

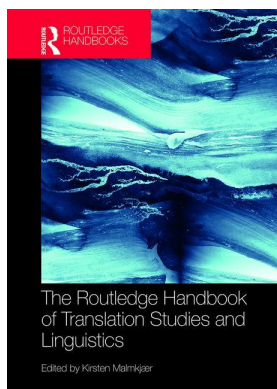
This article was downloaded by: 10.2.97.136

On: 08 Jun 2023

Access details: *subscription number*

Publisher: *Routledge*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: 5 Howick Place, London SW1P 1WG, UK



The Routledge Handbook of Translation Studies and Linguistics

Kirsten Malmkjær

Phonetics, phonology and interpreting

Publication details

<https://test.routledgehandbooks.com/doi/10.4324/9781315692845-5>

Barbara Ahrens

Published online on: 18 Dec 2017

How to cite :- Barbara Ahrens. 18 Dec 2017, *Phonetics, phonology and interpreting from:* The Routledge Handbook of Translation Studies and Linguistics Routledge

Accessed on: 08 Jun 2023

<https://test.routledgehandbooks.com/doi/10.4324/9781315692845-5>

PLEASE SCROLL DOWN FOR DOCUMENT

Full terms and conditions of use: <https://test.routledgehandbooks.com/legal-notices/terms>

This Document PDF may be used for research, teaching and private study purposes. Any substantial or systematic reproductions, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The publisher shall not be liable for an loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

Phonetics, phonology and interpreting

Barbara Ahrens

Introduction and definitions

‘I don’t mind what she said, but I don’t like the way she said it’ is a complaint we all heard some time or other, and probably have uttered ourselves. What does it mean?

(Bolinger 1986, 3)

As the quotation above suggests, in oral communication, the message is encoded in elements that go beyond mere words (Henderson 1980; Key 1980): the way something is said contains important information for the listener (Lehtonen 1982, 37). As early as at the beginning of the 20th century, Behaghel (1900) underlined the role non-verbal and extralinguistic factors play in oral communication, but it took another 60 years before linguistic research started to focus on spoken language and its special features (Enkvist 1982, 17; Schönherr 1997).

The linguistic subdisciplines focusing on spoken language and oral communication are phonetics and phonology. Phonetics, on the one hand, deals with the actual sounds of spoken human speech. Different sounds and the physiological-articulatory processes underlying their production as well as their acoustic properties and auditory perception are described and researched within the discipline of phonetics (Catford 2001; Pétursson and Neppert 1996). Phonology, on the other hand, focuses on the function of sounds in a language system, i.e. the organisation of sounds as functional (distinctive) units in a language (Clark, Yallop and Fletcher 2007; Katamba 1989). The function of sounds can be distinctive on all levels: syllables, words, phrases, sentences or even longer utterances. Especially on the phrase, sentence and utterance levels, sound and its variation are important for conveying different linguistic meanings. In this respect, phonetic and phonological phenomena are expressed by prosody, which is inherent to oral speech processes, be it monolingual or bilingual as in interpreting (see the following section).

Both subdisciplines – phonetics and phonology – are complex areas of study because of their interdisciplinary nature, involving anatomy, physics or neurology, for example, and because phonetic and phonological categories are highly interdependent.

Initially, research into these phenomena of spoken language was very limited due to technical challenges, such as recording, quantity of data, time-consuming transcription

and analyses. Another factor influencing this kind of research is the lack of a homogeneous terminology, e.g. for describing prosodic features in spoken language (Heuft 1999, 14; Schönherr 1997, 3). Terminological heterogeneity is reflected by the synonymous use of terms such as “prosody”, “intonation” or “suprasegmental features”. American structuralism opts for the term “suprasegmental features” for describing “[...] features whose arrangement in contrastive patterns in the time dimension is not restricted to single segments defined by their phonetic quality [...]” (Lehiste 1970, 2–3). In European linguistics, the dominant term is “prosodic” because it is not associated with a specific linguistic school (Crystal 1969, 6).

Prosody can be defined as a phenomenon of spoken language which comprises all suprasegmental features that depend on tonal, dynamic and durational parameters (Ahrens 2004). Tonal features include intonation (pitch contour) and pitch range. Their acoustic parameter is fundamental frequency (F_0), which is perceived as pitch. Dynamic features depend on changes of the acoustic parameter of intensity, which is perceived as loudness. Rhythm, for example, is a dynamic element. Time is the conditioning factor of durational features like pauses or speech rate. There is a fourth category of prosodic features: they depend on the interplay of tonal, dynamic and/or durational parameters and can therefore be described as “hybrid phenomena”. A typical hybrid phenomenon is accent (accentuation, stress).

Prosody is a complex non-verbal phenomenon that has several characteristics and functions. The most important characteristics are *structure* and *prominence* (Ahrens 2004, 2005): the acoustic continuum produced by the speaker is structured prosodically and elements the speaker considers to be important are emphasised by prosody too. As a consequence, prosodic elements guide and support the listener’s process of comprehension (Cutler 1983, 91). In addition to these main functions, prosodic features also serve an indexical purpose: the listener can usually tell from prosody if the speaker is a man or a woman (Lehiste 1970, 58).

Furthermore, prosody has a complementary-compensatory function: it can complement what is being said by providing additional information or it can even compensate for what is not being said. Finally, prosodic features can substitute for each other: in whispering for example, there is no pitch, so accents are conditioned by variations of intensity and duration.

The relation between cognition and speaking becomes evident in interruptions or hesitations in the acoustic signal of speech flow. Thus, prosodic features, such as pauses, are indicators of cognitive processes underlying speech planning and production: “Time to pause seems to be a condition for the kind of central processes (thinking) which underlie new organisation in speech to take place” (Goldman-Eisler 1958, 67).

The durational aspect of pauses is emphasised by many authors who describe pauses as an interruption of the acoustic signal over a certain period of time (e.g. Cruttenden 1997, 30; Crystal 1969, 166; Goldman-Eisler 1961, 18), although pauses can also be perceived when there is no durational interruption of the speech signal, e.g. in the case of F_0 reset at the beginning of a new intonationally delimited chunk. In this respect, pauses not only serve the physiological necessity of breathing, but are clearly linked to the structure of an utterance since they segment the speech flow.

In addition to these functions which support listeners’ comprehension, pauses can also have a disruptive effect on comprehension in the case of an excessive number of pauses (due to the speaker’s emotional state, e.g. anxiety; Faure 1980, 290; Levin *et al.* 1960, 469) or when pauses occur unexpectedly within grammatical structures (e.g. Royé 1983), although in the latter case, pauses may also be used as a deliberate rhetorical means (e.g. Cruttenden 1997, 30).

Due to their complementary-compensatory functions, prosodic elements are interdependent, i.e. they occur in combination, or more than one feature serves the same function.

This holds true for structuring the acoustic continuum when speaking. Although pauses can be an indicator of chunks, intonation serves this purpose in an even more effective way.

Intonation is defined as the pitch contour of an utterance (Ahrens 2004). Changes in the pitch contour are cues for the intonational segmentation of the speech flow (Halliday 1966). These intonationally produced chunks are described as intonation units, which are “defined as a prosodic unit with a coherent F_0 contour and at least one pitch movement perceived as prominent” (Ahrens 2005, 53). Intonation units also have specific final pitch patterns and may be delimited by additional boundary signals, such as pauses. A prosodic universal found in all languages is *declination* (Vaissière 1983), i.e. the declining F_0 contour towards the end of an intonation unit, which is due to physiological reasons. The following intonation unit starts with an F_0 reset (Crystal 1969, 227), which is a strong boundary signal, too.

Closely connected to intonation is accent. Although accents are hybrid phenomena depending on the interplay of tonal, durational and dynamic parameters, the dominant parameter is usually F_0 (e.g. Crystal 1969; Günther 1999), the changes of which can be perceived as prominent, i.e. accents. Phonetically, accents are an important feature at word level because word accent has to be placed on the correct syllable according to the accent rules of each language. In some languages, word meaning can vary if the accent is shifted to another syllable. Phonologically, accents are distinctive at sentence or utterance level, since there the speaker can decide independently what element(s) s/he wants to emphasise. Generally, speakers choose those elements which are the most important parts of what they say. In this respect, accents are clearly related to one of the main functions of prosody, i.e. prominence.

Historical perspectives: Prosody in interpreting

As mentioned above, prosody is an integral part of an orally presented text and it is thus also important if the communicative event is bilingual and has to take place via interpreters. In interpreting, prosodic features in the source and in the target text are equally important.

Even in bilingual communication via an interpreter, the above-mentioned prosodic features and specificities of monolingual communication apply to source text production. The source text speaker uses his or her prosody for emphasising important elements in the message s/he wants to convey, thus making comprehension easier for the interpreter and those among the audience who listen to the original speech. Prosody is especially important in the case of irony in the source text (Kade 1963). Research has shown the impact of source text prosody on the interpreter’s performance: monotonous or not very lively intonation and the lack of pauses result in comprehension problems and a less accurate target text (Gerver 1969, 1976).

Interpreters are professional speakers and, therefore, voice and the way of speaking are also important factors in their performance when it comes to delivering a comprehensible text (Alexieva 1990; Cartellieri 1983). In simultaneous interpreting where the target text is only perceived via headsets, the importance of the interpreter’s voice and speaking skills is more than evident.

The importance of prosody in interpreters’ performance has already been stressed in early publications on interpreting, but it took a relatively long time before it became a research topic in interpreting studies. For many years, authors have seemed to assume that prosodic features of an interpreted target text were just the same as in monolingual speech production (Déjean Le Féal 1990; Kirchoff 1976). However, research confirmed that in simultaneous interpreting, the target texts sound “less smooth than ‘natural’ speech” (Barik 1975, 294), a fact that Shlesinger described later as intonation *sui generis*: “the intonational system used in simultaneous interpretation appears to be marked by a set of salient features not found in any

other language use” (1994: 226). Despite her claim that interpreted texts sound like normal, spontaneous speech (Kirchhoff 1976, 67), Kirchhoff also acknowledged that hesitation phenomena in the target text delivery are conditioned by difficult processing conditions, like simultaneous listening and speaking (Kirchhoff 1976, 67). Thus, in bilingual communication, too, prosodic features of the target text can reflect underlying cognitive operations of speech processing.

In consecutive interpreting, delivery of the target text is less prone to be affected by the simultaneously incoming source text and can thus be regarded as being more like monolingual speech production. Research into prosody in consecutive interpreting, however, shows that pause and hesitation patterns can differ from typical monolingual speaking (e.g. Mead 2002). This phenomenon can be attributed to the simultaneous reading of notes and information retrieval from memory in the second phase of the consecutive interpreting process.

Core issues and topics: Research into prosody in interpreting

Research into prosody in simultaneous interpreting can be grouped according to the prosodic phenomena that were examined: (1) pauses, speech rate and segmentation, (2) intonation and fundamental frequency and (3) accentuation and stress.

Pauses, speech rate and segmentation

Early studies focused on pauses since they were regarded as the key factor for the simultaneous listening and understanding of the source language and speaking in the target language. Experimental study design in a laboratory setting was the rule, as applied by Barik (1973), Gerver (1969), Goldman-Eisler (1967, 1968, 1972, 1980) and Goldman-Eisler and Cohen (1974). Alexieva (1988), too, used student interpreters in a lab situation for her study on pause patterns in which she found fewer and shorter pauses in the interpreters’ output, a finding later studies were not able to confirm.

The first researcher who used an authentic corpus (English–Hebrew and vice-versa) for her study of prosodic features was Shlesinger (1994). She set out from Halliday’s categories of *tonality* (i.e. segmentation into intonation units), *tonicity* (i.e. the positioning and accentuation of the tonic syllable) and *tone* (i.e. pitch movement) (Halliday 1966, 1967). She added speech rate and duration to these categories. Her results led her to postulate an intonation *sui generis* for simultaneous interpreting (Shlesinger 1994, 226).

In an authentic English–Korean corpus, Lee (1999) was able to confirm Gerver’s (1969) results and the crucial role of source text pauses for the cognitive processes underlying comprehension and monitoring.

Tissi (2000) identified different types of pauses and disfluencies in her experimental corpus with interpreting students in the German–Italian language combination. Her findings confirmed Lee’s result of fewer pauses in simultaneously interpreted target texts. She also analysed the length of pauses and found that longer pauses tended to have a higher average duration in the target texts.

Cecot (2001) also analysed pauses and disfluencies quantitatively in her experimental study. She interviewed the interpreters about their perception of their own performance and was thus able to show that the majority of the interpreters in her study were not aware of their pauses during target text delivery, although Cecot’s quantitative results confirmed an objectively significant number of pauses and disfluencies. Results like this are a first indicator of the role of pauses and disfluencies in the debate on perception of target text and their quality

in general. Furthermore, the interpreters' erroneous self-perception of their own output is relevant for interpreting practice.

A few years later, Lee's (1999) results were also confirmed by Ahrens (2004, 2005, 2007) who in an authentic English–German corpus was able to link target text pause patterns to cognitive processes of source text comprehension and to the informational structure of the target text: the interpreters paused at the end of intonation units which, at the same time, were very often the end of an informational chunk, i.e. the interpreters used pauses for structuring their output in a way that enhanced the target text audience's comprehension.

Intonation and fundamental frequency

Darò (1990) considered F_0 to be an indicator of the emotion interpreters felt towards their native and working languages. Not surprisingly, the lowest degree of anxiety was measured in the interpreters' mother tongue. Since Darò tested F_0 only in reading but not when simultaneously interpreting, the question remains if F_0 would go up due to the complex speech processing involved in interpreting.

In her study, Shlesinger found that the “low-rise nonfinal pitch movement” (Shlesinger 1994, 231) was the dominant intonational contour at the end of intonation units. It was expected to hinder the audience's comprehension since falling pitch movements would have been likelier in the positions in question.

Ahrens (2004, 2005) was able to confirm the dominance of progradient final F_0 contours in her study. A typical intonational contour was the final “rise-level” (Ahrens 2005, 68), which in combination with level or rising final pitch movements resulted in a wave-like F_0 contour. These types of pitch movements are perceived as “singsong” and are found frequently in interpreters' performances, i.e. they are a characteristic feature in interpreting, thus supporting Shlesinger's (1994) observation of an intonation *sui generis*.

The “rise-level” contours have also been described for German monolingual speech production as the “left-hand pier of a bridge” typical for enumerations or lists, i.e. in positions where a speaker indicates intonationally that another or more elements will follow. In simultaneous interpreting with the linear incoming source text, processing of segments which have not been uttered completely by the speaker is inherent in the interpreting process itself and can thus result in this “list-like” intonation because the interpreter cannot be sure if further elements for the idea s/he is processing will follow or not.

Cognitive load and chunking were also an important aspect for Nafá Waasaf (2007) who, in her empirical analysis of an authentic corpus consisting of interpreters' performances in the European Parliament and the European Commission, focused on the structural organisation by means of intonation of the texts she analysed. She was not able to confirm the dominance of specific intonational patterns described by Shlesinger (1994) and Ahrens (2004, 2005), but rather observed intonational patterns and phenomena described in literature on prosody in general, such as intonational reset at the beginning of intonational phrases (e.g. Ahrens 2004, 2005) or declination and falling final contours (e.g. Vaissière 1983).

Accentuation and stress

Shlesinger (1994) also analysed the position of accentuated syllables in her corpus. She observed that accents and semantic contrasts were not always compatible, like in the case of accentuated prepositions without contrastive or emphatic value. This misaccentuation can result in misunderstandings, she concluded.

Williams (1995), too, described anomalous stress patterns in an authentic corpus of Swedish–English simultaneous interpreting. Anomalous stress in the target text was triggered by – correct – accents in the overlapping source text, resulting in a “misrendering of the original message” (Williams 1995, 48).

Without undertaking a phonological study herself, Kalina (1998) commented briefly on accentuation in interpreted target texts in the context of her research into interpreting strategies: in simultaneous interpreting, the target texts often sound *staccato* or “machine-gun” like, i.e. as if every word were stressed (Kalina 1998, 200). This auditory impression has not been underpinned by quantitative comparison so far. Ahrens (2004, 2005) correlated intonational segmentation and accentuation in her corpus. Since intonational units are defined as comprising at least one stressed word, i.e. at least one pitch movement that can be perceived as being prominent, short intonational units consisting of one or two words only result in every, or every second word being stressed. In the target texts she analysed, Ahrens found a considerably higher percentage of one- or two-word intonational units leading to a *staccato*-like stress pattern with all words having the same weight, which might be boring and tiring for the listener and detrimental to her or his comprehension.

Main research methods

Research into prosodic features in interpreting has always been corpus based. Early studies in the 1960s and 1970s focusing on speech rate and pause patterns worked with experimental study designs in a laboratory setting for recording and compiling the respective corpora (e.g. Barik 1973, 1975; Gerver 1969; Goldman-Eisler 1968).

The subsequent analyses of the recordings used technical equipment of that time for visualising the speech signal and the pauses in it. Apart from objectively measurable prosodic parameters, the general auditory impression of a recording was also used for formulating research hypotheses.

Until 1994, studies focusing on prosodic features in interpreting with experimental data were the state of the art. The advantage they provide is that they allow the control of variables and parameters that could influence the results. This is the reason why in studies undertaken in the late 20th and early 21st centuries, researchers have started to use experimental study designs again when they want to manipulate a specific parameter, such as intonation (e.g. Collados Aís 1998/2002, 2007; Holub 2010) or fluency (e.g. Pradas Macías 2004; Rennert 2010).

Shlesinger (1994) was the first to work with a corpus of recordings of authentic interpreting performances. Since research into prosody is extremely time-consuming, she only analysed a randomised selection of ten recorded passages with a duration of 90 seconds each that had been transcribed and after a lapse of three years minimum read again by the same interpreter who had once interpreted the target text in question. Auditory impression and a survey among a control group of listeners as regards comprehensibility of the interpreted texts complemented her data.

With her ground-breaking study design of manipulating the intonation and contents of a target text in order to record three different versions of the same text, Collados Aís (1998/2002) established a research paradigm and method that has become an indispensable part of the methodological repertoire of interpreting research. She also carried out an acoustic analysis of pitch and intensity of the digitised recordings by means of the software Visi-Pitch. At that time, digitisation of long recordings was still a problem, as reported by Ahrens (2004, 2005) who analysed an authentic corpus of one source text with a duration of 72 minutes and

three target texts in dual-track quality. Digitisation was done by means of the software Wavelab 3.0, which allowed the parallel digitisation of the two time-aligned tracks of the recording and the subsequent separation of the channels for analysis. Since all target text recordings were time-aligned with the respective source text recording, it was possible to synchronise both channels again in the following acoustic analysis.

The analysis of the acoustic parameters F_0 , intensity and duration was carried out using Praat, a software developed for phonetic and phonological analyses at the Department of Phonetics at the University of Amsterdam (Praat 2015). The software program is freeware and is being constantly updated and improved by its developers.

Digital recording, including of long events and in dual-track quality, has become very easy to make using modern programs such as Audacity, a free multi-track audio editor and recorder, and can be edited in any audio format that suits other software such as Praat or EXMARaLDA (Audacity 2015; EXMARaLDA 2015). Manipulating long recordings for research purposes is not prohibitively time-consuming thanks to these programs.

Transcribing, analysing, annotating and editing can also be done by EXMARaLDA, a tool being developed especially for working with oral corpora, which allows editing in a so-called “partitur” format (EXMARaLDA 2015). A detailed description of editing experimental material for research into fluency using Audacity and EXMARaLDA is given by Rennert (2013).

Acoustic methodology supported by additional analyses, be it discourse analysis or/and surveys among different user groups, as well as the triangulation of the results obtained by these different methods is state-of-the-art methodology in studies related to phonetic and phonological features in interpreting.

Current debate

Since the turn of the century, research into prosody in interpreting has focused on prosody as an – often underestimated – parameter of interpreting quality.

The interdependence of intonation and quality assessment in simultaneous interpreting was made evident for the first time by Collados Aís (1998/2002) in a comprehensive study in the German–Spanish language pair. The contents and intonation of the simultaneously interpreted Spanish target text had been manipulated and the different text versions were then presented to different listener groups who had to answer questionnaires regarding contents and intonation in simultaneous interpreting. Collados Aís was able to demonstrate that intonation is one, if not the most, important factor when it comes to evaluating interpreters’ actual performances, although many listeners say that voice and intonation are not important when asked beforehand about their expectations about an interpreter’s performance.

With her innovative research methodology, Collados Aís (1998/2002) established the “expectation vs. actual evaluation” paradigm in the debate on quality in interpreting studies and practice. She was able to put voice and prosody at the centre of the quality debate although most earlier surveys on user expectations carried out among users of interpreters’ services did not rank non-verbal parameters, such as pleasant voice or fluency of delivery, as being very important for interpreting quality as compared to sense consistency or completeness of the target text (e.g. Bühler 1986; Collados Aís 1998/2002; Gile 1990; Kurz 1989, 1993, 1997a, 1997b; Kurz and Pöchhacker 1995; Meak 1990; Moser 1996).

Many of the earlier studies on prosodic phenomena in interpreting concluded that these elements are important for the comprehensibility of the target text delivered by an interpreter (e.g. Ahrens 2004, 2005; Shlesinger 1994), since they give guidance to the listener about how

to understand the message. Infelicitous choice of intonational patterns, excessive pausing and hesitations or hyperaccentuation are features that might make listeners' comprehension more difficult – or even impede it.

In the subproject “intonation” of a recent comprehensive research project on quality in simultaneous interpreting (QuaSI 2010), Holub (2010), too, showed that monotonous intonation has a strong impact on text comprehension and the evaluation of the target text. In her study, Holub applied Collados Aís' (1998/2002) method of producing different target text versions by computer-aided manipulation of F_0 .

Fluency is another prosodic factor strongly influencing the evaluation of overall quality of an interpreter's performance, and was at the centre of a second subproject of QuaSI. Following Pradas Macías' (2004) concept of fluency, Rennert (2010) defined it as a temporal variable that results from the complex interplay of a number of constitutive parameters, such as pauses, tempo of speech, lengthening of vowels and consonants, audible breathing, hesitations, repairs, false starts and repetitions. Rennert (2010) showed that a lack of fluency is regarded as bad quality. Like Holub (2010), she also used an experimental study design with specifically manipulated target texts (Rennert 2013).

All in all, the debate on phonetics and phonology in interpreting focuses on the complex relationship between prosodic parameters and quality, since research has been able to prove that prosodic and other voice-related features influence strongly whether an interpreter's performance is regarded as good, professional and reliable (Collados Aís 2007, 217–219).

Future directions

Since the influence of prosodic features in the perception and evaluation of interpreters' performances has been confirmed by research, and since there is still no generally accepted definition of interpreting quality (Zwischenberger 2013, 17), this will be the direction future research will continue to follow. This will necessitate analyses of more data, including data in less frequent language combinations. The aim will be to come to a definition of interpreting quality, but at the same time to a description of an optimum prosodic delivery in specific settings.

In this context, findings from automatic speech recognition and synthesis as well as machine translation research offer interesting insights since these disciplines are involved in developing automatic interpretation systems. A first intent to develop such a speech-to-speech translation system was the *Verbmobil* project in the 1990s (Verbmobil 2000; Wahlster 2000). Another system designed for lecture translation was compared to human interpreting in an experimental study in cooperation between the Karlsruhe Institute of Technology and the Translation and Interpreting Faculty of Mainz University in Germersheim, Germany, in which the audience had to evaluate the performance of the machine and the human interpreter (Fünfer 2013; Stüker *et al.* 2014). In general, the human performance clearly received higher scores – e.g. due to better comprehensibility as compared to the output of the machine – but interestingly enough, in the voice- and prosody-related parameters in the evaluation, the difference between the scores for the machine and the human interpreter was less prominent. This means that speech synthesis had made considerable progress in the first decade or so of the 21st century. Although even the developers of this already rather mature machine interpreting system admit the superiority of human interpreting performance (Stüker *et al.* 2014, 277), they see a number of helpful applications for mobile systems installed on laptops, tablets or smart phones, as already tested and applied in a number of doctor–patient conversations in remote areas and less frequent language combinations, such as English–Thai, where interpreters are difficult to find (Fünfer 2013, 132–133).

Technological progress and an increased use of technology for, in and even instead of human interpreting will be an important field for research and the profession in the coming years; this should not only be seen as a threat, but also as an opportunity for researchers, students and practitioners.

Implications for interpreting practice

Since the effect of the speaker's voice is crucial for successful oral communication and since voice and prosody are important factors for creating confidence among communication partners, it is obvious that this also holds true in interpreted communication events. Interpreters have to be aware of the effect of their voice and the various ways of achieving flexible and adequate vocal modulation. Therefore, in the case of phonetics and phonology, implications for (interpreting) practice are of a very applied nature.

Interpreters need to be aware of the different requirements relating to their voice and speaking skills in all interpreting modes (consecutive, simultaneous, whispering), settings (conferences, court, public services, among others) and acoustic conditions (with or without microphone, small or big room, indoors or outdoors, surrounding noise, etc.). This implies that, like any member of a speaking profession, interpreters should have knowledge about voice care and vocal health.

Voice is extremely sensitive to physiological and psychological stress as well as to wrong breathing. Tension on the vocal cords, increased subglottal pressure or an uncomfortable bodily position, e.g. when interpreting in the whispering mode, have a direct impact on voice: F_0 becomes higher and the voice is thus perceived as shrill. Voice phenomena often occur without being noticed consciously by the speaker. Therefore, speakers in general, and interpreters in particular, have to train their awareness of these phenomena and problems.

Speaking skills and how to treat one's voice have to be internalised by interpreters since the interpreting task is demanding and cognitive resources are needed for processing source language input and target text output. Continuous training is needed in order to achieve internalisation. Nowadays, most interpreter training courses include classes in public speaking and rhetoric. Topics presented in such courses range from voice physiology and voice care to standard pronunciation and oral delivery of all kinds of texts in spontaneous as well as reproductive, i.e. interpretational communicative acts.

But voice training is a life-long process. Speaking habits, working conditions and aging have an important impact on the interpreter's voice. Typical voice disorders occurring because of wrong speaking habits and respiration include for example hoarse voice, vocal fatigue or even vocal nodules. Although these can be reversed by medical treatment and speech therapy, it is better to prevent damage to the voice from the very beginning of one's professional life as an interpreter. This implies continuous professional training in speaking skills: listening critically to one's own output on the basis of personal recordings even after having left the training institution should be a permanent part of the interpreter's quality assurance measures.

Seminars on voice care and training as well as speaking skills for interpreters offered by speech trainers and therapists also aim at awareness-raising and improving performance quality. Refreshing skills that had been learned once during training but then often seem to be forgotten during professional practice is highly recommended since it has become clear in a variety of studies (e.g. Collados Aís 1998/2002; Holub 2010) that interpreters and their performance are judged by their vocal and prosodic performance. Taking care of one's voice and prosodic skills is an essential part of quality assurance in interpreting.

Further reading

Collados Aís, A., Iglesias Fernández, E., Pradas Macías, E. M. and Stevaux, E., eds. 2011. *Qualitätsparameter beim Simultandolmetschen. Interdisziplinäre Perspektiven*. Tübingen: Narr.

This commendable book deals with interpreting quality and 10 different, but highly interdependent criteria which define it, such as intonation, accent and voice, but also terminology and sense consistency, among others. Its bibliography is very valuable since it includes well-known contributions to the interpreting quality debate as well as a large number of fruitful contributions from other disciplines.

Pöchhacker, F., ed. 2015. *Routledge Encyclopedia of Interpreting Studies*. London: Routledge.

This volume brings together state-of-the-art key issues in interpreting studies in alphabetical order. Cross-references show the interdependence of the variety of topics, thus offering a structured comprehensive overview of interpreting studies as an increasingly diverse and fascinating field.

Pöchhacker, F. and Shlesinger, M., eds. 2002. *The Interpreting Studies Reader*. London: Routledge.

This book is a collection of 26 key articles in the field of interpreting research from its beginning in the 1950s until 2002. It presents interpreting in a multidisciplinary perspective, and since articles that originally had not been published in English have been translated, it also gives access to contributions in less frequently used languages.

Related topics

Non-verbal communication and interpreting.

References

Ahrens, B. 2004. *Prosodie beim Simultandolmetschen*. Frankfurt: Lang.

Ahrens, B. 2005. Prosodic phenomena in simultaneous interpreting: a conceptual approach and its practical application. *Interpreting* 7(1), pp. 51–76.

Ahrens, B. 2007. Pauses (and other prosodic features) in simultaneous interpreting. *Forum* 5(1), pp. 1–18.

Alexieva, B. 1988. “Analysis of the Simultaneous Interpreter’s Output”. In *Translation, Our Future. Proceedings, XIth World Congress of FIT*, edited by P. Nekeman, 484–488. Maastricht: Euroterm.

Alexieva, B. 1990. Creativity in simultaneous interpretation. *Babel* 36(1), pp. 1–6.

Audacity. 2015. Available from: <http://sourceforge.net/projects/audacity/> [Accessed 17 December 2015].

Barik, H. C. 1973. Simultaneous interpretation: temporal and quantitative data. *Language and Speech* 16(3), pp. 237–270.

Barik, H. C. 1975. Simultaneous interpretation: qualitative and linguistic data. *Language and Speech* 18(3), pp. 272–297.

Behaghel, O. 1900. Geschriebenes Deutsch und gesprochenes Deutsch. Festvortrag, gehalten auf der Hauptversammlung des Allgemeinen Deutschen Sprachvereins zu Zittau am 1. Oktober 1899. *Wissenschaftlich Beihefte zur Zeitschrift des Allgemeinen Deutschen Sprachvereins* 17/18, pp. 213–232.

Bolinger, D. 1986. *Intonation and its Parts: Melody in Spoken English*. Stanford, CA: Stanford University Press.

Bühler, H. 1986. Linguistic (semantic) and extra-linguistic (pragmatic) criteria for the evaluation of conference interpretation and interpreters. *Multilingua* 5(4), pp. 231–235.

Cartellieri, C. 1983. The inescapable dilemma: quality and/or quantity in interpreting. *Babel* 29(4), pp. 209–213.

Catford, J. C. 2001. *A Practical Introduction to Phonetics*. 2nd ed. Oxford: Oxford University Press.

Cecot, M. 2001. Pauses in simultaneous interpretation: a contrastive analysis of professional interpreters’ performance. *Interpreters’ Newsletter* 11, pp. 63–85.

- Clark, J., Yallop, C. and Fletcher, J. 2007. *An Introduction to Phonetics and Phonology*. 3rd ed. Malden, MA: Blackwell.
- Collados Aís, A. 1998/2002. "Quality Assessment in Simultaneous Interpreting: The Importance of Nonverbal Communication". In *The Interpreting Studies Reader*, edited by F. Pöchhacker and M. Shlesinger, 326–336. London: Routledge. First published 1998 in A. Collados Aís, *La evaluación de la calidad en interpretación simultánea: La importancia de la comunicación no verbal*. Peligros (Granada): Comares.
- Collados Aís, A. 2007. "La evaluación de la investigación". In *La evaluación de la calidad en interpretación simultánea: parámetros de incidencia*, edited by A. Collados Aís, E. Pradas Macías, E. Macarena, E. Stévaux and O. García Becerra, 213–224. Albolote (Granada): Comares.
- Cruttenden, A. 1997. *Intonation*. 2nd ed. Cambridge: Cambridge University Press.
- Crystal, D. 1969. *Prosodic Systems and Intonation in English*. Cambridge: Cambridge University Press.
- Cutler, A. 1983. "Speakers' Conception of the Function of Prosody". In *Prosody: Models and Measurements*, edited by A. Cutler and D. R. Ladd, 79–91. Berlin: Springer.
- Darò, V. 1990. Voice frequency in languages and simultaneous interpretation. *The Interpreters' Newsletter* 3, pp. 88–92.
- Déjean Le Féal, K. 1990. "Some Thoughts on the Evaluation of Simultaneous Interpretation". In *Interpreting: Yesterday, Today and Tomorrow*, edited by D. Bowen and M. Bowen, 154–160. Binghamton, NY: SUNY.
- Enkvist, N. E. 1982. "Introduction: Impromptu Speech, Structure, and Process". In *Impromptu Speech: A Symposium*, edited by N. E. Enkvist, 11–31. Åbo: Åbo Akademi.
- EXMARaLDA. 2015. *EXMARaLDA: Tools for oral corpora*. Available from: <http://www.exmaralda.org/en/> [Accessed 19 December 2015].
- Faure, M. 1980. "Results of a Contrastive Study of Hesitation Phenomena in French and German". In *Temporal Variables in Speech: Studies in Honour of Frieda Goldman-Eisler*, edited by H. W. Dechert and M. Raupach, 287–290. The Hague: Mouton.
- Fünfer, S. 2013. *Mensch oder Maschine? Dolmetscher und maschinelles Dolmetschsystem im Vergleich*. Berlin: Frank & Timme.
- Gerver, D. 1969. "The Effects of Source Language Presentation Rate on the Performance of Simultaneous Conference Interpreters". In *Proceedings of the Second Louisville Conference on Rate and/or Frequency-Controlled Speech*, edited by E. Foulke, 162–184. Louisville, KY: Center for Rate-Controlled Recordings, University of Louisville.
- Gerver, D. 1976. "Empirical Studies of Simultaneous Interpretation: A Review and a Model". In *Translation: Applications and Research*, edited by R. W. Brislin, 165–207. New York: Gardner Press.
- Gile, D. 1990. "L'évaluation de la qualité de l'interprétation par les délégués: une étude de cas". *The Interpreters' Newsletter*, 3, pp. 66–71.
- Goldman-Eisler, F. 1958. Speech analysis and mental processes. *Language and Speech*, 1, pp. 59–75.
- Goldman-Eisler, F. 1961. A comparative study of two hesitation phenomena. *Language and Speech* 4, pp. 18–26.
- Goldman-Eisler, F. 1967. Sequential patterns and cognitive processes in speech. *Language and Speech* 10, pp. 122–132.
- Goldman-Eisler, F. 1968. *Psycholinguistics: Experiments in Spontaneous Speech*. London: Academic Press.
- Goldman-Eisler, F. 1972. Segmentation of input in simultaneous translation. *Journal of Psycholinguistic Research* 1(2), pp. 127–140.
- Goldman-Eisler, F. 1980. "Psychological Mechanisms of Speech Production as Studied Through the Analysis of Simultaneous Translation". In *Language Production Vol. 1: Speech and Talk*, edited by B. Butterworth, 143–153. London: Academic Press.
- Goldman-Eisler, F. and Cohen, M. 1974. An experimental study of interference between receptive and productive processes relating to simultaneous translation. *Language and Speech* 17(1), pp. 1–10.

- Günther, C. 1999. *Prosodie und Sprachproduktion*. Tübingen: Niemeyer.
- Halliday, M. A. K. 1966. "Intonation Systems in English". In *Patterns of Language: Papers in General, Descriptive and Applied Linguistics*, edited by A. McIntosh and M. A. K. Halliday, 111–133. London: Longmans.
- Halliday, M. A. K. 1967. *Intonation and Grammar in British English*. The Hague: Mouton.
- Henderson, A. I. 1980. "Juncture Pause and Intonation Fall and the Perceptual Segmentation of Speech". In *Temporal Variables in Speech: Studies in Honour of Frieda Goldman-Eisler*, edited by H. W. Dechert and M. Raupach, 199–206. The Hague: Mouton.
- Heuft, B. 1999. *Eine prominenzbasierte Methode zur Prosodieanalyse und -synthese*. Frankfurt: Lang.
- Holub, E. 2010. Does intonation matter? The impact of monotony on listener comprehension. *The Interpreters' Newsletter* 15, pp. 117–126.
- Kade, O. 1963. Der Dolmetschvorgang und die Notation. Bedeutung und Aufgaben der Notiertechnik und des Notiersystems beim konsekutiven Dolmetschen. *Fremdsprachen* 7(1), pp. 12–20.
- Kalina, S. 1998. *Strategische Prozesse beim Dolmetschen: Theoretische Grundlagen, empirische Fallstudien, didaktische Konsequenzen*. Tübingen: Narr.
- Katamba, F. 1989. *An Introduction to Phonology*. London: Longman.
- Key, M. R., ed. 1980. *The Relationship of Verbal and Nonverbal Communication*. The Hague: Mouton.
- Kirchhoff, H. 1976. "Das Simultandolmetschen: Interdependenz der Variablen im Dolmetschprozeß, Dolmetschmodelle und Dolmetschstrategien". In *Theorie und Praxis des Übersetzens und Dolmetschens*, edited by H. W. Drescher and S. Scheffzek, 59–71. Frankfurt: Lang.
- Kurz, I. 1989. "Conference Interpreting: User Expectations". In *Coming of Age: Proceedings of the 30th Annual Conference of the American Translators Association, Washington, DC, October 11–15, 1989*, edited by D. L. Hammond, 143–148. Medford, NJ: Learned Information.
- Kurz, I. 1993. Conference interpretation: expectations of different user groups. *The Interpreters' Newsletter* 5, pp. 13–21.
- Kurz, I. 1997a. "Drahtseilakt ohne Netz? Live-Dolmetschen für die Medien". In *Berufsbilder für Übersetzer und Dolmetscher*, edited by I. Kurz and A. Moisl, 127–132. Wien: WUV.
- Kurz, I. 1997b. "Getting the Message Across: Simultaneous Interpreting for the Media". In *Translation as Intercultural Communication: Selected Papers from the EST Congress, Prague 1995*, edited by M. Snell-Hornby, Z. Jetmarová and K. Kaindl, 195–205. Amsterdam: John Benjamins.
- Kurz, I. and Pöchhacker, F. 1995. Quality in TV interpreting. *Translatio: Nouvelles de la FIT* 14(3/4), pp. 350–358.
- Lee, T.-H. 1999. Speech proportion and accuracy in simultaneous interpretation from English into Korean. *Meta* 44(2), pp. 260–267.
- Lehiste, I. 1970. *Suprasegmentals*. Cambridge, MA: The MIT Press.
- Lehtonen, J. 1982. "Nonverbal Aspects of Impromptu Speech". In *Impromptu Speech: A Symposium*, edited by N. E. Enkvist, 33–45. Åbo: Åbo Akademi.
- Levin, H., Baldwin, A. L., Gallwey, M. and Paivio, A. 1960. Audience stress, personality, and speech. *Journal of Abnormal and Social Psychology* 61(3), pp. 469–473.
- Mead, P. 2002. *Évolution des pauses dans l'apprentissage de l'interprétation consécutive*. PhD Thesis. Université Lumière Lyon 2. Available from: http://theses.univ-lyon2.fr/documents/lyon2/2002/mead_p/download [Accessed 19 December 2015].
- Meak, L. 1990. Interprétation simultanée et congrès médical: attentes et commentaires. *The Interpreters' Newsletter* 3, pp. 8–13.
- Moser, P. 1996. Expectations of users of conference interpretation. *Interpreting* 1(2), pp. 145–178.
- Nafá Waasaf, M. L. 2007. Intonation and the structural organization of texts in simultaneous interpreting. *Interpreting* 9(2), pp. 177–198.
- Praat, 2015. *Praat: Doing phonetics by computer*. Available from: <http://www.fon.hum.uva.nl/praat/> [Accessed 17 December 2015].
- Pradas Macías, E. M. 2004. *La fluidez y sus pausas: enfoque desde la interpretación de conferencias*. Albolote (Granada): Comares.
- Pétursson, M. and Neppert, J. 1996. *Elementarbuch der Phonetik*. 2nd ed. Hamburg: Buske.

- QuaSI, 2010. *Quality in Simultaneous Interpreting*. Available from: <http://quasi.univie.ac.at> [Accessed 15 December 2015].
- Rennert, S. 2010. The impact of fluency on the subjective assessment of interpreting quality. *The Interpreters' Newsletter* 15, pp. 101–115.
- Rennert, S. 2013. "The Production of Experimental Material for Fluency Research". In *Quality in Interpreting: Widening the Scope*. Vol. 1, edited by O. García Becerra, E. M. Pradas Macias and R. Barranco-Droege, 175–200. Granada: Comares.
- Royé, H.-W. 1983. *Segmentierung und Hervorhebungen in gesprochener deutscher Standardsprache. Analyse eines Polylogs*. Tübingen: Niemeyer.
- Schönherr, B. 1997. *Syntax – Prosodie – nonverbale Kommunikation: Empirische Untersuchungen zur Interaktion sprachlicher und parasprachlicher Ausdrucksmittel im Gespräch*. Tübingen: Niemeyer.
- Shlesinger, M. 1994. "Intonation in the Production and Perception of Simultaneous Interpretation". In *Bridging the Gap: Empirical Research in Simultaneous Interpretation*, edited by S. Lambert and B. Moser-Mercer, 225–236. Amsterdam: Benjamins.
- Stüker, S., Cho, E., Fügen, C., Hermann, T., Kilgour, K., Mediani, M., Mohr, C., Niehues, J., Rottmann, K. and Waibel, A. 2014. "Ein System zur automatischen simultanen Übersetzung deutscher Vorlesungen". In *Translationswissenschaftliches Kolloquium. Beiträge zur Übersetzungs- und Dolmetschwissenschaft (Köln/Germersheim)*, edited by B. Ahrens, S. Hansen-Schirra, M. Krein-Kühle, M. Schreiber and U. Wienen, 267–280. Frankfurt: Lang.
- Tissi, B. 2000. Silent pauses and disfluencies in simultaneous interpretation: a descriptive analysis. *The Interpreters' Newsletter* 10, pp. 103–127.
- Vaissière, J. 1983. "Language-independent Prosodic Features". In *Prosody: Models and Measurements*, edited by A. Cutler and D. R. Ladd, 53–66. Berlin: Springer.
- Williams, S. 1995. Observations on anomalous stress in interpreting. *The Translator* 1(1), pp. 47–64.
- Verbmobil. 2000. Available from: <http://verbmobil.dfki.de> [Accessed 17 December 2015].
- Wahlster, W., ed. 2000. *Verbmobil: Foundations of Speech-to-Speech Translation*. Berlin: Springer.
- Zwischenberger, C. 2013. *Qualität und Rollenbilder beim simultanen Konferenzdolmetschen*. Berlin: Frank & Timme.