

Titel: Notes on Douglas MacFarland, [EliFischerJørgensen1948-51] 038-0190

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Anvendt udgave: Louis Hjelmslev og hans kreds

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intensiteten ogsaa ind.)-

Many children have been tested by the Western Electric 4-A-A
ometer, with records containing numbers. The author has an attenua-
list of numbers with decreasing intensity. This method is very crude
but has been useful for finding children with hearing-loss.

Investigations made by the Bell Lab. and others show that the
most common speech frequencies lie in the area of best hearing
(300-3000, particularly 1000-2000). Interferences, Many factors in-
terfere in the result of the testing (education, familiarity, mental
acuity or agility, word memory and word association, noises interrup-
tions and distractions).-

The Bell Lab. have employed meaningless syllables, type cv,
cvc, and vc) (cp. Phila. Mag. Jan. 1910 and Phys. Rev. July 1917).
The tests were called "Articulation tests". The percentage of spoken syl-
lables which were correctly observed was called the Syllable Articula-
tion. The percentage of the total number of spoken sounds correct-
ly observed was called Sound Articulation. When using words or senten-
ces Fletcher spoke of word and sentence intelligibility.

The author has made repeated efforts to utilize the Bell Lab.

"Articulation lists" of meaningless sounds and has found nothing but
trouble and failure in them. The difficulty of reporting meaningless
sounds heard, and the difficulty of recording or writing what is repor-
ted, is insurmountable.

(examples from one of the lists: sawp, vud, pe!, bahn, waysh, sest,
chocasp, heej, lut, footh, jesp, dawf etc. (det er klart at engelsk
ortografi gør dette næsten umuligt- paa dansk lader det sig gøre).

11. Intelligible Speech Tests. Dialect differences make certain
difficulties, but not so much as should be expected. If numbers are
used these difficulties are negligible. Numbers 1-10 are used (except
number 7, because it is dissyllabic), and therefore too easily recogni-
zable. - 8 is often heard for 3, and conversely, although
acoustically they are very different). -

As a rule a person can make a lower threshold in going from
audible to inaudible intensity than in coming from an inaudible level
to audible. The two thresholds are closer in good central acuity,
in auditory alertness, and in nerve deafness as compared with catarrhal
deafness. . . It is advisable to
record the lowest or faintest level at which all test words are heard
correctly, and then, continuing the attenuation, record the lowest 1
level at which any word is interpreted correctly.

e.g. A to 1 - 20-15 (all words heard at 20)
I to A 20-25 (- - - - - 25).

In selecting words for testing, it is well to use only the most
familiar words of in the language, thus there is reduced to a minimum
the factors of education and intelligence. e.g. the first 400 words from

Thorndike's and Gates' lists. For small children short lists of very
common words are used (e.g. box, ball, apple, moon, dog, boat, bird,
boy, girl, book, door, bell) and the children get a card with pictures
of the objects and have to indicate which one is being named.

For very small children test of the type: show me y ur mouth, yo yr
arm etc. must be used. -And for deafened children with a very small
vocabulary, this vocabulary must be used.

The author has also made lists defined for controlling the
hearing loss of definite sounds. - e.g. a list of 110 words containing
22 consonants in initial position 5 times each, and combined with 5
different vowels (skiftende hvilke)- with few exceptions these words

belong to the 500 common words.- the vowel list contains the following words (the numbers are indicate acoustic power in microwatts for eight male voices) tool (22), took (32), tone (33), talk(37), ton (29), top (50), tap(43), ten (25), tape (21), tap(32).

Fletcher's lists of vowels consists of words with the different vowels between b and t or k, and the consonant list consists of words that begins with the consonants + ai or i short i plus a consonant. But in order to get the words so similar he has chosen many rare words.

Stromm has made a list partly with low-frequency sounds (w, a, b, o, l, h ou, aw) partly with high freq. sounds (g, k, t, f, s, sh, n (det er lidt flot beregnet). og de andre lyd er forskellige og kan hjælpe sig).
 Word pairs tests for controlling the frequency loss 1. wordpairs with the difference voiced- voiceless consonants, 2. wordpairs with vowel-difference, 3. wordpairs testing the discrimination between high-frequency-consonants.
 Robert West has united these three types into one test.

The Knudsen-satson "Articulation-list (JASA 1940, april) comprises 75 words (consonant- and vowel words of the type used by Fletcher e.g. vowels between b and k, t, consonants before ai or i, or i vs. three words are said together (one vowel- and two cons. words) and the amplification diminished until nothing is heard and then increased again. The threshold level is chosen as the lowest level at which the observer responds to more than half of the words presented at that level. (consonants count the double of vowels, since they are more important for the understanding of speech).

In England Brigg, Littler (Manchester) and Kerridge (London) have used tests comprising wordlists with a great variety of sounds and small ~~xxxxxx~~ sentences. (oralisterne er sætstavesord
 dvs. el. cc init. og finalt, 4 points for hvert ord, 1 point trækkes fra for fejl i initial lyd, 1 for final og et for vokal, og et hvis slet intet er hørt. - Det er klart at det er en grov metode, da noget er grupper, og noget vil være mere el. mindre let at gætte, ordene er ikke særlig hyppige).

The Bell Telephone Lab. uses the sentences "Joe took fathers shoe bench out" and "she was waiting at my lawn" because they contain all the fundamental English sounds.

Alfred. r. Shea has proposed a list (his master degree, not published) of 96 meaningful monosyllabic words of the type cv(c). the observer gets a sheet with three words printed for each word spoken, and he has to underline the right one (e.g. seat, suit, seed

- nail, name, tail, oil, boil, spoil) -det er ofte init. og final
 ks. el. en ks. og vokalen. (el. tre forsk. init. kons.) der skal vælges imellem -- Manx efterhaanden som listen skrider frem øvkes styrken.
 - Man suggererer altså her til bestemte fejltyper (i Robert West listen skulde vælges et af to ord med minimal forskel, det er ikke helt det samme), man vil naturligvis få frem om fx. a og l høres forskelligt
 men og man undgår stavevanskelighederne, som i engelsk er store naar ord skal skrives ned (men det kunde gøres mundtligt) - men man faar ikke at vide om manden evt. har hørt noget helt fjerde). -

Sentences are more difficult to judge because much is guessed, but they can be used for controlling the effect of hearing aids.

MacFarlan 4

The patient's hearing is tested first without the hearing aid, then with it (æstningerne ~~er~~ brugt af Roice, Bell lab.) er spørgsmålet, som er svære at bevare (fx. what knowledge is covered by the study of astronomy? o.l. Hvad er værdningen ved det?) MacFarlan uses sometimes nonsense sentences of the type: Giraffes are protected by lightning rods, there are no tuesdays in Baltimore etc. -

It has been assumed that the hearing loss for speech could be calculated on the basis of the tone audiogram. Fletcher calculates the average loss for the pitches 512, 1024 and 2048, multiplied by the factor 0.93. Later methods (Fowler and that of the American Medical Association Council) give more care to the weighting (relative importance) of the different frequencies, but nevertheless these methods are absolutely insufficient.

Since in normal hearing individuals, there is a 100 db. span between correct speech hearing at the minimal threshold and the maximum loudness of speech that can be tolerated, it is obvious that decibel hearing loss to speech is equivalent to percentage loss. A comparison between the percentage loss according to speech-tests and to the tone audiogram shows no correlation (three cases mentioned). Two different persons having according to Fletcher's method 44 and 58 percentage loss show quite different results when speech hearing is tested, no. 1 cannot understand anything, number two can converse easily. -

B. Warfield has compared 21 cases tested by the tone audiometer and (calculations according to Fletcher) and by the 4a phonograph audiometer. The discrepancy was very great. There is a variation in the ratio 22:9 in favor of the frequency audiometer presuming greater hearing loss. (Men i alle tilfælde undtagen 1 giver Fletcher metoden større tab, og det er ikke saa mærkeligt i betragtning af at 4a listen sandsynligvis er den i beg. nævnte 4a Western Electric liste, omfattende talord. Og her er kun 1000 9 tal at sætte isælden. Det saa nødvendigtvis sætte procenten op ~~er~~ Forf. tilføjer en beregning for een person, sm. mellem "constant intensity phonograph record", og A.H.A. metoden for frekvens, den viser stor overensstemmelse for begge prøver paa een gang (mindre ved de enkelte). - Ikke desto mindre har den sikkerhed ret i at toneaudiometret er ganske utilstrækkeligt. Han siger

"It is a common experience for one who makes a point of doing both frequency testing and phonograph audiometry on patients to find no correlation between the two tests. The phonograph usually shows up better hearing than one would incline to believe from first taking a frequency run; but this is not invariably true, and the reverse may be found." (44).