syllables and 18 stuttering events.

Use the Nonreaders Table on page 1 of the Examiner Record Form to convert the average %SS to a scale score of 4, 6, 8, 10, 12, 14, 16, or 18. Record the score in the Frequency Score box on the Examiner Record Form. Page 1 of a completed Examiner Record Form is shown in Figure 2.2.

The duration score is based on the clinic and beyond clinic speaking samples. As noted in the previous section, the CSSS-2.0 will generate a variety of types of data on duration (see also the insert that comes with the software). Alternatively, you can measure the duration (in seconds) of the three longest stuttering events with a stopwatch. You may need to play the speaking samples more than once to be sure the three longest events have been selected. These three durations are added together and then divided by three to obtain an average duration. Durations of less than 1 second are difficult to measure; they are estimated to be “fleeting” or “half-second” and are assigned duration scores of 2 points or 4 points, respectively. Once the average duration has been computed, it is converted to a scale score using Table 2.1 (a conversion table can also be found on page 1 of the Examiner Record Form).

How to Count Syllables and Stuttering Events Manually

An example using a few words of a nonreader sample: "I'm gonna get uhm de de de dem too. A ---- nd dis one. A ape. Ge ge get Ste ----- vy down. You are ih ih ih in de way."

1. Make a dot for each syllables.
2. Count the syllables. How many? _____
3. Transfer this number to the space indicated on the Examiner Record Form.
4. Make a slash mark for each stuttering event in the spaces indicated on the Examiner Record Form or on a blank sheet of paper.
5. Count the stuttering events. How many? _____
6. Check your counts with the numbers indicated below.

	Stuttering Event 1										Stuttering Event 2										
Syllables:	<u>I'm</u>	<u>gonna</u>	<u>get</u>	<u>uhm</u>	<u>de</u>	<u>de</u>	<u>de</u>	<u>dem</u>	<u>too.</u>		<u>A</u>	<u>----</u>	<u>nd</u>	<u>dis</u>	<u>one.</u>	<u>A</u>	<u>ape.</u>				
	1	2	3	4	5	6			7		8			9	10	11	12				
	Stuttering Event 3										Stuttering Event 4				Stuttering Event 5						
Syllables:	<u>Ge</u>	<u>ge</u>	<u>get</u>							<u>Ste</u>	<u>-----</u>	<u>vy</u>	<u>down.</u>		<u>You</u>	<u>are</u>	<u>ih</u>	<u>ih</u>	<u>in</u>	<u>de</u>	<u>way.</u>
	13									14		15	16		17	18	19			20	21

Nonreader Frequency Computations

Clinic Speaking Sample 1

Syllable Count (between 150 and 500 syllables)	21
Stuttering Events (Mark below or use blank paper)	5
Computation $\frac{\text{Stuttering Events}}{\text{Number of Syllables}} = \frac{5/21}{} \times 100 = \frac{23.8}{} \%SS$	

Figure 2.1. Directions for counting syllables and stuttering events and a completed portion of page 3 of the Examiner Record Form.

Stuttering Severity Instrument-4

SSI-4

Examiner Record Form

Glyndon D. Riley

Identifying Information

Name Greg
 Grade Preschool
 Date of testing 10-24-2009
 School Buckley
 Preschool ☒ School Age ☐ Adult ☐

Female ☐ Male ☒
 Date of Birth 8-8-2005
 Age 4-3
 Examiner Mr. Shipman
 Reader ☐ Nonreader ☒

Frequency (Use Readers Table or Nonreaders Table, not both)

Readers Table

1. Reading Task		2. Speaking Task	
%SS	Task Score	%SS	Task Score
1	2	1	2
2	4	2	3
3-4	5	3	4
5-7	6	4-5	5
8-12	7	6-7	6
13-20	8	8-11	7
21 & up	9	12-21	8
		22 & up	9

Nonreaders Table

3. Speaking Task	
%SS	Task Score
1	4
2	6
3	8
4-5	10
6-7	12
8-11	14
12-21	16
22 & up	18

Frequency Score (use 1 + 2 or 3) **18**

Duration

Average length of three longest stuttering events timed to the nearest 1/10th second

Fleeting	(.5 sec or less)
Half-second	(.5-.9 sec)
1 full second	(1.0-1.9 sec)
2 seconds	(2.0-2.9 sec)
3 seconds	(3.0-4.9 sec)
5 seconds	(5.0-9.9 sec)
10 seconds	(10.0-29.9 sec)
30 seconds	(30.0-59.9 sec)
1 minute	(60 sec or more)

Scale Score

2
4
6
8
10
12
14
16
18

Duration Score **6**

Physical Concomitants

Evaluating Scale 0 = none
 1 = not noticeable unless looking for it
 2 = barely noticeable to casual observer
 3 = distracting
 4 = very distracting
 5 = severe and painful looking

Distracting Sounds: Noisy breathing, whistling, sniffing, blowing, clicking sounds

0 1 2 3 4 5 **0**

Facial Grimaces: Jaw jerking, tongue protruding, lip pressing, jaw muscles tense

0 1 2 **3** 4 5 **3**

Head Movements: Back, forward, turning away, poor eye contact, constant looking around

0 1 2 3 4 5 **0**

Movements of the Extremities: Arm and hand movement, hands about face, torso movement, leg movements, foot-tapping, or swinging

0 1 **2** 3 4 5 **2**Physical Concomitants Score **5**

Total Score

Frequency **18** + Duration **6** + Physical Concomitants **5** = **29** Percentile **89%** Severity **Severe**

Figure 2.2. Sample page 1 of Examiner Record Form completed for Greg, a nonreading preschooler.

Table 2.1
Average Duration of Stuttering Event and Corresponding Scale Score

Duration		Scale score
Fleeting	(.5 seconds or less)	2 points
Half-second	(.5 to .9 seconds)	4 points
One full second	(1.0 to 1.9 seconds)	6 points
2 seconds	(2.0 to 2.9 seconds)	8 points
3–5 seconds	(3.0 to 4.9 seconds)	10 points
5–9 seconds	(5.0 to 9.9 seconds)	12 points
10–29 seconds	(10.0 to 29.9 seconds)	14 points
30–59 seconds	(30.0 to 59.9 seconds)	16 points
60 seconds or more	(60.0 seconds or more)	18 points

The scale score is recorded in the Duration Score box on the Examiner Record Form. For example, say an individual's longest stutterings were 4.2, 2.6, and 7.4, for a total of 14.2; dividing by 3 yields an average duration of 4.7 seconds, which converts to a scale score of 10.

Physical Concomitants

The physical concomitants score is based on observations of all of the speaking samples that are scored from videotapes or live observations. As noted, the CSSS-2.0 software is not used for this score. The examiner can replay the videotape an extra time to rate the physical concomitants more accurately. When the samples are scored live, notes need to be made for later review and verification of first impressions. The scoring decisions should be made as soon as possible after the speaking samples are obtained. Auditory and visual concomitants associated with the stuttering events should be scored on the following scale, which is also printed on the first page of the Examiner Record Form:

- 0 = none
- 1 = not noticeable unless looking for it
- 2 = barely noticeable to casual observer
- 3 = distracting
- 4 = very distracting
- 5 = severe and painful looking

Only observable phenomena associated with the stuttering should be scored. General behavior such as restlessness is not rated. Physical concomitants are categorized as follows:

Distracting Sounds

This category includes any nonspeech sounds that accompany the stuttering. For example, the examinee may continually clear his or her throat or may swallow. Other common sounds include noisy breathing, whistling noises, sniffing, blowing, and clicking sounds. The evaluator must determine the extent to which these sounds are distracting to a listener on a 1–5 scale.

Facial Grimaces

Any abnormal movement or tension about the face counts in this category. Examples of abnormal facial behaviors are pressing the lips together tightly, pursing the lips, tensing jaw muscles, blinking the eyes or partially closing the eyes, having the tongue protrude, and jerking the jaw.

Head Movements

Head movements generally consist of turning the head away from the listener to avoid eye contact, looking down at the feet, scanning the room, or looking at the ceiling.

Movements of the Extremities

Any general body movement such as shifting in the chair counts in this category. Other common movements include specific movement of a limb, such as foot-tapping or swinging, excessive movement of the hands about the face, fidgeting with something in the hand, or swinging an arm.

A separate judgment is made for each anatomical area (face, head, extremity) and for distracting sounds. Each of these judgments is scored between 0 and 5 based on the evaluating scale. The four scores are added together to obtain the physical concomitants score, which can range from 0 to 20; this score is recorded in the appropriate box on the Examiner Record Form (see Figure 2.2 for an example).

Total Score

The total score is obtained by adding the scores for frequency, duration, and physical concomitants together (see Figure 2.2). The relative severity of stuttering for a given individual can be ascertained by converting the total score to a percentile rank or severity equivalent. These are shown in Table 2.2 (preschool age), Table 2.3 (school age), and Table 2.4 (adults). These tables can also be found on page 2 of the Examiner Record Form.

Naturalness

A speech naturalness rating scale can be found at the bottom of page 4 of the Examiner Record Form. The examiner should make a judgment about naturalness

Table 2.2
Percentile Ranks and Severity Equivalents of SSI-4 Total Scores
for Preschool-Age Children (*N* = 72)

Total score	Percentile rank	Severity equivalent
0-8	1-4	Very mild
9-10	5-11	
11-12	12-23	Mild
13-16	24-40	
17-23	41-60	Moderate
24-26	61-77	
27-28	78-88	Severe
29-31	89-95	
32 and up	96-99	Very severe

Table 2.3
Percentile Ranks and Severity Equivalents of SSI-4 Total Scores
for School-Age Children (*N* = 139)

Total score	Percentile rank	Severity equivalent
6-8	1-4	Very mild
9-10	5-11	
11-15	12-23	Mild
16-20	24-40	
21-23	41-60	Moderate
24-27	61-77	
28-31	78-88	Severe
32-35	89-95	
36 and up	96-99	Very severe

Table 2.4
Percentile Ranks and Severity Equivalents of SSI-4 Total Scores
for Adults (*N* = 60)

Total score	Percentile rank	Severity equivalent
10–12	1–4	Very mild
13–17	5–11	
18–20	12–23	Mild
21–24	24–40	
25–27	41–60	Moderate
28–31	61–77	
32–34	78–88	Severe
35–36	89–95	
37–46	96–99	Very severe

immediately after scoring the speaking sample. Speech naturalness refers to the degree to which the speaker sounds like most normal speakers of the same gender, age, and dialect. You should base this judgment on the following scale: 1 = *highly natural sounding speech*; 9 = *highly unnatural sounding speech*. Circle your rating of naturalness on the scale provided in the Examiner Record Form.

Administering the SSI-4 to Readers

This section contains information on the scores generated when the SSI-4 is administered to individuals who are readers.

Frequency Score

Individuals who can read at the third-grade level or above (“readers,” for present purposes) are administered two measures of frequency of stuttering: a reading task and a speaking task. The reading task is administered first. Using reading material at the appropriate grade level, the person reads a passage of about 150–300 syllables:

Third grade, Plate V or VI

Fifth grade, Plate VII or VIII

Seventh grade, Plate IX or X

Adult, Plate XI, XII, XIII, or XIV

The number of syllables for each passage is noted on each plate. Percentage of stuttered syllables (%SS) is computed in the manner described in the "Administering the SSI-4 to Nonreaders" section.

Next, a speaking task is administered. The speaking task requires the person to converse with the examiner about an age-appropriate, familiar topic. For younger individuals, the Picture Plates can be used (Plates I through IV). For older individuals, topics about school, jobs, recent holidays, favorite TV shows, books, or current movies are appropriate. The examiner encourages the individual to do most of the talking by making a short statement that stimulates a response. Normal conversational pressures (as in the sample dialogue presented in the nonreader section) are included. Using the frequency-counting methods described in the preceding section, the examiner counts syllables and stuttering events, calculates the average %SS, and records these data in the appropriate places in the Examiner Record Form.

The %SS is computed separately for the reading task and the speaking task. Each %SS is assigned a task score using the appropriate tables in the Examiner Record Form, and these two task scores are added together with a resulting total between 0 and 18; it is recorded in the box labeled Frequency Score.

Duration, physical concomitants, and naturalness are scored as described in the preceding section, "Administering the SSI-4 to Nonreaders."

Beyond Clinic Speaking Samples

Clinicians and researchers often need to assess the transfer of changes in stuttering to settings outside of the clinic or laboratory. Speaking samples can be video- or audiotaped at home, at work, or in some other setting. The individual who stutters should converse with a person who evokes a representative sample of the stuttering. The frequency and duration of this sample can be tracked as a transfer measure. If the results are included in the SSI-4 total score, the score may not relate directly to the normative data.

People who stutter often report that talking on the telephone presents a special challenge. You can track telephone speech by recording the person making a phone call. For instance, the person might call a travel agency to describe some vacation plans and ask for brochures or choose some other appropriate listener and topic. Notification of the other speaker is not an issue because only the speaker's part of the conversation is recorded.

Interpretation of Test Results

Normative data are provided for each of three age levels. Table 2.2, for the pre-school-age group (ages 2-10 to 5-11), was calculated from a sample of 72; Table 2.3, for the school-age group (ages 6-0 to 16-11), was calculated from a sample of 139; Table 2.4, for the adult (17-0 and older), was calculated from a sample of 60. The individuals were drawn from public schools, university clinics, community clinics, and private practice. All individuals resided in California at the time of the evaluations. Very few of the individuals under age 8 had had prior treatment, but most of the individuals older than 8 had experienced prior treatment. The

sample thus represents the types of clients likely to be seen for evaluation by most practitioners.

Expressing the level of stuttering severity as a percentile rank is more precise than using the adjectives *mild*, *moderate*, and so forth, because the percentile ranks are the product of mathematical procedures, whereas the descriptive terms are more subjective. The means and standard deviations for the parameters and the total scores at each age level are shown in Table 2.5. The SSI-4 can be used as part of the diagnostic evaluation from which goals and objectives are developed. It can assist in tracking changes in severity during and following treatment. It can also be used to describe severity distribution in experimental groups that include people who stutter. In addition, it can be used to assist in the process of evaluating the effectiveness of other stuttering severity measures.

Table 2.5
Means and Standard Deviations for the Three Parameters and the Total Scores at Each Age Level

Parameter	Preschool age		School age		Adult	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Frequency	11.3	4.5	11.7	4.0	13.5	3.2
Duration	6.1	2.7	6.4	3.2	6.9	2.8
Physical concomitants	2.2	2.6	3.3	3.3	5.4	3.4
Total score	19.6	7.5	21.4	8.2	25.7	7.3

Statistical Properties

This chapter addresses the reliability and validity of the SSI-4 as well as the statistical properties of the naturalness rating procedure.

Reliability

The same procedures as those used in the SSI-3 were employed to assess the reliability of the SSI-4 stuttering measurements. The “target area” was increased for the frequency and duration measures. Percentage of syllables stuttered is expressed in stanine intervals, and percentages within a given stanine have the same scale score value. Also, intervals were used to determine the scale value of duration measures. This procedure reduces the effect of small differences on the test score. Intra- and interrater reliability are reported below.

Intra-Rater Reliability

Two experienced examiners and a trained graduate research assistant scored five videotaped speaking samples on two different occasions. Percentage of agreement was calculated by dividing the smaller score by the larger score in each judgment pair. The resulting ratio was multiplied by 100 to produce a percentage of agreement. The results of this procedure are reported in Table 3.1 for each relevant parameter.

Frequency

For frequency, intra-rater agreement among the experienced examiners ranged from 71.4% to 92.9% with a mean of 87.1%. Five research team members participated in intensive reliability training. They scored 17 samples twice each; their self-agreement ranged from 84.2% to 100% with a mean of 93.9%.

Duration

The experienced examiners obtained self-agreement for the duration parameter ranging from 68.0% to 100% with a mean of 85.9%. The research team had a range of 75.0% to 100% with a mean of 96.4%.

Table 3.1
Summary of Intrajudge Percentages of Agreement (Self-Agreement)

Parameter	Experienced or trained examiners		Research team	
	<i>M</i>	Range	<i>M</i>	Range
Frequency	87.1	71.4–92.9	93.9	84.2–100
Duration	85.9	68.0–100	96.4	75–100

Interrater Reliability

This section addresses interexaminer reliability regarding frequency, duration, physical concomitants, total score, and naturalness. Results for this study are reported in Table 3.2.

Frequency

The experienced examiners counted fluent syllables and stuttered syllables and obtained agreement with each other ranging from 81.0% to 100% with a mean of 91.0%. The research team used a computerized counting system to score audiotaped samples. They obtained agreements ranging from 54.2% to 100% with a mean of 91.4%.

In a separate study, members of a graduate class in stuttering received training in measuring frequency. They counted fluent and stuttered syllables in speaking and reading tasks. The resulting %SSs were converted to SSI-4 scale scores. Of the 15 students, 10 students assigned scale scores of 12 and 5 students assigned scale scores of 13. The resulting ratios of each score to the class mean were used to compute percentages of agreement. The percentages ranged from 94.6 to 96.8 with an average of 96.0.

Duration

Research team members also measured the duration of the three longest stuttering events using the CSSS. Their percentages of agreement ranged from 60.0 to 100 with a mean of 87.8.

The trained examiners measured the longest three stuttering events and converted the times to scale scores. The resulting percentages of agreement with the group mean ranged from 58.1 to 87.2 with an average of 84.8.

Physical Concomitants

The experienced examiners rated physical concomitants from five videotaped speaking samples. Their percentages of agreement ranged from 50.0 to 100 with a mean of 82.9. The graduate class rated physical concomitants from the five videotapes after a training session. Their percentages of agreement ranged from

Table 3.2
Summary of Interjudge Percentages of Agreement Between Judges

Parameter	Experienced or trained examiners		Research team	
	<i>M</i>	Range	<i>M</i>	Range
Frequency	91.0	81.0–100	91.4	54.2–100
Duration	84.8	58.1–87.2	87.8	60.0–100
Physical concomitants	82.9	50.0–100	—	—
Total score	93.4	82.2–99.5	—	—

59.8 to 97.5 with an average of 85.7. All of the data combined produced average interjudge agreements of 82.9 for the physical concomitant scores.

SSI-4 Total Score

Fifteen graduate students and their instructor scored five videotapes after a training session. The mean total score for all 16 judges was 21.9 (which was almost identical to the instructor's score of 22). The percentages of agreement of each student with the group mean ranged from 82.2 to 99.5 with an average of 93.4.

Hall et al. (1987) studied intrajudge agreement among 10 graduate students who had administered the SSI to two adults who stuttered. Hall et al.'s data indicated intrajudge agreement ranging from 80% to 100% with a mean of 90.5%. The interjudge range was 71% to 100% with a mean of 87.2%.

Naturalness

A comprehensive profile of stuttering severity needs to include a rating of how natural the speech sounds. Some types of treatment reduce stuttering by introducing an artificial manner of talking that does not sound natural. Martin et al. (1984) assessed interjudge reliability of naturalness ratings using 30 unsophisticated judges who scored 30 audiotapes of normal speakers. They reported that 75% of the ratings were identical or within ± 1 point in pairs of judges. Intrajudge reliability, assessed by a second rating of the same tapes 3 weeks later, was 88%.

Onslow, Adams, and Ingham (1992) assessed interjudge reliability of 30 unsophisticated and 30 sophisticated judges who rated 100 two-minute audiotapes of stutter-free speech of people who had stuttered at various points in their treatment. Computations of all pairs indicated that 55% of the sophisticated and 57% of the unsophisticated judges ratings were identical or within ± 1 point of each other. Intrajudge reliability assessed 3 weeks after the first ratings indicated that 71% of the sophisticated and 70% of the unsophisticated judges' scores were identical or within ± 1 .

Summary

Overall agreement of 87.5% was found for experienced clinicians and trained graduate students. The research team averaged 95% self-agreement and 89.6% interjudge agreement overall.

This level of intra- and interexaminer reliability is adequate for clinical use with experienced examiners averaging 82% to 93%. Individual users, however, need to establish their own self-agreement percentages. With practice most clinicians can achieve self-agreement of 85% or higher. Researchers who employ more stringent training procedures should achieve 90%. When reliability is critical to the research design, two judges who have 90% or higher self-agreement should be used and their scores averaged.

Validity

Stuttering severity measurements present two related, difficult problems. First, no consensus has been reached among researchers or clinicians about the definition

of stuttering. Some believe that stuttering can be appropriately described by the observable behaviors associated with it (Ingham, 1990); others believe that only a person who stutters can identify the moment of stuttering (Perkins, 1990); and still others believe that stuttering is a disorder with many constant parameters that exist whether or not an "event" is occurring (Smith, 1990). Second, the internal conditions that most practitioners agree are very important (avoidance, postponement, embarrassment, etc.) can be reported by the person who stutters but cannot be reliably perceived by an observer. These concerns were taken in account in the development of the SSI-4 and in our efforts to assess the degree to which the SSI-4 is a valid measure of stuttering. This section contains information on two types of validity, criterion-prediction and construct-identification, as they pertain to the SSI-4.

Criterion-Prediction Validity

The SSI-4 is based on criteria that can be observed and described by a listener, and it excludes criteria that are subjective (i.e., those that require speaker reports) or criteria that require listener evaluation of processes within the speaker, such as avoidance and expectancy. It seems reasonable, therefore, to compare the SSI-4 to other behavioral measures.

The most commonly used behavioral measure is frequency (percentage of stuttered syllables or words). Frequency was included in the part-whole correlations computed for each age level: preschool age, school age, and adult. Correlations of the SSI-4 total score to the frequency score were as follows: preschool, $r = .830$; school age, $r = .795$; and adult, $r = .741$. All of these correlations were statistically significant at the $p < .01$ level.

A companion instrument to the SSI-4 is the *Stuttering Prediction Instrument for Young Children* (SPI; G. D. Riley, 1981). The SPI includes parents' reports of the child's reactions, clinical assessment of the number and severity of part-word repetitions, assessment of prolongations, and a frequency count (percentage of words stuttered). The frequency score is 9 points out of a total score of 40. Yarus and Conture (1992) reported a .72 correlation between the SSI-R and the SPI.

The highest reported average reliability coefficient of the SSI-4 was .92, so a maximum statistically logical validity coefficient is .846 (.92 squared). Therefore the reported correlations ranging from .72 to .83 seem to indicate adequate criterion-related validity within the limits of our ability to define stuttering severity.

Construct-Identification Validity

Since several hypotheses regarding the nature of stuttering severity currently coexist and each of them is subject to ongoing revisions, only two generally acceptable hypotheses were tested.

1. Severity should increase with the length of time the individual has stuttered. This increase should express itself as (a) increased SSI-4 total score, (b) increased contribution of the duration score to the total score,

(c) increased contribution of the physical concomitant score to the total score, and/or (d) decreased contribution of the frequency score to the total score.

2. All three parameters of the SSI-4 should be related to each other because they are parts of the overall construct of severity.

Age and Severity Interactions

Tables 3.3, 3.4, and 3.5 show the part-whole correlations for each of the SSI-4 scores for preschool-age children, school-age children, and adults, respectively. Note that the correlations between duration score and the total score increase between preschool and school age (.74 to .77). There is almost no increase between school age and adult (.77 to .78). Physical concomitants show the same pattern, progressing from .68 for preschool to .76 for school age, and .77 for adults. Frequency, as expected, varied in the opposite direction, correlating with the total score as follows: preschool, .83; school age, .79; and adult, .74.

Table 3.6 shows the means and standard deviations of each parameter score at the three age levels. Note the progression of the total score from the youngest to oldest age groups. As expected, the mean total score increased with age. The preschool mean was 19.6 ($SD = 7.5$), the school age mean was 21.4 ($SD = 8.2$), and the adult mean was 25.7 ($SD = 7.3$).

Table 3.3
Correlation Matrix of SSI-4 Parameters and Total Score
for Preschool-Age Children ($N = 72$)

Parameter	Frequency	Duration	Physical concomitants
Duration	.37		
Physical concomitants	.28	.46	
Total score	.83	.74	.68

Table 3.4
Correlation Matrix of SSI-4 Parameters and Total Score
for School-Age Children ($N = 139$)

Parameter	Frequency	Duration	Physical concomitants
Duration	.40		
Physical concomitants	.37	.46	
Total score	.79	.77	.76

Table 3.5
Correlation Matrix of SSI-4 Parameters and Total Score
for Adults (N = 60)

Parameter	Frequency	Duration	Physical concomitants
Duration	.41		
Physical concomitants	.29	.45	
Total score	.74	.78	.77

Table 3.6
Means and Standard Deviations of Parameter Scores and Total Score at Three Age Levels

Parameter	Preschool age		School age		Adult	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Frequency	11.3	4.5	11.7	4.0	13.5	3.2
Duration	6.1	2.7	6.4	3.2	6.9	2.8
Physical concomitants	2.2	2.6	3.3	3.3	5.4	3.4
Total score	19.6	7.5	21.4	8.2	25.7	7.3

Part-Whole Correlations

Referring again to Tables 3.3, 3.4, and 3.5, we note that the correlations of the parameter scores to the total score range from .68 to .83, with an average of .76. All of these correlations are statistically significant at the $p < .01$ level. The levels of correlation seem to indicate that although the parameter scores are closely related to the total score, none is powerful enough to be used as an equivalent measure.

The average correlations between the individual parameters were as follows: physical concomitants to duration, .46; frequency to duration, .39, and physical concomitants to frequency, .32.

Overall, the SSI-4 presents a statistical picture of three related parameters of stuttering that are consistent with an objective (behavioral) model of severity. None of the parameters used alone will produce the same severity indications as the combination of all three.

4. Clinical Use of Self-Reports (CUSR)

Jeanna Riley

In this chapter, we describe the Clinical Use of Self-Reports (CUSR), which appears in Appendix A of this manual and which can be used in conjunction with the SSI-4. The CUSR is designed to assess concerns about (a) perceived stuttering severity, (b) the level of internal or external locus of control, and (c) reported word or situation avoidance.

The Clinical Use of Self-Reports (CUSR) is the focus of the present chapter. Each CUSR item is designed to help clients communicate their feelings about their stuttering to the clinician. A brief description of each item and how it can be used in treatment is included, along with posttreatment questions.

Clinical Use of the CUSR

The CUSR was developed over the course of 35 years of working with adults who stutter. During a typical clinical session, the clinician might have a good idea of the client's level of stuttering on the basis of the client's scores on the SSI-4. However, the SSI-4 does not indicate how clients perceive their stuttering. The clinician might, on the basis of SSI-4 results, characterize a client's stuttering as mild. Clinical experience demonstrated, though, that this same client might rate the same speech sample as an 8 on a scale of 1 to 9, with 9 being *very severe*. This self-report information constitutes an important clinical tool; it suggests that the client was perhaps extremely intrapunctive or fearful of stuttering.

What the client is thinking, feeling, and doing internally is as important, if not more important, than the percentage of syllables stuttered. Success in treating stuttering is more than stutter-free speech; it is to be free of stuttering fears. It is to target freedom of communication and an internal sense of control, even when the speech is not stutter free. And, the maintenance of fluency may be improved when avoidance and struggle are reduced and a sense of internal locus of control is increased.

Description of the CUSR

The three areas assessed by the CUSR are (a) perceived stuttering severity, (b) the level of internal or external locus of control, and (c) reported word or situation avoidance. The CUSR provides clinical measures of each item.

The CUSR is administered in conversation with the client rather than using pencil and paper. The CUSR was developed in response to problems with imprecision in the typical clinical setting. The clinician would say, for example, "How was your speech this week?" The client would answer briefly and vaguely, "Not too good." The clinician would then ask another question: "In what way was it not too good?" Often, the client would have a vague feeling about it and find it difficult to compare one week to another. The 1–9 scale was adopted to

address this problem, and the CUSR became a measure of change, digression, or progression. With the CUSR, the client and the clinician were able to communicate more clearly and accurately. Using a 9-point scale, the client and clinician can track progress, which is rewarding to the client; use of the scale can also track therapy that has become static, indicating that some changes need to be made.

Most of the CUSR items identify four different speaking audiences (close friend, parent, stranger, authority figure) and use of the telephone. Other audiences can be used according to the individual needs of the client. The CUSR items are worded to elicit a wealth of self-report information; below, we explain the rationale behind each item.

1. *How would you rate your speech with the following audiences? (severity)* When clients answer this question in relation to a variety of audiences, they become more consciously aware that they experience greater fluency with some audiences over others. The clinician can explore with the client the differences between audiences and how to achieve feelings of fluency with other audiences.

2. *How much time during the conversation do you think about stuttering with the following audiences? (locus of control)* This question increases the client's awareness that thoughts about stuttering are sometimes negligible and sometimes extremely predominant. In recognizing these differences, the client can experience increased awareness of the gradation. Awareness precedes choice and change. Clients who initially state that they think of stuttering "all the time" are surprised to find that isn't true. Knowledge can give the client a feeling of increased control.

3. *How would you rate your fluency today? (severity)* The answer to this question is helpful to the treatment process because it communicates the client's internal evaluation of his or her stuttering. It is particularly useful to compare the client's SSI-4 results with those on the CUSR. If there is a wide discrepancy between SSI-4 and CUSR results, the client and the clinician can explore the perception of the stuttering. Higher CUSR scores than the SSI-4 scores may indicate that *any* stuttering is extremely painful or that a severe internal struggle may be taking place in an attempt not to stutter. In this case, the SSI-4 results may reflect the struggle instead of the actual fluent or disfluent expression. A low CUSR score on a given item and a high SSI-4 score suggests a different internal dynamic and provides the opportunity to explore with the client possible explanations for the discrepancy. Is the low CUSR score an expression of denial? Is the client as fluent as he or she wants to be? Exploring such possibilities enables the client and the clinician to become aware of thoughts and feelings that are under the surface. The phrase "fluent as you want to be" leaves the determination of fluency up to the client. Some clients don't want to pay the price to be "stutter free." Some clients are content with reduce stuttered utterances accompanied by increased confidence and a sense of control.

4. *How often do you change words when you think you may stutter? (avoidance)* The answer to this question provides the most effective evaluation of whether or not a person who stutters is using word- or sound-avoidance techniques. It is very difficult for a listener to determine avoidance on a consistent

basis. During treatment, it is essential for the client and clinician to be openly aware of avoidance. In the modification of stuttering, identification of avoidance is integral to successful treatment. When a client's rating on this scale changes to a lower number (e.g., from 7 to 6), this is an indication to the clinician that the need for avoidance behaviors has been reduced.

5. *To what extent do you feel internally hurried during conversation? (locus of control)* Many adults who stutter describe feelings of being hurried. Some describe the feeling as "being rushed" or "needing to hurry." This lack of experiencing internal control contributes significantly to the breakdown of fluency. It is one of the fears that exacerbates stuttering severity. Identifying it with the client is the first step in modifying it. The client may not experience the feeling in the session because there is less time pressure. The CUSR enables clients to rate their sense of being hurried with various audiences and in various situations.

6. *How much energy do you expend on how you speak rather than what you say? (locus of control)* When persons who stutter are asked this question, tears often come to their eyes because they have expended so much energy trying to speak without stuttering or trying to cover it up. Occasionally they even fail to make important contributions to conversations because they are too afraid to risk stuttering. When clinicians understand this painful experience of the people who stutter, an important therapeutic connection is made. The very fact that someone understands the pain of a lifetime of struggle makes a difference. Helping the client begin to shift attention to valuing what he or she has to say rather than how he or she says it is an important step.

7. *How often do you refrain from a conversation because of fear of stuttering? (avoidance)* The clinician needs to understand the client's temperament. An introvert may not want to take part in conversation because of temperament as opposed to fear. An extrovert might want to engage in conversation but refrain because of fear. Being aware of such differences increases the precision of diagnosis. Within the context of the temperament issues, fear of stuttering needs to be addressed.

8. *How much choice do you feel that you have to take part in a conversation? (avoidance and locus of control)* This question continues the process of increasing awareness of how often the client is avoiding or refraining from speaking because of fear of stuttering. The client may be surprised at how often the unconscious decision is made to remain silent. Reducing avoidance in this kind of automatic thinking is an important step forward.

9. *What percentage of the time does stuttering "decide" what you will say? (avoidance and locus of control)* The purpose of this question is to help the client recognize avoidance. The stuttering is making the decision for the client. When this external locus of control is acknowledged, the client can decide to exercise internal control under some circumstances.

10. *How would you rate your fluency over the past week? (severity)* Item 3 asks how clients would score their fluency today. From this information, the clinician can judge the amount of agreement on behavioral aspects of stuttering between the client and clinician. This question asks the client to give an average rating of fluency over the past week. A few hard blocks may create feelings of

severe stuttering. As the clinician retraces the week, it may be revealed that there were two to three hard blocks and the rest of the time the client was relatively fluent. Therapeutically, this question can encourage the client to begin to differentiate a few hard blocks from times of being relatively fluent.

11. *How would you rate the range of your level of fluency over the past week? (severity)* This question is a follow-up to item 10. As the range is defined, the clinician can understand the approximate amount of time spent at each level. The information that the client is obtaining is a more realistic view of the stuttering severity. Often the client is surprised by the amount of time that relative fluency is experienced.

12. *How often do you manipulate a speaking situation to avoid saying your name? (avoidance)* Often clients spend a great deal of time and energy scheming to avoid saying their names. Asking clients to list as many ways as they are aware of reveals an "avoidance dance" that can be surprising to them.

13. *How often do you scan a sentence you want to say for "difficult" sounds and then search through your "thesaurus" for a safe synonym? (Avoidance)* Sometimes clients smile at this question when they are "caught," thinking they'd been so clever. The effort expended in performing this rapid-fire, internal word search is often daunting.

Posttreatment Measures

The following questions are to be asked after treatment is completed.

- 1.** How natural do you think your speech is? (1 = *very natural* to 9 = *very unnatural*.)
- 2.** How satisfied are you with the treatment you have received? (1 = *very satisfied* to 9 = *very dissatisfied*.)
- 3.** How would an acquaintance rate your stuttering? (1 = *stuttering is not distracting* to 9 = *stuttering is very distracting*.)

Summary

The Clinical Use of Self-Reports was designed to make better use of the kind of information that derives from the interactions between a client and the clinician. It promotes a mode of communication that provides a framework to measure changes in several aspects of stuttering therapy. Even small changes can be noted because of using a 1-9 rating system for each question. This interactive instrument facilitates setting goals and knowing when they are met or not met, providing useful, evidence-based treatment data using clinical measures.

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Stimulus Materials (Picture and Reading Plates)

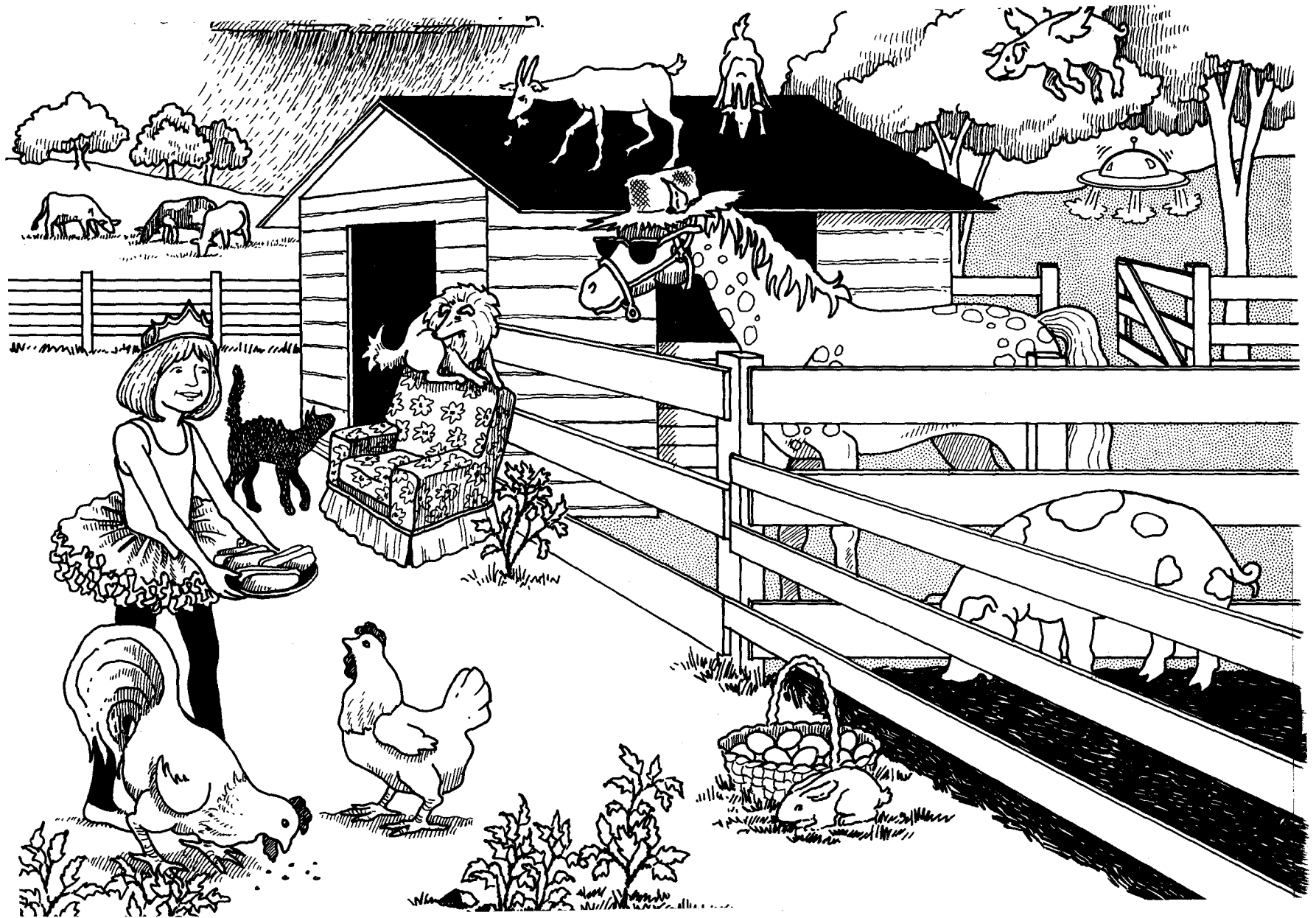
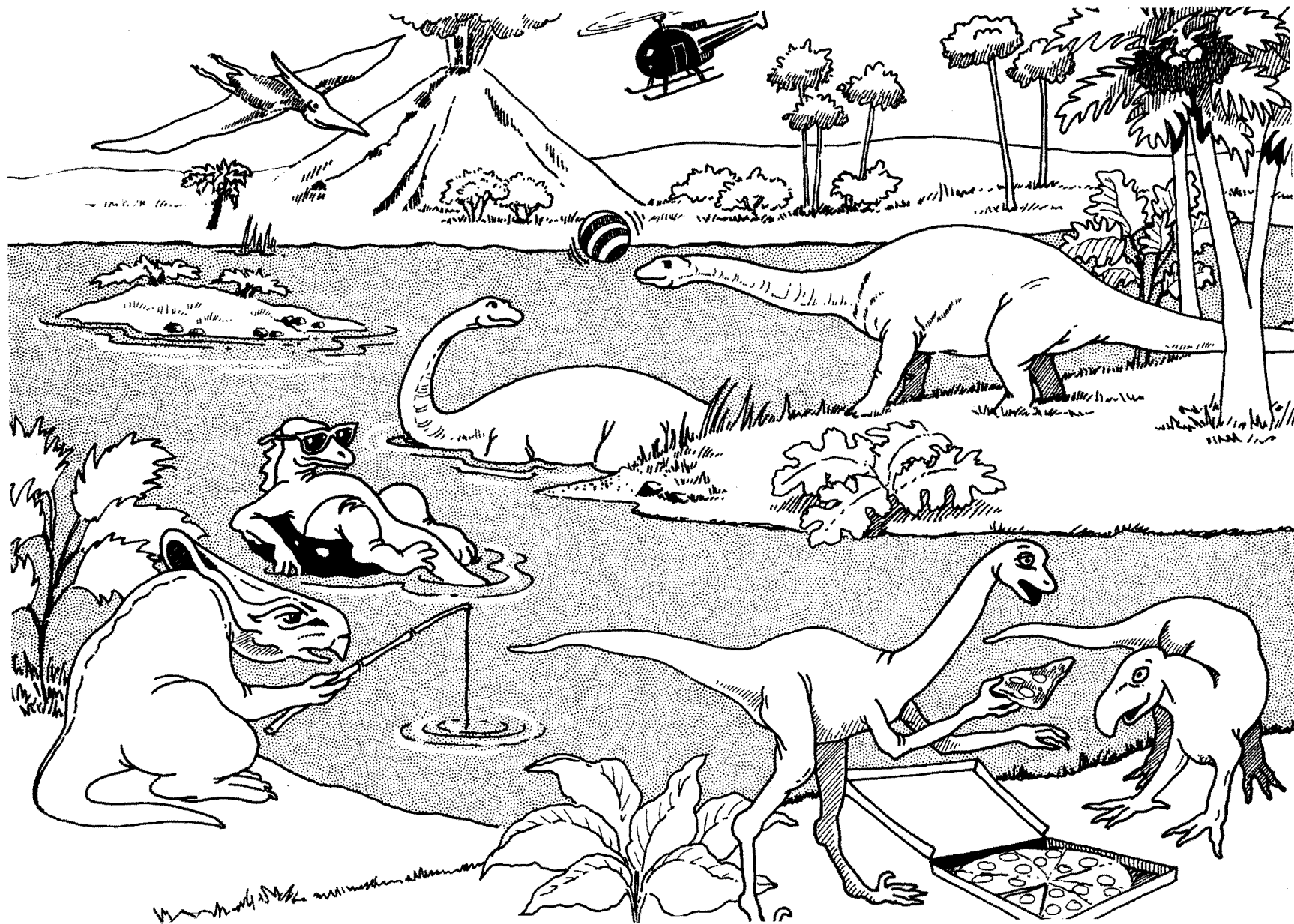
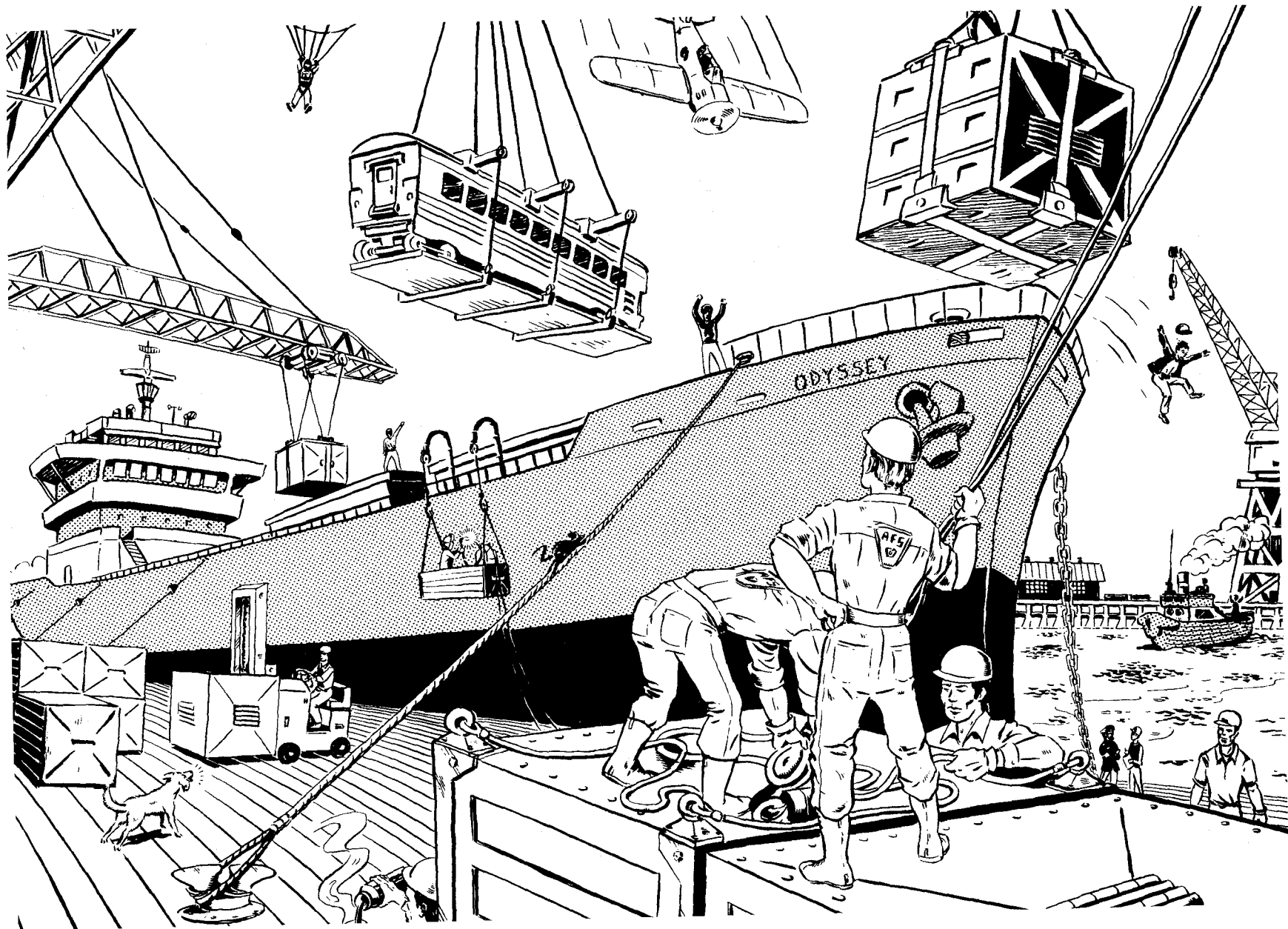
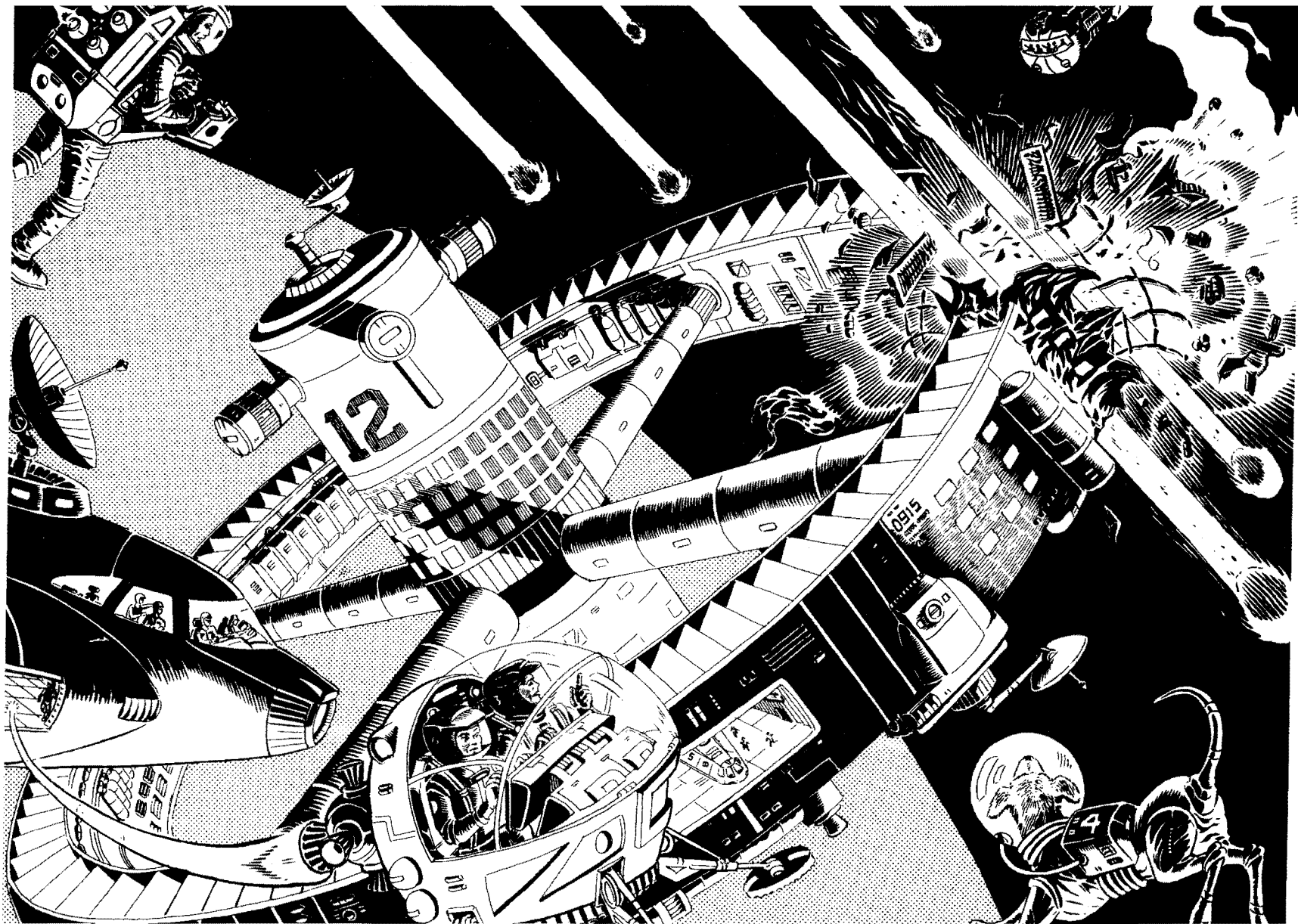


Plate II

Dinosaur Scene







When the fisherman awoke in the morning, his wife began yelling at him.

“All you do all day is fish,” she said, “and we never get to go anywhere.” The poor fisherman left the house and went to his boat. He went far out to sea. He sat in the boat thinking about how unhappy his wife was. Soon he felt a heavy tug on his fishing line. He had caught a huge fish. After he got the fish into the boat, he sat thinking again. Suddenly he heard a strange voice.

“Please, put me back into the water,” said the fish.

The fisherman said, “What is that? I must have caught a magic fish.” The fisherman thought about all the wishes he would get.

It had been very hard on Alice to live in a lonely castle so far from the city. Tonight it was even harder because the storm frightened her.

“It’s not even a good night for ghosts,” she thought. She put some more firewood into the fire. She knew she was only fooling herself. She knew the ghost would be in the chapel again tonight. She had seen it every night since she had moved into the castle. She went to the large window and slowly moved the curtain apart. She could see the chapel down the hill. A flash of lightning lit the sky for a moment. She looked out again. This time she saw the glow coming from the chapel. Her ghost was waiting.

n^2

Sweeney's Department Store was having its 20th anniversary celebration on May 3rd, and was planning an enormous sales promotion. Certain sections of the store were having tremendous sales, especially the dress department, the jewelry department, and the furniture department. In order to prepare the store, workmen were moving busily around carrying lumber and sawing and hammering. They were creating signs, displays, and shelving for the products going on sale.

A newspaper campaign was planned in which the products would be featured. The store's owners hoped that customers would come to celebrate the 20 years of service to the community, and would also take advantage of the bargains offered in many departments. They were planning to give away door prizes on each one of the seven floors.

The plumber parked his van in front of the apartment house, took his tools out of the back, walked into the lobby, and took the elevator to the twelfth floor. Only one person, looking out from an eleventh-floor window, knew that he was really a detective.

Paul felt very uncomfortable about suspecting his neighbor in the apartment house as being dishonest, but many peculiar things had happened recently. There was something going on that he didn't understand.

Miss Franklin in 11A had recently purchased a necklace made of pearls, and it had disappeared from her jewelry case. Fred Carson in 11F had kept his expensive coin collection in an artificial book on his bookshelf. One day he noticed that it was no longer there.

Harriet Tubman lived most of her life working to free her people. As a young slave, she ran away to the North. But frequently she returned to the South to help other slaves escape. She became a famous leader of the Underground Railroad, a secret network of households that provided food and shelter to runaway slaves. Harriet led groups of slaves from one point to another on the perilous journey north. They traveled only after nightfall, hiding during the day in basements, fields, and forests. Harriet was a master of tricks and disguises, and at one time a reward of \$40,000 was offered for her capture. Her daring rescues helped hundreds of slaves escape to freedom. As she once said, "I never lost a passenger."

Many American farm workers have been aided by the efforts of a shy, patient man named Cesar Chavez. As a youth, Cesar traveled from one farm to another picking crops as they ripened. Since his family had no permanent home, Cesar had attended thirty-seven different schools by the time he reached the seventh grade. As he grew older, he became increasingly concerned about the poverty and suffering of the farm workers. He began speaking to groups of workers about their need for safer housing and better health care. He convinced the grape pickers in California to join together and strike for better pay and working conditions. A strong believer in nonviolence, he led many peaceful protest marches and organized the first successful farm workers' union in the United States.

WASHINGTON—Part of the nation's future oil supply may lie within some extraordinary organisms that have been called a "third form of life."

A Colorado State University microbiologist reports obtaining pure hydrocarbon that could be converted to gasoline or lubricating oils from several of the organisms.

The oily substance is "energy-rich, definitely a lubricant, combustible, and isn't soluble in water," says the researcher, Thomas Tornabene. And the oil is free of air-polluting sulfur.

The discovery now is only a laboratory phenomenon; any commercial application is some time away.

"Right now we are concentrating on the organisms' basic mechanisms," Tornabene says. "We have two genetic engineers looking at them to find ways of getting them to grow faster and to pump oil faster."

The Great Chief in Washington sends word that he wishes to buy our land . . . How can you buy or sell the sky—the warmth of the land? The idea is strange. We do not own the freshness of the air or the sparkle of the water. How can you buy them from us? We will decide in our time. Every part of this earth is sacred to my people. Every shining pine needle, every sandy shore, every mist in the dark woods, every clearing, and every humming insect is holy in the memory and experience of my people . . . For all things share the same breath—the beasts, the trees, the man . . . All things are connected. Whatever befalls the earth befalls the sons of the earth.

So here we are in Friuli, tucked away in a remote corner of the Alpine foothills in northeastern Italy, at a little restaurant. I have to admit that when I travel, history is not the first thing on my mind. Food and wine are. And that's what sold me on Friuli. It is famous as a source of some of Italy's best white wines. We went primarily in search of wines, unaware that we soon would make a culinary detour.

Occupying the extreme northeast corner of Italy, Friuli's scenery ranges from rugged coastline along the eastern border to placid plains in the west and the majestic Alps in the north, where Italy butts up against Austria. Directly to the south is Venice, just a little more than an hour and a half away.

Though off the beaten tourist track, Friuli is hard in the path of history. Standing at one of the major crossroads between Western Europe and the East, it was conquered by just about everyone who passed by. As a result, things look different here. Rather than the familiar cultural overlay of most of Italy, the central European influence is readily apparent in Friuli. The architecture tends more toward Austrian grandeur than Tuscan simplicity. Here you'll find gray stone castles rather than sun-drenched villas. The people look different, too, taller and blonder than southern Italians, and with plenty of German and Central European surnames.

Plate XIV

The talk over salad and fromage was about ghosts. My English friend Christopher Neville informed me that two of them haunt his house in southern France, on the sunny terrace of which we were now having lunch. I don't normally believe in spirits, but it seemed wise to suspend disbelief for the moment, since I would soon be entering a region of sorcery and hidden Grails, where heretics once marched defiantly into the bonfires of bloodthirsty crusaders: the land of the Cathars. Christopher's ghosts were said to be knights from those medieval times. I don't know whether he began studying the Middle Ages because of the ghosts or whether the ghosts arrived one day because he had taken an unusually keen interest in the Cathars. I do know that his knowledge proved invaluable.

The Cathars, I had read, were a kind and gentle people. They were dualists (man is bad, the spirit good), they viewed the material world as corrupt, and they rejected certain important tenets of the powerful Catholic Church, including priests, the Trinity and the sacraments. The laying on of hands was thought to transform believers into the "Perfects" or Good Christians, who were from then on expected to abstain from sex and meat. The popularity of this gnostic faith threatened the reign of Pope Innocent III. In 1208, he sent Simon de Montfort on a crusade against the heretics. The crusade took its name from the town of Albi and was followed 25 years later by the Inquisition.

Appendix A

Clinical Use of Self-Reports

Jeanna Riley

This scale, designed for use in the clinical setting, contains 13 self-report questions and 3 posttreatment questions for persons who stutter. Chapter 4 of this manual is devoted to a discussion of the use of and rationale behind the items in this scale.

Clinical Use of Self-Reports

Client Name _____ Clinician _____

Date/First Session _____

Note. Other audiences may be exchanged for the ones listed here.

1. How would you rate your speech with the following audiences?

Relatively fluent	1	2	3	4	5	6	7	8	9	Severe stuttering
Session Date	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Close Friend	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Parent	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Stranger	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Authority Figure	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Telephone	_____	_____	_____	_____	_____	_____	_____	_____	_____	

2. How much time during the conversation do you think about stuttering with the following audiences?

Never	1	2	3	4	5	6	7	8	9	Constantly
Session Date	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Close Friend	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Parent	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Stranger	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Authority Figure	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Telephone	_____	_____	_____	_____	_____	_____	_____	_____	_____	

3. How would you rate your fluency today?

As fluent as I want to be	1	2	3	4	5	6	7	8	9	Very disfluent
Session Date	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Score	_____	_____	_____	_____	_____	_____	_____	_____	_____	

4. How often do you change words when you think you may stutter?

	1	2	3	4	5	6	7	8	9	
Never	_____	_____	_____	_____	_____	_____	_____	_____	_____	Always
Session Date	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Close Friend	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Parent	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Stranger	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Authority Figure	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Telephone	_____	_____	_____	_____	_____	_____	_____	_____	_____	

5. To what extent do you feel internally hurried during conversation?

	1	2	3	4	5	6	7	8	9	
Never	_____	_____	_____	_____	_____	_____	_____	_____	_____	Always
Session Date	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Close Friend	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Parent	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Stranger	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Authority Figure	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Telephone	_____	_____	_____	_____	_____	_____	_____	_____	_____	

6. How much energy do you expend on how you speak rather than what you say?

	1	2	3	4	5	6	7	8	9	
0%	_____	_____	_____	_____	_____	_____	_____	_____	_____	100%
Session Date	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Close Friend	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Parent	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Stranger	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Authority Figure	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Telephone	_____	_____	_____	_____	_____	_____	_____	_____	_____	

7. How often do you refrain from a conversation because of fear of stuttering?

	1	2	3	4	5	6	7	8	9	
Seldom	_____	_____	_____	_____	_____	_____	_____	_____	_____	Frequently
Session Date	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Close Friend	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Parent	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Stranger	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Authority Figure	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Telephone	_____	_____	_____	_____	_____	_____	_____	_____	_____	

8. How much choice do you feel that you have to take part in a conversation?

	1	2	3	4	5	6	7	8	9	
A great deal	_____	_____	_____	_____	_____	_____	_____	_____	_____	Very little
Session Date	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Close Friend	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Parent	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Stranger	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Authority Figure	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Telephone	_____	_____	_____	_____	_____	_____	_____	_____	_____	

9. What percentage of the time does stuttering "decide" what you will say?

	1	2	3	4	5	6	7	8	9	
0%	_____	_____	_____	_____	_____	_____	_____	_____	_____	100%
Session Date	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Close Friend	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Parent	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Stranger	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Authority Figure	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Telephone	_____	_____	_____	_____	_____	_____	_____	_____	_____	

10. How would you rate your fluency over the past week?

	1	2	3	4	5	6	7	8	9	
As fluent as you want to be	_____	_____	_____	_____	_____	_____	_____	_____	_____	Very disfluent
Session Date	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Score	_____	_____	_____	_____	_____	_____	_____	_____	_____	

11. How would you rate the range of your level of fluency over the past week?

	1	2	3	4	5	6	7	8	9	
As fluent as you want to be	_____	_____	_____	_____	_____	_____	_____	_____	_____	Very disfluent
Session Date	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Score	_____	_____	_____	_____	_____	_____	_____	_____	_____	

12. How often do you manipulate a speaking situation to avoid saying your name?

	1	2	3	4	5	6	7	8	9	
Always	_____	_____	_____	_____	_____	_____	_____	_____	_____	Never
Session Date	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Close Friend	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Parent	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Stranger	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Authority Figure	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Telephone	_____	_____	_____	_____	_____	_____	_____	_____	_____	

13. How often do you scan a sentence you want to say for "difficult" sounds and then search through your "thesaurus" for a safe synonym?

	1	2	3	4	5	6	7	8	9	
Always	_____	_____	_____	_____	_____	_____	_____	_____	_____	Never
Session Date	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Close Friend	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Parent	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Stranger	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Authority Figure	_____	_____	_____	_____	_____	_____	_____	_____	_____	
Telephone	_____	_____	_____	_____	_____	_____	_____	_____	_____	

Posttreatment Measures

1. How natural do you think your speech is?

	1	2	3	4	5	6	7	8	9	
Very natural	_____	_____	_____	_____	_____	_____	_____	_____	_____	Very unnatural

2. How satisfied are you with the treatment you have received?

	1	2	3	4	5	6	7	8	9	
Very satisfied	_____	_____	_____	_____	_____	_____	_____	_____	_____	Very dissatisfied

3. How would an acquaintance rate your stuttering?

	1	2	3	4	5	6	7	8	9	
Not distracting	_____	_____	_____	_____	_____	_____	_____	_____	_____	Very distracting

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SSI-4

Examiner Record Form

Glyndon D. Riley

Identifying Information

Name _____
 Grade _____
 Date of testing _____
 School _____
 Preschool ☐ School Age ☐ Adult ☐

Female ☐ Male ☐
 Date of Birth _____
 Age _____
 Examiner _____
 Reader ☐ Nonreader ☐

Frequency (Use Readers Table or Nonreaders Table, not both)

Readers Table

1. Reading Task		2. Speaking Task	
%SS	Task Score	%SS	Task Score
1	2	1	2
2	4	2	3
3-4	5	3	4
5-7	6	4-5	5
8-12	7	6-7	6
13-20	8	8-11	7
21 & up	9	12-21	8
		22 & up	9

Nonreaders Table

3. Speaking Task	
%SS	Task Score
1	4
2	6
3	8
4-5	10
6-7	12
8-11	14
12-21	16
22 & up	18

Frequency Score (use 1 + 2 or 3)

Duration

Average length of three longest stuttering events timed to the nearest 1/10th second

Fleeting	(.5 sec or less)
Half-second	(.5-.9 sec)
1 full second	(1.0-1.9 sec)
2 seconds	(2.0-2.9 sec)
3 seconds	(3.0-4.9 sec)
5 seconds	(5.0-9.9 sec)
10 seconds	(10.0-29.9 sec)
30 seconds	(30.0-59.9 sec)
1 minute	(60 sec or more)

Scale Score

2
4
6
8
10
12
14
16
18

Duration Score

Physical Concomitants

Evaluating Scale 0 = none
 1 = not noticeable unless looking for it
 2 = barely noticeable to casual observer
 3 = distracting
 4 = very distracting
 5 = severe and painful looking

Distracting Sounds: Noisy breathing, whistling, sniffing, blowing, clicking sounds

0 1 2 3 4 5 _____

Facial Grimaces: Jaw jerking, tongue protruding, lip pressing, jaw muscles tense

0 1 2 3 4 5 _____

Head Movements: Back, forward, turning away, poor eye contact, constant looking around

0 1 2 3 4 5 _____

Movements of the Extremities: Arm and hand movement, hands about face, torso movement, leg movements, foot-tapping, or swinging

0 1 2 3 4 5 _____

Total Score

Physical Concomitants Score

Frequency _____ + Duration _____ + Physical Concomitants _____ = _____ Percentile _____ Severity _____

Table 2.2

Percentile Ranks and Severity Equivalents of SSI-4 Total Scores for Preschool-Age Children ($N = 72$)		
Total score	Percentile rank	Severity equivalent
0–8	1–4	Very mild
9–10	5–11	
11–12	12–23	Mild
13–16	24–40	
17–23	41–60	Moderate
24–26	61–77	
27–28	78–88	Severe
29–31	89–95	
32 and up	96–99	Very severe

Table 2.3

Percentile Ranks and Severity Equivalents of SSI-4 Total Scores for School-Age Children ($N = 139$)		
Total score	Percentile rank	Severity equivalent
6–8	1–4	Very mild
9–10	5–11	
11–15	12–23	Mild
16–20	24–40	
21–23	41–60	Moderate
24–27	61–77	
28–31	78–88	Severe
32–35	89–95	
36 and up	96–99	Very severe

Table 2.4

Percentile Ranks and Severity Equivalents of SSI-4 Total Scores for Adults ($N = 60$)		
Total score	Percentile rank	Severity equivalent
10–12	1–4	Very mild
13–17	5–11	
18–20	12–23	Mild
21–24	24–40	
25–27	41–60	Moderate
28–31	61–77	
32–34	78–88	Severe
35–36	89–95	
37–46	96–99	Very severe

Nonreader Frequency Computations

Clinic Speaking Sample 1

Syllable Count (between 150 and 500 syllables) _____

Stuttering Events (Mark below or use blank paper) _____

Computation $\frac{\text{Stuttering Events}}{\text{Number of Syllables}} = \text{_____} \times 100 = \text{_____} \%SS$

Clinic Speaking Sample 2

Syllable Count _____

Stuttering Events _____

Computation $\frac{\text{Stuttering Events}}{\text{Number of Syllables}} = \text{_____} \times 100 = \text{_____} \%SS$

Beyond Clinic Speaking Sample 3 (optional)

Syllable Count _____

Stuttering Events _____

Computation $\frac{\text{Stuttering Events}}{\text{Number of Syllables}} = \text{_____} \times 100 = \text{_____} \%SS$

Sample 1

+

Sample 2

+

Sample 3

Average %SS

_____ %SS

+

_____ %SS

+

_____ %SS

=

=

Divided by the number of samples (2 or 3)

Reader Frequency Computations

Clinic Speaking Sample 1 (Reading Task)

Syllable Count (between 150 and 500 syllables) _____

Stuttering Events (Mark below or use blank paper) _____

$$\text{Computation } \frac{\text{Stuttering Events}}{\text{Number of Syllables}} = \frac{\quad}{\quad} \times 100 = \quad \%SS$$

Clinic Speaking Sample 2 (Speaking Task)

Syllable Count _____

Stuttering Events _____

$$\text{Computation } \frac{\text{Stuttering Events}}{\text{Number of Syllables}} = \frac{\quad}{\quad} \times 100 = \quad \%SS$$

Beyond Clinic Speaking Sample 3 (optional)

Syllable Count _____

Stuttering Events _____

$$\text{Computation } \frac{\text{Stuttering Events}}{\text{Number of Syllables}} = \frac{\quad}{\quad} \times 100 = \quad \%SS$$

Sample 1	+	Sample 2	+	Sample 3		Average %SS
_____ %SS	+	_____ %SS	+	_____ %SS	=	_____ = _____
Divided by the number of samples (2 or 3)						

Speech Naturalness

Highly
Natural
Sounding
Speech

1

2

3

4

5

6

7

8

9

Highly
Unnatural
Sounding
Speech