When is it cluttering? And when is it cluttering-plus?

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Working definition of ***cluttering*** (St.Louis, Myers, Bakker & Raphael, 2007)

Cluttering is a fluency disorder characterized by a rate that is perceived to be abnormally rapid, irregular or both for the speaker (although measured syllable rates may not exceed normal limits). These rate abnormalities further are manifest in one or more of the following symptoms:

a) an excessive number of disfluencies, the majority of which are not typical of people who stutter;

b) the frequent placement of pauses and use of prosodic patterns that do not conform to syntactic and semantic constraints; and inappropriate (usually excessive) degrees of co- articulation among sounds, especially in multisyllabic words. (pp. 299-300)"

Scaler Scott & St Louis (2009) ask us to be "purists in evaluation and diagnosis of cluttered speech (p. 48)."

Recent historical highlights

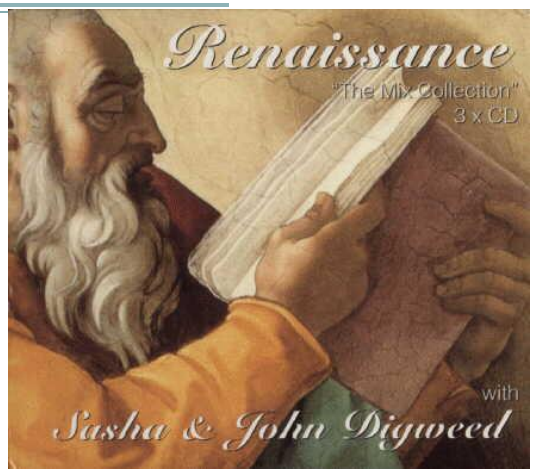
- Weiss (1964) identified cluttering as coexisting with primary stuttering, and emphasized the "central language imbalance."
- Freund (1952; 1970): Differentiate "common stuttering" vs. "neurogenic stuttering" vs. "hysterical"/psychogenic vs. "cluttering"
- Van Riper (1982) Track II subgroup (n = 44 followed longitudinally):
  - "Late talkers"
  - Rapid, irregular repetitions
  - Word/sound fears were quite mild: **Unaware**

Now, we are in a virtual Cluttering Renaissance!

International Cluttering Association;

Many more publications;

This first online cluttering conference, etc…



Definitions: When is it Cluttering?

- **When three *features* are present:** ***tachyphemia***
  - (1) rapid and/or irregular **articulatory** rate
  - (2) intelligibility is reduced due to over-coarticulation (**weak syllable deletion** and **imprecise articulation;**
  - (3) **disfluencies** especially of the non-stutter type, are frequent
- Low awareness ***characteristic***: When a listener points out the unintelligibility or the low intelligibility of the speaker who clutters, the speaker can often improve intelligibility and/or fluency by **conscious, effortful** slowing down.

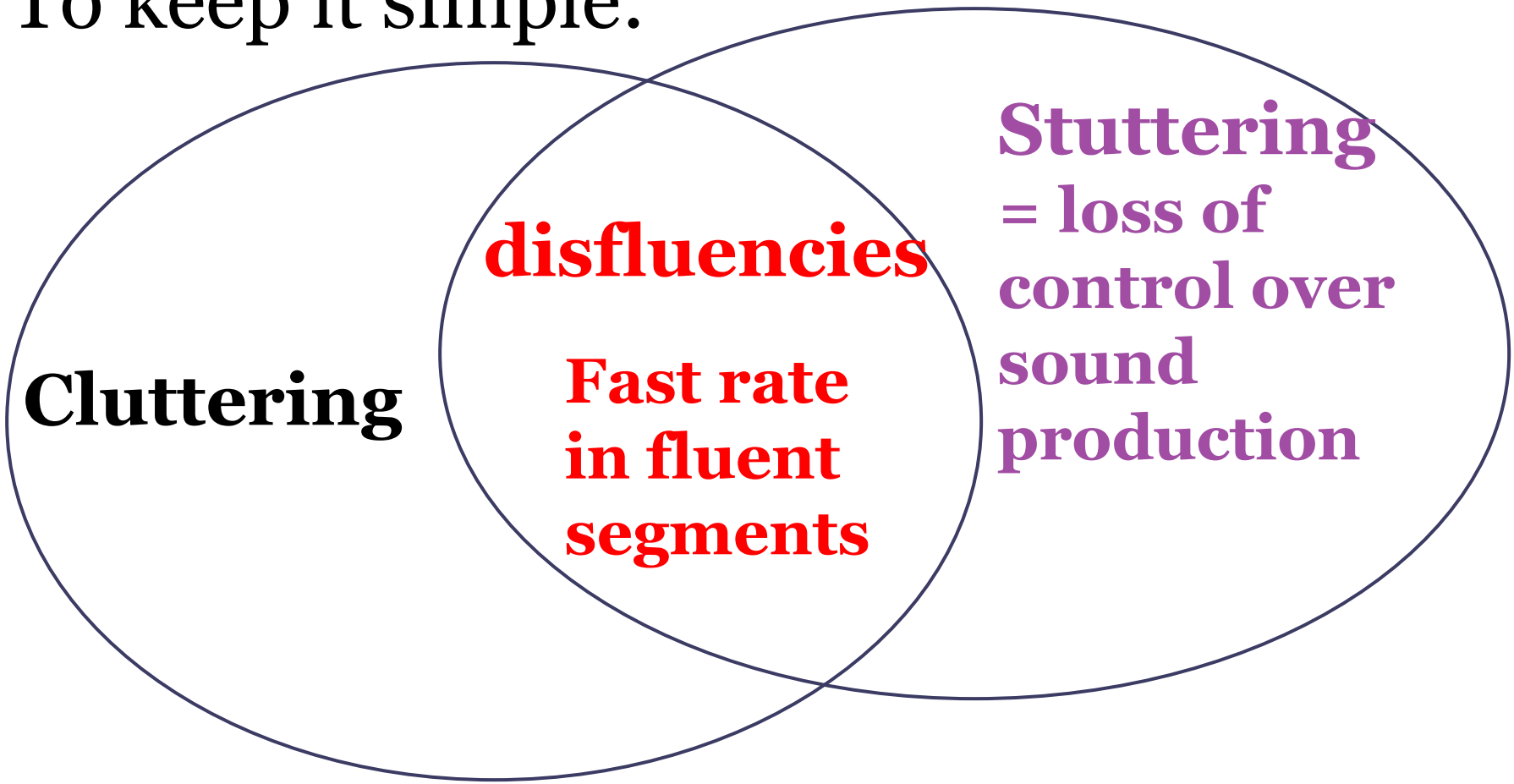
Why use the "cluttering-plus" term?

- Authors refer to those who stutter and have a concomitant disorder as "stuttering plus."
- Most common concomitant disorder(s) with stuttering are *articulation, phonological, language, and/or learning disorders/ disabilities* (e.g., Arndt & Healey, 2001).
- **It is cause for concern that the definition of cluttering shares features with "stuttering-plus."**

Cluttering shares at least one feature with stuttering: Disfluencies

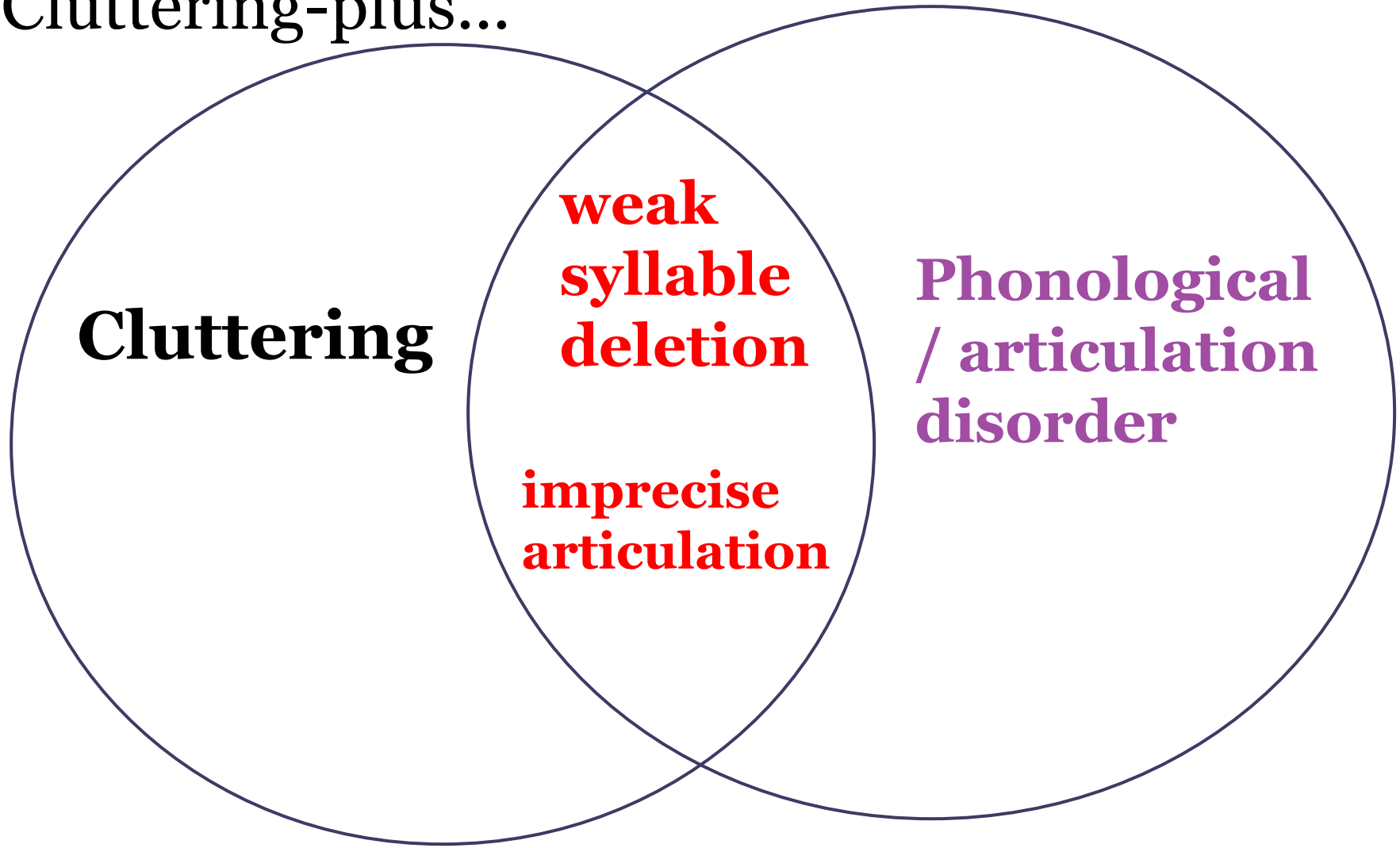
Especially re: advanced stuttering. Consider how “mazing” is the same surface behavior as “stalling/filling” (i.e., between-word disfluencies)

To keep it simple:

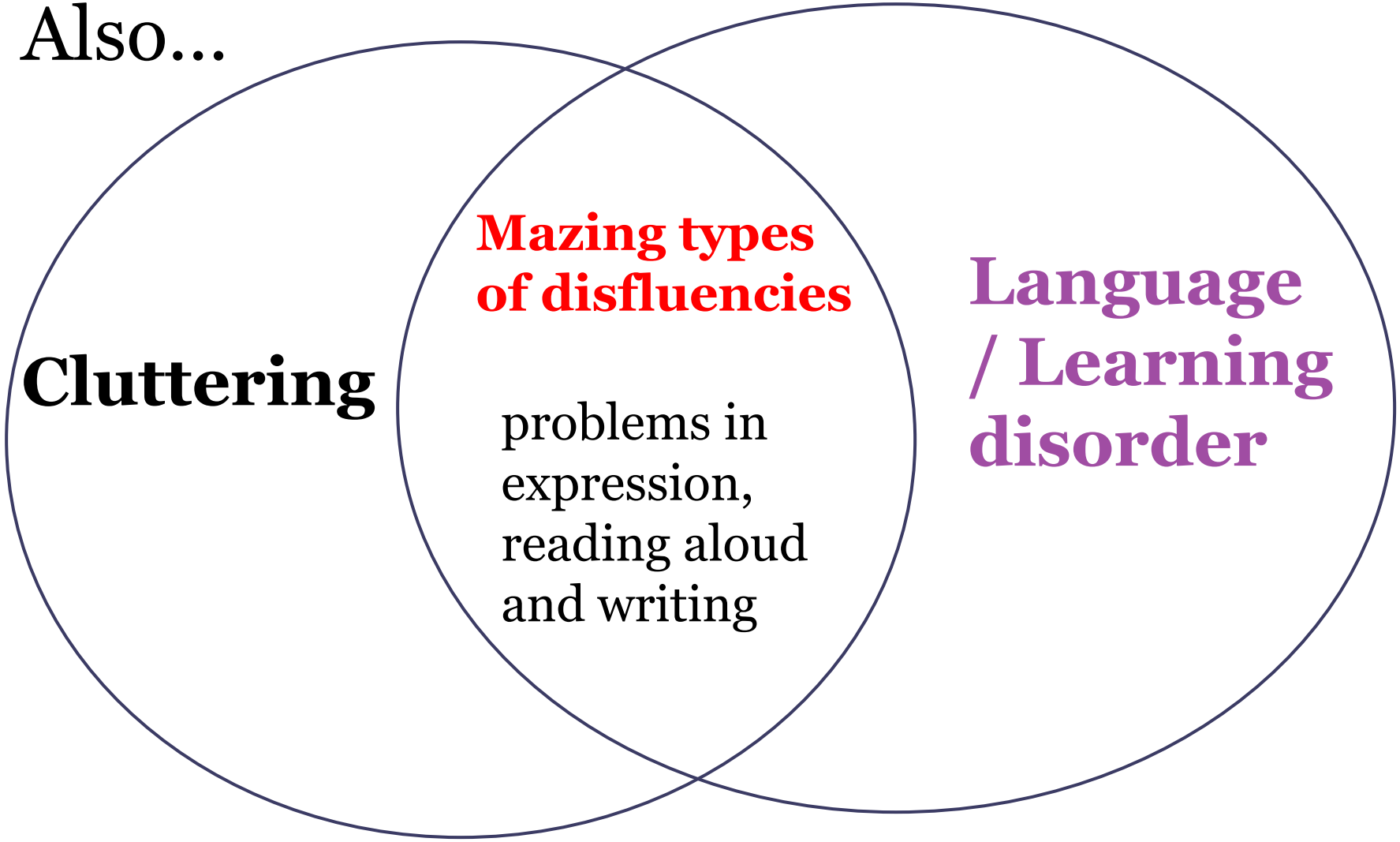


Perhaps changing the lens from "stuttering plus" to "stuttering vs. cluttering?" and *then* to "cluttering plus" will help illuminate our path…

Cluttering-plus…



Also…


Cluttering
Mazing types of disfluencies
problems in expression, reading aloud and writing
Language / Learning disorder

"Due to a lack of differential diagnostic criteria between cluttering, stuttering and language/ speech impairment related to a learning disability, cluttering is often detected later in life, or not at all. This has the undesired result that therapy results are very limited and communicative skills of affected persons remain poor (van Zaalen, 2009, p. 16)."

What is our diagnostic task? Are we assessing a speaker who presents with:

- Pure cluttering?
  - Fast, irregular rate; often unintelligible and/or disfluent
  - But the speaker reports experiencing control over sound production and an increase in fluency and/or intelligibility when they at least temporarily increase self-awareness
- Pure stuttering?
  - Disfluent especially in terms of "stutter"/within-word disfluency frequency and reports experiencing loss of control over sound production

If it is cluttering, is it cluttering *plus*:

- An **articulation/phonological disorder** beyond weak syllable deletion and general imprecision?
- A documented **language-learning disorder**?
- **Other communication disorders** (i.e., auditory processing disorder)
- **Other types of disorders** diagnosed by non-SLP professionals (e.g., ADHD; autism; syndromes)
- **Stuttering?** Weiss (1964) – Does stuttering stem from cluttering? **Case history re: onset**

To do this, we need to ask about:

- Prevalence of stuttering vs. cluttering vs. their co-occurrence
- Prevalence of concomitant disorders compared to the pure existence of each disorder type
- Tools of the trade:
  - Diagnostic materials
  - Observational skills
  - Acoustic measures needed (e.g., phones per second; pause loci and duration)

Preliminary prevalence data

- The prevalence of cluttering among disfluent speakers has varied reports: Is cluttering just as prevalent as stuttering (i.e., ~1%), or is it even more prevalent than that?
- **Unanswered question:** Is there an incidence of cluttering to compare to the 5% incidence of stuttering?
  - That is, do individuals ever spontaneously recover from cluttering?
  - Weiss (1964) suggested stuttering stems from cluttering; could we infer a core complex?

Van Zaalen (2009) subjective judgments + objective measurements (n = 54 individuals, 6- to 47 yr-olds, who self-referred or whose parents referred them for fluency disorders)

Undecided (12/54 = 22%)

- Even with the added measures of disfluency ratio (NS/S), errors, and rate is sps, these cases represent lack of clarity in exact Dx

Decided (42/54 = 78%)

- Stutters (9/42 = 21%)
- Clutters (10/42 = 24%)
- Stutter-Clutter (23/42 = 55%)

If evaluating a person with a fluency disorder suspected to be cluttering:

- Determine if facilitating a slow speech rate facilitates greater fluency and/or greater intelligibility/speech precision. Slow via one of the following options:
  - Delayed auditory feedback (DAF, e.g., www.artefactsoft.com);
  - pacing board and/or
  - choral reading and rote lists (days of the week)
- In other words, is the fluency disorder and/or low intelligibility secondary to speaking faster than the speech production system can handle?
- Can the speaker pass a basic apraxia / dysarthria battery?

Van Zaalen's (2009) data also points us to the importance of three other areas for diagnosing cluttering:

- Observations of cluttering "imprecisions":
  - errors in syllable or word structure;
  - extra (non-linguistic) pausing;
- Cluttering, not stuttering:
  - SSI-3 severity scores were equal or below 2 (no – mild stuttering);
  - Score on the Brutten speech situation checklist (S-24) – or a similar scale – is within normal limits.
- Cluttering, not LLD, via standardized tests, etc.

Measures important for differential Dx

- **Disfluency ratio:** Determine within-word disfluencies or "stutters" (W, S, A, B) and between-word disfluencies or "non-stutters" / mazing-like disfluencies (P, R, I, O) and divide the nonstutters by the stutters:
  - Person who clutters > 1.0 due to the predominance of nonstutters
  - Person who stutters < 1.0 due to the predominance of stutters (Van Zaalen, Wijnen & DeJonckere, 2009)
- I believe it is also useful to **ask the client about sound production control.** While the efficiency of this exercise is complicated by the low awareness characteristic in cluttering, it is trial therapy as well.

Measuring rate in syllables per second (sps):

- Difficulties:
  - Weak Syllable Deletion (WSD) gives listeners the impression of rapid rate, but sps is average to slow.
  - Yet measuring phones per second (pps) is time consuming, and phoneme imprecision adds to the same type of problem.
  - Van Zaalen (2009) found "accelerated bursts" of speech in the midst of disfluent utterances, when disfluencies are excised and yet this is tedious to measure.
- Possible Solutions:
  - Note percent application of WSD (% opportunity)
  - Note irregularity / festinating = clinical observation (Duffy, 2008)
  - See Case of T

Case study of T (20 yo UWEC student)

- Twenty utterances from a monolog ("Tell me about your typical day" and follow-up Qs) were transcribed and coded for disfluencies.
- These 20 utterances ranged from 3 to 58 syllables and averaged 25 syllables in length, totaling 496, or 442 fluent syllables.
- Fifteen (75%) included one or more disfluencies and the other five (25%) were fluent.
- T produced 54 total disfluencies in this sample of 442 syllables, thus he was 12% disfluent overall (9% nonstutters; 3% stutters):
  - About half (26/54 = 48%) were interjections [I] ("um" "uh"),
  - About a quarter were revisions [R] (n=12) and phrase repetitions [P] (n=3) (15/54 = 28%),
  - Remaining quarter (13/54 = 24%) were within-word disfluencies (sound-syllable repetitions [S] n=6; whole-word repetitions [W] n=5; audible prolongation/other [A] [O] n=2).

Case study of T (continued)

- Fluent speech rate could only be based on the five fluent utterances, and averaged 3.6 sps (range: 3.0 – 4.5 sps).
- "Disfluent speech rate," based on the remaining 15 utterances, averaged 3.95 sps (range: 2.55 – 7.0 sps). (see pp. 193-194 & 267 of Guitar, 2006)
- Example 1:40 *Well mainly we're jus' [R] we're really bad at the business [b8zn1s] side of things so we can never really [R] an' we play outside [tse]d] of the cities, like we won this battle of the bands in the cities earlier [6ly5] this year*. 1:49 48 actual syl/9 sec = 5.33 sps

Case study of T (continued) : N=84 multisyllabic words in this sample.

- Of these 84 , 23 were produced with “weak syllable deletion” (e.g., “outside” → “tside” “one o’clock” → “one-clock”).
- Thus, percentage of weak syllable deletion application is 23/84 or 27% , which is higher than considered normal at any adult age.
- If intended syllables are counted instead of actual ones, speech rate (sps) results would be faster.
- This finding, along with the problem of few fluent utterances, makes an articulatory rate measure challenging.

Case history / interview Q's:

- Rate, fluency, clarity/intelligibility, language and thought, and *self-awareness*
- Lay definition questions of cluttering v. stuttering:
  - **Cluttering:** Is it ok with you that listeners tell you to "slow down"? Do you tend to slow down when told to? Does slowing help your fluency? Does it help you to be better understood? Why? Why not? (i.e., awareness)
  - **Stuttering:** When you repeat or prolong sounds/syllables, do you know exactly what word you want to say, but for that split second, you are unable too say it? Describe that moment as best you can. (i.e., loss of control, a core definitional concept)
- Medication(s)? Dosage? Effects? (Bernstein & Bloodstein Ratner, 2008)

Lay definition of cluttering

"Cluttering is a speech problem in which a person's speech is either too fast, too jerky, or both. Most people who clutter seem to run their words or sentences together, and they often have many more fillers, hesitations, revisions, or other breaks in their speech than normal speakers do. Their speech sounds 'cluttered' as though they do not have a clear idea of what they want to say, and they are often not aware that they have a speech problem."

Lay definition of stuttering

"Stuttering is a speech problem in which a speaker typically repeats or prolongs (draws out) parts of words, or gets stuck or blocked on words. Sometimes stuttering consists of strategies that try to reduce or avoid repeating, prolonging, or blocking. Stuttering is often associated with psychological stress or unpleasant feelings. Finally, the person who stutters often experiences a loss of voluntary control in saying certain words (St. Louis, 2009)."

What's on your clipboard?

- Daly & Cantrell (2006) *Predictive Cluttering Inventory*. Free download from http://associations.missouristate.edu/ICA/ and supplemental info about its use.
  - Sample dialog, monolog, and phone calls of spontaneous, connected speech.
  - Good for excluding those who do not clutter, esp. (Van Zaalen, 2009)
- Quick assessment tools for measuring disfluencies per 100 words; we use a 300-word grid based on Conture (2001):
  - Between-word disfluencies: "Phrase repetitions, Revisions; Interjections; Other" [common in cluttering]
  - Within-word disfluencies: "Whole-word repetitions, Sound-syllable repetitions, Audible prolongations, Blocks" [less common in cluttering]
- Self-Perception task (e.g., Daly & Burnett, 1996)

What's in your clinic room?

- Computer, with mic, headphones, speaker, and installed with:
  - Audacity (v 1.2)
  - DAF/FAF Assistant (v.1.1)
  - Cluttering Assessment Program (v. 2.02; Bakker, 2005)
- Low-tech options: recorder-playback device (Loquitor™) ; touch pad type stopwatches, calculators

What will you do with recorded speech samples?

- Count disfluencies per 100 words.
  - Code for type (W,S,A,B “stutters”/P,R,I,O “nonstutters”).
  - Divide the number of nonstutters by the number of stutters for a disfluency ratio (Campbell & Hill, 1994), so that the closer to 0-1.0, the more likely, the speaker stutters and does not clutter, and v.v. (Van Zaalen, 2009) .
- Determine relative fluency response (%decrease) to “speak slower and more carefully” instruction.

What structured tasks will you ask of your client?

- Ask for rote speech: “Count, days of the week.”
- Imitate multisyllabic words and sentences, phonemically loaded (e.g., *Source for Apraxia*)
- Imitate a sentence with appropriate pausing.
- Read and answer questions about the reading (Who, What, When, Why/what if).
- Diadochokinesis: “Say /pʌpʌpʌ/ as many times as you can as fast as you can.” (Use Audacity or stopwatch).
  - /pʌtʌ/ “patty” for young children
  - /pʌtʌkʌ/ “pattycake” for young children

What *other* structured tasks *might* you ask of client?

- Oral peripheral examination (e.g., St. Louis & Ruscello, 2000)
- Motoric tasks
- Audiological evaluation (pure-tone; typanometry; screen for auditory processing
- Battery of tests assessing the suspected concomitant disorder(s) (e.g., standardized language measures)

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