FOURTH EDITION

Stuttering

FOUNDATIONS AND CLINICAL APPLICATIONS

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PREFACE

We initially wrote this book, and since then have been privileged to trice revise and update it, with the aim of presenting a single main text for courses on stuttering that incorporate general information on the nature of stuttering (e.g., incidence and development), a review of its theoretical and research perspectives, and a substantial clinical "how-to" guide for evaluating and managing the disorder at different ages. Although a good number of books on stuttering are dedicated primarily to one or two of these subjects, only a few address all three of them in an adequate depth and balanced fashion. We believe that our textbook reflects the type of healthy balance that is important for students aspiring to become practicing speech clinician par excellence, currently practicing clinicians, and faculty who teach and/or conduct research in stuttering.

Whereas clinicians must be well-versed in the broad perspectives as well as detailed steps of therapeutic methods, we have included abundant clinical material. Yet, good clinicians must also understand why they do what they do and be able to communicate with their clients, clients' families, and other professionals. They should understand the rationale for their approaches and, if available, the scientific support for their evaluation and treatments. Furthermore, clients and their families ask questions and/or confront clinicians with what they believe or have heard about stuttering (e.g., "Is it true that stuttering results from brain damage?"; "Is it true that stuttering is psychological?"). Therefore, clinicians need to be sufficiently familiar with general explanations of the disorder and with recent scientific findings to be able to respond professionally. Keeping in mind such clinical responsibility, we devote reasonable space to these topics, highlighting the noteworthy advancements in knowledge about stuttering during the period between the previous and present editions. Toward these ends, this edition was prepared with the excellent input of our new coauthor, Cara Singer, as well as input from a good number of experts in the field and with the benefit of students' feedback. Instructors who have used past editions of this book for both undergraduate and graduate class levels should find the present edition even more amenable for this accommodation. In this respect, we aimed for a written style that was easier to follow even when dealing with scientific concepts and information. We hope that reading this book enhances your knowledge, as it has ours in writing it.

ABOUT THE AUTHORS

Ehud Yairi, PhD, CCC-SLP, F-ASHA, is an internationally renowned scholar and an expert on stuttering. A recipient of major grants from the National Institutes of Health, his research and clinical work on many aspects of the disorder throughout the age range, especially in children, had incorporated a wide range of its aspects, including environmental and genetic factors. Dr. Yairi was the first recipient of the Researcher Award of Distinction from the International Fluency Association, is a recipient of the Honors of the Association (the highest award of the American Speech-Language-Hearing Association), the Malcolm Fraser Award for excellence in the field of stuttering from the Stuttering Foundation of America, and many others. He is the author (with Nicoline Ambrose) of *Early Childhood Stuttering* (2005) as well as of numerous scientific articles.

Carol H. Seery, PhD, CCC-SLP, is an emeritus professor of the Department of Communication Sciences and Disorders at the University of Wisconsin-Milwaukee where she served as graduate program coordinator for about 15 years and then department chair for eight years. Her research primarily focused on areas of psycholinguistic factors in stuttering and fluency and differential diagnosis of subtypes of stuttering. She has had extensive experiences with the disorder of stuttering in various clinical settings, such as public schools and university clinics; has taught undergraduate and graduate courses on stuttering; was a branch principal investigator of an NIH grant; and has published her research in various scientific journals.

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CHAPTER 1

WHAT IS STUTTERING?

Learner Objectives

Readers of the chapter will

- understand differences between definitions of stuttering as speech phenomena versus a complex disorder
- become aware of concepts and issues related to defining fluency, disfluency, and stuttering
- understand the significance and influence of various sources of stuttering definitions

Defining Stuttering: Bases and Aims

At first glance, stuttering appears to be rather easy to define. This, however, is not the case. In societal use, the term "stuttering" may loosely refer to any moments when the flow of speech is disrupted. If a speaker says, "The um, other day, um um I I I walked in the park," a listener might comment it sounded like stuttering. By contrast, speech-language clinicians and those who experience genuine moments of stuttering may not apply the term stuttering so loosely or without additional considerations.

Speech-language clinicians usually reserve the term "stuttering" for observed instances of sensorimotor disruptions in the flow of speech that are distinctly different from the hesitations and easy repetitions commonly found in people's daily chatter. The disruptions involved in genuine stuttering seem to reflect momentary loss of a capacity to control, or regulate, forward-moving speech action needed to produce subsequent sounds or syllables. Because genuine stuttering is a unique sensorimotor event, speech-language clinicians will carefully examine the speaker's experience and the associated speech characteristics before deciding whether to apply the term "stuttering" to specific instances of disfluent speech. The term they will apply more appropriately to all types of speech disruptions, stuttering or otherwise, is "*disfluency*."

So what does stuttering sound like on the surface? As we detail a bit later, speech events regarded as stuttering often take the form of sounds or syllables that are repeated too many times, typically fast, held out too long, or forced out with noticeable tension. Because genuine stuttering disrupts motor speech acts below the level of conscious control, coping reactions surface in a variety of other speech disruptions—such as "ums" included with the example noted previously. For that reason, although typically people can recognize stuttering, it is not always possible to differentiate it from common everyday hesitations in the act of speaking. Furthermore, the eyes and ears of listeners may not detect the underlying source and experience of a speaker's disruption. This first chapter deals with the challenge of identifying genuine stuttering.

So, how is genuine stuttering best distinguished from other types of speech disruptions? Not surprisingly, the closer scholars have looked at stuttering, the further its complexity was recognized. Laypeople, too, may be confused. We had a case of a child brought to us by parents complaining about his stuttering. Our conclusion, however, was that the child exhibited cleft palate speech with no signs of stuttering. The parents concurred that what they called "stuttering" was the child's unusual articulation and voice quality. In another referral for a stuttering problem, we concluded that a fast, unintelligible articulation was the source of the mistaken labeling. We diagnosed the child as exhibiting a phonological disorder. Hence, identification of "stuttering" requires an examination beyond broad levels of discernment.

In this chapter, we discuss the diverse views of the term "stuttering" held by scholars. Pragmatically, the term has two potential referents: (1) the specific events of disrupted speech flow or (2) a chronic condition (disorder) exhibited by a person whose speech is characterized by habitual disruptions. Clinicians and researchers alike must clarify what is meant by the term prior to its use. Before attempting either to define stuttering or evaluate its definition, it is important to clarify what definitions are for. The *New Oxford American Dictionary* (Jewell & Abate, 2001) emphasizes that a definition spells out the **exact** meaning of a word or the nature of something. So next we will review examples of definitions offered by clinician-researchers over the years. Their diversity reveals how difficult it has been to specify an "exact" meaning of "stuttering."

While typing on a tablet or computer, have you ever accidentally made double strikes or held the keystroke too long? Suddenly you see an unintended string of the same character on the display. This slight involuntary mismanagement of force and/or timing of your fingers can turn into a repeated series of a letter. It may be that similar dynamics take place with speech gestures. If a spoken syllable is slightly mistimed and/or forced too tensely, the result might be a series of several repeated syllables or a sound that is prolonged. Figure 1-1 illustrates stuttering as a speech event.

FIGURE 1–1. Stuttering.

We hold that a definition of stuttering should express its **essential** rather than "exact" nature or meaning, distinguishing it from similar or related phenomena. So, the aim should be to state its fundamental properties. For professional purposes, such as clinical evaluation that may involve measurement, the most useful definition will demarcate limits and be free from opinion. This point is illustrated by analogy through various definitions of a "cough." If a cough is defined as "a sudden, harsh vocal noise," we encounter the problem that "harsh" is a matter of opinion. Or, if a cough is defined as "a sudden expulsion of noisy air from the lungs," the application is imprecise because these words also define a burp or a hiccup. But if people agreed that a "cough" is a sudden sharp sound of expelling air to protect the lungs, then the concept is ready for study and description, including its numerous occasions and conditions of occurrence.

Definitions of stuttering have varied for many reasons. Some have differed depending on the areas of expertise, interests, and needs of the definers. Others were influenced by its many characteristics and dimensions, typical age of onset, patterns of development, suspected etiology, and more. Over the years, many have boldly announced an answer, but to our knowledge no statement yet has attracted unanimous or even majority agreement. Still, we believe it is valuable to make a deeper examination of "stuttering" before the term is applied.

A useful definition of stuttering needs to be **free of opinion** or explanation so that it enables researchers to explore its various features and generate, confirm, or refute theories of its potential causes—all without changing the definition. Unfortunately, many have lacked these desired qualities and therefore have not been sufficiently rigorous in support of research. Here, we review several definitions of stuttering and consider their content, application, benefits, and limitations so that students can appreciate and critically evaluate the issues involved.

Before we proceed, a few words concerning terminology. To avoid frequent repetitions of the same term, the following abbreviations and referents for each group will be used interchangeably:

- PWS for people who stutter or a person who stutters; stutterers or stutterer
- PWNS for people who do not stutter; nonstutterers
- CWS for children who stutter
- CWNS for children who do not stutter; non-stuttering children
- AWS for adults who stutter

Why Is the Definition Important? Practical Implications

Take the example of findings from one study showing that college students tend to pour beer and liquor in quantities that are larger than commonly used standards for single servings (White et al., 2005). A possible reason for the overpouring was that students did not know the definition of standard serving sizes. This, of course, may result in hazardous consequences of drinking to excess. From a scientific perspective, however, their weak knowledge about the actual serving size casts doubt on the accuracy of previous studies based on students' reports about their alcohol consumption. That is, lacking a clear referent, students **underestimated** their drinking. This example highlights the potentially powerful influence of definitions. Because definitions provide a reference and orientation to their conceptual topics, our ideas of **what is stuttering** exerts direct impact on several research and clinical issues, such as: (1) the stuttering population identified, (2) what is quantified (measured) about it, and (3) clinical decisions, such as who receives treatment and how progress is evaluated. These three important functions are elaborated next.

Population Identification

This issue is encountered at the very early stage of research—identifying and counting the subpopulation of people who stutter. The specific definition, or the absence of one, can influence the findings concerning

incidence and prevalence (to be discussed in Chapter 2), regardless of the data collection method. Consider, for example, the potential inconsistency in a survey that asks hundreds of schoolteachers around the country to report the number of stuttering children in their schools but that does not provide a definition of a child who stutters. Therefore, in just about every study of stuttering, the investigator should follow some operational definition to determine who is qualified to be included as a participant who stutters. In comparative studies, it is also necessary to determine who does not stutter to be qualified as a control subject.

Unfortunately, many past studies failed to adhere to the basic definitional requirement. For example, participants were included because they were "regarded" as PWS without further elaboration of what they had to exhibit or had experienced to be viewed as "stuttering." When such studies have clinical implications, the use of a vaguely defined population makes it difficult to apply their results.

Quantification and Measurement

The implications of a definition extend beyond the selection of research participants. Definition is important to those who look at changes in the phenomena. Investigators and clinicians interested in the amount or characteristics of stuttered speech under various conditions must define, in advance, what the "stuttering" is—that is, what will be counted and measured. For example, Yairi and Ambrose (1999a) investigated periodic changes in the frequency of stuttered speech events in preschool children. They defined stuttering as consisting of three observable speech elements: (1) repetitions of parts of words, (2) repetitions of single-syllable words, and (3) sound prolongations and blocks. They referred to these as "stuttering-like disfluencies." Their definition was based on a long history of investigations revealing a valid and reliable set of overt speech behaviors typical of children who were judged by their parents and clinicians to exhibit stuttering. By contrast, but also valid, in a study of the effect of therapy on the speech of young children who stutter, Ingham and Riley (1998) narrowed their definition to syllables **perceived as stuttered** by trained examiners. Although no objective, observable characteristics were specified, their definition was based on an extensive experiment revealing that well-trained examiners can perceptually identify instances of "stuttering" (no further definition) with high reliability. Both teams of researchers have contributed significantly to the knowledge of stuttering, yet their scientific definitions were very different. Decisions about what stuttering is, and how it will be measured, also affect which research can be consulted during clinical applications.

Clinical Decisions

Definitions of stuttering have major implications in the clinical arena. For example, it is the basis of whether a person is diagnosed as exhibiting stuttering and therefore recommended for clinical intervention (e.g., therapy and/or counseling). Alternatively, it may be used to determine whether stuttering is no longer an issue so the person should be discharged from treatment. Such decisions are more difficult when the person (client) exhibits a mild stutter, harbors covert (hidden) stuttering, or presents a borderline case. Consumers of clinical services need to be confident their concerns are not overlooked because of insufficient definitions or bases for diagnosis. Several definitions readers may encounter, such as, "Stuttering is a transient disturbance in communicative, propositional, language usage," are impractical. Clients and health-care agencies paying for treatment are entitled to reasonable grounds for identification of the condition for which treatment is

Student clinicians must appreciate that defining stuttering and undertaking to diagnose it are two different endeavors. A definition aims at delineating the **meaning** of a term; a diagnosis attempts to determine whether the presenting communication pattern constitutes a **clinical problem** or the risk for becoming one. Arriving at a clinical diagnosis often involves analysis of multiple parameters beyond those in the definition. Moreover, even if "stuttering" referred to frequent syllable repetitions, the diagnostician would still have to determine whether the numbers and their impact raised a need for concern. These may vary with factors of age, time since the disorder's onset, consistency, and so on.

requested. Thus, in addition to theoretical, research, and clinical purposes, there are also significant ethical and economic motives to establish a clear, acceptable definition of stuttering.

What to Define: Surface Speech Events or Complex Disorder?

The term stuttering may refer to either an event (e.g., a stutter) or to a complex disorder in which disrupted speech is but one component. In the statement, "Last night he was stuttering," the term refers exclusively to surface (overt) phenomena. By contrast, in the statement, "She has had stuttering since she was a child," it refers to a condition when a person has had persistent, episodic speech disruptions as well as other important features, such as physiological tensions, cognitive and emotional reactions, and social difficulties. This is illustrated in Sheehan's (1958, p. 123) notion of the **stuttering iceberg**: that what we perceive as stuttered speech events may reveal only a small part of the disorder—that is, they are only the tip of the iceberg. Here we contrast the meaning and roles of the two types of definitions of stuttering: (1) as **disrupted speech** and (2) as a **complex disorder/condition**. Taking this orientation, the definitional language referring to stuttering as a speech phenomenon generally describes what a person is **doing** when talking. For the second, broader concept of stuttering, the definitional language usually contains statements about what a person **is** or **has**.[1] We develop these two concepts of stuttering further in the next sections.

Stuttering as Atypical Speech

Stuttering events only occur in the context of attempting to speak. It is different from a hiccup that occurs whether a person is speaking or not. The most meaningful speech, like saying one's name, is more apt to be stuttered than a nonsense phrase made up of words in a mixed-up order (Wingate, 1979). For many, the act of saying an isolated speech sound is far less apt to trigger stutter events than delivering a public address. For others, however, the mere attempt to make the sound of an isolated vowel will trigger a stuttering event. Stuttering is an **involuntary** disruption of the smooth execution of a speaker's intentional speech act. Because stuttering is so inextricably tied to the act of speaking, it will be beneficial to briefly review here the dimensions of speech production as well as the concepts of speech fluency and disfluency. The characterization of fluency is important as a foundation for understanding the various disorders of fluency.

Dimensions of Speech Production

Typical speech is not perfectly fluent. The rhythm and pace of speech delivery is highly variable. Nonetheless, many utterances are characterized by an ongoing stream of coarticulated speech sounds delivering expressive language. Speech produced fluently consists of suitable dimensions of (1) rate, the appropriate timing within and across words; (2) continuity, the smooth connections within and across words; and (3) the appropriate regulation of tension (Starkweather, 1987). Hence, various levels of the speech system must function properly and in close coordination.

Students of communication disorders know that speech originates in the speaker's brain with the formulating of an intended message, ordering of words, sounds, and syllables as well as preparing the rhythm, tempo, and vocal tone. The spoken output depends on coordinated neurological commands from the brain to the peripheral motor and sensory mechanisms that execute the desired speech. At that level, speech is produced with lung air (respiratory system) expelled through the larynx (phonatory system), ultimately channeled through the vocal tract: pharynx, oral, and nasal cavities (articulatory system). The flow of speech requires a series of precisely coordinated movements of all three. Sounds produced at the larynx and the vocal tract are filtered and modified still further as they blend (e.g., for coarticulation) into syllables, words, and sentences. They are then further refined by changes in rate, pitch, intonation, and loudness, achieved by combined alterations of the respiratory, phonatory, and articulatory systems as reflected in Figure 1–2. The final speech output becomes acoustically complex in both the frequency and time dimensions, and as a function of the constantly varying length and

[1] Johnson (1958) made comparisons between what a person is doing versus what a person is or has.

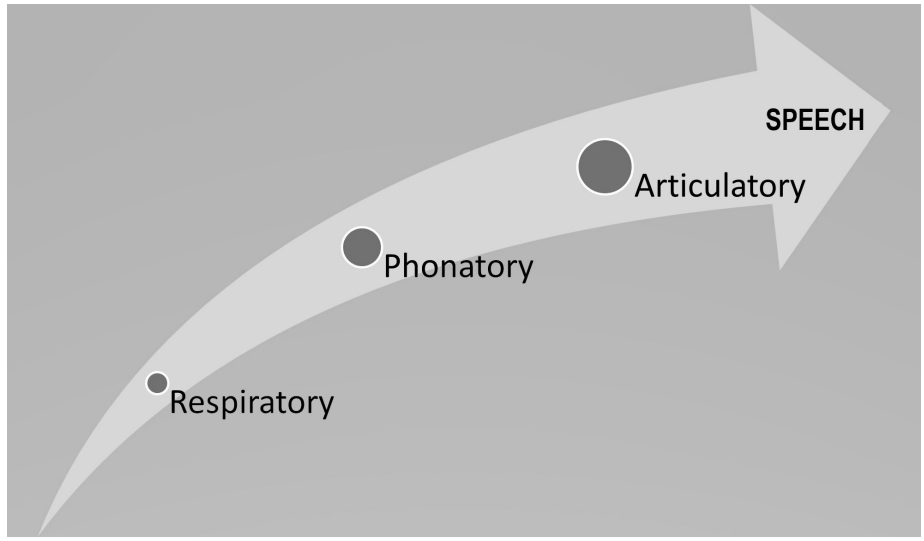

FIGURE 1–2. Motor physiological processes in speech production.

cross-sectional area of the vocal tract, as well as the position of the articulators (e.g., the tongue) and durations of their movements. Finally, the speech output is also modulated by the speaker's own monitoring of proprioceptive, tactile, kinesthetic, and auditory feedback loops. Speech is mainly a feedforward act in which movements proceed without monitoring attention (Levelt et al., 1999). Decisions to hold back or to revise a message are mainly made before or after words are spoken.

This account, familiar to many of you, is presented to make the point that stuttering, at least at the surface level, should be appraised against the larger normal complex structures and functions that are disrupted. It is the precise, delicate, coordinated, and timed array of movements and resultant normal flow of speech that may be disrupted at just about any or all levels of the speech motor system. **Therefore, clinicians must appreciate that these processes are what speech therapy attempts to restore**. The disruptions frequently appear as the various disfluencies described later or even as complete cessations of speech, inability to initiate words, respiratory and phonatory irregularities (e.g., running out of air for speech, pitch raising, glottal fry, etc.), and others. Additionally, there is growing evidence that disruptions underlying disfluency also occur at higher levels of speech planning and control in the brain, as will be discussed in Chapter 6.

Typical Disfluency or Instances of Stuttering?

The various surface (observable) interruptions that occur in ongoing speech have been referred to as "disfluencies." For practical purposes, these events have been categorized using linguistic terminology or other descriptors applied to speech events. Among those, the most commonly referred to categories are word repetition, part-word or syllable repetition, sound repetition, phrase repetition, sound prolongation, blockage,[2] interjection, and revision. Some of these (e.g., phrase repetition) minimally interrupt speech continuity, but they do slow down its progress. A critical fact is that disfluencies occur not only in the speech of people who stutter but also in the speech of practically all speakers, especially young children (Johnson, 1961a; Yairi, 1981). It is important, therefore, to recognize from the outset that disfluency and stuttering, although related, are not synonymous. In most people and under most circumstances, speech disfluencies are not too frequent and are regarded as neutral. The many behavioral characteristics that have appeared in a speaker who stutters have on occasion also been done by a speaker who does not stutter. But, when produced differently or under certain circum-

[2] The categories of sound prolongations and blocks are frequently merged in a single category: disrhythmic phonations.

Alternate spellings of some terms are found in the stuttering literature. Examples are "disfluencies" versus "dysfluencies" or "disrhythmic phonations" versus "dysrhythmic phonations." Although not all writers use the distinction, the prefix "dis-" may be contrasted with "dys-" on purpose. Wingate (2002) explains that the prefix "dis-" is the Latin for "not"; "dys-" refers to "disorder." Therefore, when encountering "dys-," the referent may be more closely tied to the disorder of stuttering. By contrast, the prefix "dis-" commonly refers to all disruptions whether specifically stuttered or not. "Dis-," however, has been used by professionals and scholars much more frequently and is used in this text.

stances, or when noticeably unusual and distracting, disfluent speech may be regarded as characteristic of stuttering. Thus, the terms disfluency and disfluencies will be referred here to speech disruptions regardless of whether they happen to be typical or stuttered speech.

The distinction between "typical disfluency" and "stuttering," sometimes blurred, stems from two sources: speech production and speech perception. From a production perspective, several disfluency types occur much more frequently in the speech of people regarded as exhibiting stuttering (Ambrose & Yairi, 1999; Johnson & Associates, 1959). Syllable repetition (e.g., bu-bu-but) is a prime example. It is found in everyone's speech but its level is 10 times higher for American English–speaking children who stutter (CWS) compared to American English–speaking, typically fluent children (CWNS). Single-syllable word repetition (and-and-and) is five times higher. In many cases, disfluencies produced by people who stutter not only are more frequent but also differ in other properties from those of the same type produced by normally fluent people. When a PWS repeats a syllable such as "an-an-and" or a single-syllable word such as "but-but-but," the speed of the repetitions is **three times faster** than repetitions produced by PWNS (Throneburg & Yairi, 1994, 2001), the number of repetitions per instance is greater (Ambrose & Yairi, 1995), and their distribution (clustering) within speech is different (Hubbard & Yairi, 1988; Sawyer & Yairi, 2010). From a perceptual perspective, these very same disfluency types also tend to be judged as "stuttering" by listeners (Young, 1984). Of course, the frequency of occurrence is very influential. One or two syllable repetitions per 100 words of running speech may be perceived as typical, but five syllable repetitions in the same amount of speech are likely to be perceived as stuttering (Sander, 1963). Still, listeners vary in how they perceive the same disfluencies as "typical" or "stuttering."

From the speaker's perspective, the reason(s) underlying the behavior are also important. A typical speech disruption is usually associated with word finding, a sentence-formulation decision, a reconsideration of message content, a distracting event nearby, and so on. These disfluency events are also experienced by PWS. Yet, when words to be said are fully decided and the person intends to say them but the production is "stuck," the speaker's experience is apt to fit the label of stuttering. Thus, speech disruptions occur for various reasons; not all of them are stuttering. By now it should be clear that the term opposite of fluency is "disfluency," not stuttering. Stutter events represent just one possible source of disfluency but are not the only breaks in the flow of speech. As you will learn later, there are other fluency disorders and other conditions besides stuttering that may account for various speech disruptions.

Stuttering usually begins in early preschool years, apparently before a child is self-aware of talking. Therefore, the types, level, and severity of the disfluencies observed by parents and clinicians are considered toward the diagnostic decision of whether a child is stuttering. When children are older, their self-report of experiences with stuttering disruptions and their impact on daily life and communication are diagnostically as important as their actual disfluent speech at the time of evaluation.

Although a good number of disfluency types may also occur in speech of typically fluent speakers, those that are most typical to stuttering have been dubbed as "core behaviors" (Van Riper, 1971). Yairi and Ambrose (1992a) refer to them as **stuttering-like disfluencies,** or SLD ("stuttering-like" acknowledges that they are not exclusive to stuttering), and **other disfluencies** (OD), which are regarded as less stuttering-like and commonly produced by typically fluent speakers. The distinction between stuttering-like disfluencies and other disfluencies rests on the greater statistical probability of the occurrence of (a) the first in the speech of PWS and the second in the speech of PWNS and (b) the perception by listeners of the first as stuttering and the second as typical. Indeed, speech of children and adults who stutter contains a high proportion of disfluency types we refer to as SLD. Disfluency types categorized as SLD and OD are listed in Table 1–1 and described below. Do not be surprised, however, to encounter literature sources and/or clinics that employ some variations to the types of speech disruptions in their disfluency classification system.

Stuttering-like Disfluencies:

I. **Part-word repetitions.** Repetitions of sounds or syllables. No distinction is made between these two. For example, "a-ai," "f-five," "ba-baby," "mo-mo-mommy." Various speech sounds may be repeated, including vowels and consonants of different classes.
II. **Single-syllable whole-word repetitions.** For example, "but-but," "and-and." Here, and in all other repetitions of speech segments, it is important to distinguish disfluency from what is not. Sometimes repetitions are not disfluencies, such as when they are uttered intentionally for emphasis: "It's so, so, so good!"
III. **Disrhythmic phonations**. Includes audible prolonged sounds, inaudible fixations of blocks and broken words, and glottal fixations (tense pauses), as detailed in the following text.
    a. **Prolonged sounds.** These are audible elongations of vowels, as in "a>>>>>ai like to go," or elongations of consonants, such as in "M>>>>>>y name is" or "s>>>>ometimes." Prolongations may be voiced or voiceless.
    b. **Blocks and broken words.** The articulators (tongue, lips) or the vocal cords are held in fixed positions, either at the beginning of a word, such as in C———cake," or in the middle of a word, as in "The ta———able is set." Typically, the blocks are silent or accompanied with minimally audible sound. They are *within-word* phenomena.
    c. **Tense pauses.** These are unusual breaks that occur *between* words, associated with vocal tense sounds[3], such as escaping air (e.g., "I like to————go home").

Other Disfluencies

I. **Phrase repetitions.** Repetition of any segment longer than one word, "I was–I was going," and even a word plus a sound or syllable of the next word, as in "Once up–once upon," are examples of this type of disfluency.
II. **Multiple-syllable word repetitions.** Repetition of longer words, such as "because–because." Similar exceptions for emphasis apply. For example, in "She is very, very nice," the word *very* is not counted as a disfluency.
III. **Interjections.** Those are extraneous sounds such as "um," "uh," "er," and "hmmm." Interjections, too, may be repeated, such as in "um-um." Words and phrases such as *like, well,* or *you know* are not considered disfluencies but become of interest if they are so frequent as to be distracting.
IV. **Revisions and incomplete utterances.** A revision is when an utterance is modified but the general content remains the same (e.g., "I like—I want this ball"). An incomplete (abandoned) utterance occurs when there is an apparent change of thought in the middle of the utterance (e.g., "The baby is—let's do that).

Perceptible differences may distinguish many moments of stuttering from typical disfluency, but some listeners may find it difficult to determine if a disfluency they have heard is typical or stuttered. This is because listeners operate with different perceptual thresholds in regard to "how much is too much?" That is, how much disruption does it take to evoke a person's judgment that a speech is stuttered rather than typically disfluent (Martin & Haroldson, 1981)? Factors

[3] The tension rather than the location classify these as SLD.