5
SIMULTANEOUS INTERPRETING

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Introduction

Simultaneous interpreting first saw the light of day in the early 1920s when Edward Filene and A. Gordon-Finlay, using early telephone technology, developed the first so-called telephonic interpreting equipment. It was not until the fall of 1945, however, that simultaneous interpreting made its televised international debut during the Nuremberg Trials. Until then, interpretation at multilingual conferences was provided mainly in consecutive mode, requiring interpreters to take notes during the delivery of a speech in order to reconstitute it in a different language once the speaker had finished (see Chapter 1 for further discussion of the history of simultaneous interpreting). Some of the first conference interpreters eagerly embraced simultaneous interpreting, while many of them categorically rejected it. Over a half a century later, however, it has all but replaced consecutive interpreting in international meetings, and this is particularly true for meetings with more than two conference languages.

In spite of that, simultaneous interpreting as a profession is still shrouded in mystery, and the task itself appears to have lost little of its original potential to astonish. The uninitiated are still amazed by simultaneous interpreters' ability to almost instantaneously, yet seemingly effortlessly, transfer what is said from one language into another. Researchers studying language and the brain are similarly impressed by the cognitive processes underlying the task and consider it one of the most difficult linguistic skills (Grosjean, 2011). And despite the fact that national, international and supranational organizations rely on the services of hundreds of simultaneous interpreters every day (DG Interpretation, 2010), simultaneous interpreting is still the object of misconceptions and is surrounded by popular views and dogmata. The importance of bilingualism, the issue of directionality, the relevance of language-specific factors and the role of visual input and physical presence are only some of the unresolved and hotly debated issues in the simultaneous interpreting world today. For while it may be true that many of these issues are under-researched and that we are currently unable to definitively answer many of these questions, it is probably also true that all too often introspection and speculation have taken the place of rigorous research, providing sometimes intuitive, but often unsubstantiated, answers.

This chapter takes a closer look at simultaneous interpreting, when and how it was introduced, and how and why it has become firmly established as the main interpreting mode at

multilingual conferences. Since simultaneous interpreting was made possible by the integration of both technical and human factors, an overview of both the technical and human requirements for the successful performance of the task will be provided, referring to some of the principal findings from the field of interpreting research with the most relevant results from the field of psycholinguistics. The chapter will conclude with an outlook on future developments in simultaneous interpreting.

Definition of key terms

Although simultaneous interpreting is a task that has evolved since its inception well almost 100 years ago, it is sometimes still defined by comparing it to consecutive interpreting (see Chapter 6). While legitimate – after all these are the two most widely used interpreting modes – such a definition inevitably falls short of a comprehensive description of the notion of simultaneous interpreting. This is very well illustrated by the fact that the first definition, from Herbert (one of the early simultaneous interpreters and interpreter trainers), identifies three varieties of simultaneous interpreting (Herbert, 1952). According to him, simultaneous interpretation included "whispering", whereby interpreters sitting next to a conference delegate whisper their interpretation to them; "telephonic simultaneous", whereby interpreters listen to the original through earphones and speak their interpretation into a microphone; and "translation at sight", whereby interpreters receive a text written in one language and read it aloud in a different language (see Chapter 9 on sight translation). Although it is true that all three tasks require the relatively instantaneous transfer from verbal input in one language to verbal output in another, from a processing point of view, the three are rather dissimilar – perhaps different enough to revisit Herbert's original definition.

In order to do so, it seems appropriate to begin with the current definition of simultaneous interpreting as suggested by the International Association of Conference Interpreters (AIIC), according to which "in simultaneous mode, the interpreter sits *in a booth* with a *clear view of the meeting room and the speaker* and *listens to* and simultaneously interprets *the speech* into a target language" (AIIC, n.d., my emphasis). This definition is considerably more restrictive than Herbert's. For example, it requires the simultaneous interpreter to sit in a booth, and we will see why this detail is important in processing terms in the section "Simultaneous interpreting: the technology" which discusses the technical features of simultaneous interpreting. AIIC's definition further states that the interpreter *listens* to the original, rather than reading it, therefore putting "translation at sight" outside of its scope. The possible reasons for this limitation and the repercussions of written input on the process will be addressed in the section "Speed and density". There are other forms of simultaneous interpreting, however, that can be reconciled with the main tenets put forward in the AIIC definition. Interestingly, AIIC recognizes the existence of "whispered interpreting", defining it in similar terms as Herbert but giving it the status of a modality in its own right. Simultaneous interpreting with text, also called sight interpretation (Lambert, 2004), refers to a scenario in which interpreters receive a manuscript of an address to be delivered, allowing them to read along (or ahead) in the text while listening to the speech. Finally there is remote interpreting, whereby some or all conference participants are at a remote location and the interpreters receive the auditory and visual signal through a videoconferencing system, i.e. over earphones and on one or several screens (see Chapter 22 on remote interpreting). This chapter will discuss the development of simultaneous interpreting as defined by AIIC, and will clearly specify when other forms of simultaneous interpreting are discussed.

Simultaneous interpreting: the human factor

Simultaneous interpreting as a complex task

As already mentioned, when attempting to capture the essence of this novel task, early practitioners and teachers of simultaneous interpreting seemed to struggle conceptually with the link between what appeared to be both a listening and a speaking component. To fill this conceptual gap, they sometimes additionally invoked a translation component. Herbert (1952) conceived of the task as a three-component process consisting of understanding, conversion and delivery. Seleskovitch and Lederer (1984) similarly identified three principal components of simultaneous interpreting, more specifically comprehension, deverbalization and expression. These notions of "conversion" or "deverbalization", unfortunately, remained underspecified and without scientific grounding.

As simultaneous interpreting became the object of more scholarly research, however, particularly thanks to psychologists in the 1970s, an attempt was made to explain the phenomenon by relying on existing knowledge about how language is processed. Psychologists like Barik (1973), for instance, conceived of the simultaneous interpreting task purely in terms of comprehension (reception and decoding) and production (encoding and emitting). Since then, many researchers have followed this approach and moved away from the quest for a discrete stage in the process that can be isolated and identified as the translation component of simultaneous interpreting. Instead, they have attempted to explain the complex process of simultaneous interpreting in terms of its sub-tasks (e.g. Moser-Mercer *et al.*, 1994; Frauenfelder and Schriefers, 1997; Seeber, 2011) or at least in terms of existing faculties (e.g. Setton 2001). Rather than invoking a translation component, we could therefore conceive of the mental representation of an utterance (see Johnson-Laird's "mental model", 1983; or van Dijk and Kintsch's "situational model", 1983) as the interface between the comprehension and the production process, as this representation is believed to constitute the end point of the former and the starting point of the latter. According to this view, every incoming word of an utterance is integrated into a mental representation, keeping track of all participants, objects, locations and events described in it (Zwaan, 1999). This representation is constantly updated with incoming information, related to available world knowledge (Garrod *et al.*, 1990), and then serves as basis for the production process, followed by grammatical and phonological encoding (Levelt, 1989). Among the challenges of simultaneous interpreting is the fact that the two processes temporally overlap and that, unlike in natural language production, the interpreter regularly has to begin the encoding process before the mental model is complete (see Chapter 4 for a discussion of the evolution of interpreting research).

First steps

When simultaneous interpreting was introduced, it was not welcomed by all conference interpreters, who until then had been working mainly in consecutive. Whereas some interpreters actively sought the challenge of this new mode, others categorically refused the transition to this new way of working, often dubbing it a "parroting exercise" and claiming that the product was of considerably inferior quality to that of a consecutive interpretation (Baigorri-Jalón, 2011). Having said that, we have little evidence suggesting that those interpreters who did not successfully acquire the skills needed for simultaneous interpreting were particularly proficient consecutive interpreters in the first place (Pearl, 1995). While some of the great consecutive interpreters' mental abilities are by now legendary, such as those of André Kaminker, (Baigorri-Jalón, 2004),

the reports of interpreters summarizing, condensing, or simply not remembering or missing something, while very rare, do exist (Thomas, 1937). We will never know the extent to which the harsh criticism of simultaneous interpreting might have been influenced by consecutive interpreters' fear of losing their spot in the limelight or their ability to steal delegates' thunder with their celebrated oratory skills. Similarly, we can only speculate as to whether their staunch opposition was fuelled by some interpreters' ineptitude at a task requiring additional skills to the ones they had supposedly mastered. What we do know is that the first simultaneous interpreters, or rather candidates considered apt to become simultaneous interpreters, were not easily found. Many of the experienced (consecutive) conference interpreters, "while possessing language mastery and good academic credentials, tended to be perfectionists and froze at the microphone when the right word did not come to mind immediately" (Ramler, 2007: 10). Recruiting trips to Switzerland, Paris and London were necessary to find 36 individuals who could be trained to perform the task at the Nuremberg Trials. This anecdotal evidence suggests that the ability to interpret consecutively did not automatically qualify interpreters to work in simultaneous, and that their previously acquired skills were not sufficient to perform this new task.

On the difficulty of simultaneous interpreting

At times it might appear that simultaneous interpreting should be an easy feat – after all, it combines two very robust language-processing tasks we all perform every day. And while there are those who argue that the different tasks involved in simultaneous interpreting can be accommodated comfortably (Setton, 2001), many researchers from within and outside the interpreting research paradigm describe simultaneous interpreting as being complex and difficult (Gile, 1995; Grosjean, 2011; Moser-Mercer, 1997; Rinne *et al.*, 2000). Moreover, it seems to have been generally accepted from its inception that simultaneous interpreting was a difficult task. So much so, in fact, that one of the inventors of the first simultaneous equipment reports that it was "of a difficult and exacting nature, demanding special qualities on the part of the interpreters and particularly fatiguing owing to the degree of concentration involved" (Gordon-Finlay, 1927 in Baigorri-Jalón, 2011). Almost a century later, concentration remains the major difficulty reported by interpreting students even six months into their training (Moser-Mercer, 2000b). What is more, we now have evidence suggesting that it is the real-time combination of structurally similar tasks (e.g., language comprehension and language production) that makes their execution more difficult, since they draw upon the same mental resources and thus interfere with each other (Liu and Wickens, 1992; Wickens, 2002). Similarly, early observations included that "thirty minutes of consecutive [*sic*] work proved the maximum during which satisfactory translation could be made, after which the results were liable to deteriorate owing to fatigue" (ILO 1929 in Baigorri-Jalón, 2011). These observations were substantiated experimentally when Moser-Mercer *et al.,* (1998) found a significant decrease in quality (as measured by serious meaning errors) after 30 minutes of continuous simultaneous interpreting.

Simultaneous interpreting and memory

One of the principal arguments for the complexity of simultaneous interpreting, and consequently the source of the perceived difficulty of the task, lies in the fact that it requires several different cognitive tasks to be carried out more or less concurrently (Lambert, 2004). As we have seen above, simultaneous interpreting requires language comprehension-related tasks, such as word recognition and semantic and syntactic decoding, to be carried out at the same time as language production-related tasks such as lexical selection and semantic and syntactic encoding. If we

conceive of the human processor, the brain, as a capacity-limited system (see, for example, Baddeley, 1999), the repercussions on the interpreter's working memory become clear. Since the amount of sensory information that can be processed and stored is limited, tasks that may appear effortless when carried out individually start competing for the same processing resources when carried out simultaneously, slowing them down and making them less robust.

Very early on, interpreters' ability to perform the simultaneous interpreting task was explained by what was assumed intuitively to be their good (working) memory (Herbert, 1952; Seleskovitch, 1968). Since then, however, several experiments have been carried out in an attempt to compare the memory capacity of interpreters to that of non-interpreters, with largely inconclusive and partially contradictory results (for an overview see Köpke and Signorelli, 2012). It is conceivable, then, that the complex task of simultaneous interpreting is possible not because of an increased memory capacity, but rather because some of the information processing in the brain has been automated. This automation would render these processes subconscious and less constrained by the brain's capacity limits (Styles, 1997). In other words, practice, which has been shown to make almost perfect time sharing of concurrent tasks possible (Schumacher *et al.*, 2001; Lambert, 2004), might lead to the automation of certain processes rather than to an increase in memory capacity.

Simultaneous interpreting and bilingualism

It is a truism that simultaneous interpreting is only possible because interpreters speak more than one language; after all, they need to understand one language while at the same time speaking another. However, the notion of bilingualism, its importance and its implications for the simultaneous interpreting process are still cause for disagreement in the field. Unlike many linguists, who are primarily interested in the processing differences between first and second languages, interpreting scholars appear to be chiefly concerned with interpreters' second language proficiency. Given the applied nature of the task, this is certainly justified. However, this approach is also rather limiting and ill-suited to furthering our understanding of the process and developing research-based training approaches tailored for interpreters working into native and non-native languages.

In terms of the underlying processes involved, a distinction is generally drawn between languages acquired from birth and others that are learned at a later stage. While Krashen and Terrell's (1983) distinction between language acquisition (the product of natural exposure) and language learning (the product of formal teaching) remains controversial, one difference between first and second language learners seems generally accepted: second language learners have already developed conceptual representations for the world surrounding them through their first language. New words in the second language may thus initially be associated with concepts through the first language, until the learner realizes the degree of overlap (or lack thereof) of concepts (De Bot *et al.*, 2005). Consequently, second language proficiency depends on a myriad of factors including, but not limited to, age of acquisition, proximity of the languages involved, motivation and personality (Chenu and Jisa, 2009). Of all these factors, age of acquisition seems to be particularly relevant, as only languages acquired at an early age (during the so-called "critical period", ranging approximately from conception to puberty) make use of a set of innate learning procedures allowing knowledge of the world to be acquired at the same time as the linguistic structures that apply to it. Languages learned later in life are believed to use different mechanisms relating back to the first language and engaging different processes (Wang and Kuhl, 2003; Moskovsky, 2001). This means that although second language learners can attain very high levels of proficiency, the underlying processing requirements might vary, and therefore

disadvantage them, compared to native speakers. These differences in processing structures and requirements are likely to come to the fore during a cognitively demanding task such as simultaneous interpreting.

Simultaneous interpreting and directionality

Professional conference interpreters do not interpret *from* all of their languages *into* all of their languages. In fact, while all work into at least one language (usually their native language) only some interpret into two and very few into more than two languages (AIIC, n.d.). Furthermore, while some interpreters may work into one or more of their languages in consecutive mode, they often do not do so in simultaneous mode. There are multiple reasons for this imbalance including ideological, theoretical and pragmatic considerations, and the boundaries among them are often blurred. In western European countries, for example, simultaneous interpreters have traditionally worked into their native language only, based on the idea that only the native language would enable them to express themselves naturally and idiomatically. The main focus, thus, was on the production component of the process. In the former Soviet Union, on the other hand, simultaneous interpreters worked primarily from their native language, based on the argument that only the native language would enable the interpreter to fully understand every nuance of the input. Both arguments inevitably hinge on the notion of language proficiency, which after all, is the visible and audible manifestation of the difference between acquired and learned languages. The extent to which second language proficiency directly translates to simultaneous interpreting proficiency into that language is as of yet unclear.

In trying to regulate the notion of directionality for professional conference interpreters, AIIC introduced a language classification system. According to this system, conference interpreters work into and out of their "A" languages (their native language or strict equivalent) and "B" languages (languages of which the interpreter has perfect command) but only out of their "C" languages (languages of which they have complete understanding). The crux of this system lies in the difficulty or impossibility of clearly defining and differentiating among A, B and C languages. In fact, although AIIC attempts a descriptive definition of the different language categories, the nomenclature used (i.e. "strict equivalent", "perfect command" and "complete understanding") reflects the limitations of an approach that inevitably leads to different interpretations. To further complicate the issue, market demands have prompted some interpreter training institutions and some practising professionals to apply a much more functional definition to interpreters' languages. In other words, the choice of working into a language (or to be trained to work into a language) by definition makes that language a B language. Similarly, the choice of working from a particular language (or to be trained to work from that language) by definition makes that language a C language. This tendency has been countered by some institutional employers (e.g., the interpreting services of the European Institutions) and several of the most successful training institutions for interpreters (e.g., the schools belonging to the European Masters of Conference Interpreting) which apply rather strict selection criteria in order to avoid a purely functional approach to language combinations at the expense of quality.

Finally, several of the surveys conducted to date among conference participants seem to suggest that they do not attribute much importance to formal features such as pronunciation and accent (e.g. Donovan, 2002), which is often the most salient feature allowing the distinction between an A language and a B language. This is corroborated by research suggesting that accented speech is often not perceived as more difficult to understand (Shiri and Keysar, 2010). Critically, however, accented speech is perceived as less credible even when the speaker merely relays information from a native speaker (*ibid.*), as is the case in interpreting. This last aspect and

its possible repercussions on interpreted communication have probably not yet received enough attention and should be considered by scholars attempting to define the quality of simultaneous interpreting into a B language (see Chapter 23 on quality).

Problem triggers in simultaneous interpreting

Simultaneous interpreting, while complex and difficult, is feasible provided a certain number of conditions are met. Interpreters need to be proficient in the languages they interpret between; they need to prepare the subject matter to be discussed; they need to have access to as much meeting-related visual and auditory information as possible; and they need to be given adequate technical equipment (Setton, 2005). Even then, however, certain features of the input have been identified as constituting particular problem triggers for simultaneous interpreters. These problem triggers do not appear to be limited to factors inhibiting ordinary language comprehension; rather, they only come to bear when multilingual language comprehension and language production overlap (cf. Setton, 1999). They include but are not limited to speed and density of input, presence of numbers in source speech, complex syntactic structures and speakers' accents (Gile, 1995). What follows is a short discussion of how these triggers might affect simultaneous interpreting but not ordinary language comprehension.

Speed and density

Because of their interaction, speed and density of the source speech should probably be considered together rather than separately: while discourse with low lexical density presented at a high speaking rate can be perceived as slow, discourse with high lexical density presented at a low speaking rate can be perceived as fast. Speed and density have been shown not to hinder ordinary language comprehension. Specifically, speaking rates between 100 and 200 words per minute are considered normal (Mayer, 1988), while discourse presented at up to 500 words per minute does seem to significantly affect comprehension (Voor and Miller, 1965). Early practitioners recommended 100 to 120 words per minute as the ideal speaking rate for simultaneous interpreting (Seleskovitch, 1978; Lederer, 1981), while AIIC advocates a speaking rate of approximately 130 words per minute (AIIC, n.d.). In reality, however, these recommended speaking rates are often substantially exceeded. At the Human Rights Council of the United Nations, for example, speaking rates have been found to average 150 words per minute and to reach almost 190 words per minute (Barghout *et al.*, 2012). Discourse presented at this speed may well push the human brain to and beyond its limits and has been found to cause omissions, substitutions and pronunciation errors (Pio, 2003), and to decrease anticipation accuracy (Seeber, 2005).

Numbers

Numbers are also known to cause problems for simultaneous interpreters, possibly because they differ from ordinary verbal input in at least three aspects: conceptual substrate, frequency and imageability. Unlike ordinary words, numbers are not typically linked to any sort of conceptual representation (with noteworthy exceptions such as well-known dates, etc.), they often cannot be anticipated, they do not usually contain redundant information and they are generally not imageable beyond their visual numerical form.

Language comprehension normally depends on the fact that, in order to produce meaningful words and sentences within a given language, sounds can only be combined in a finite number of ways. This means that a comprehender will encounter a particular sequence of sounds, words

or phrases more frequently than others. Owing to the incremental nature of language comprehension (Altmann and Kamide, 1999; Kamide *et al.*, 2003), the human brain depends on this limitation in order to anticipate possible continuations of words and sentences, and by doing so, make the process more efficient (Federmeier, 2007). Numbers, on the other hand, can be expressed in almost infinite combinations. They, therefore, are not subject to the same kind of frequency-contingent constraints and do not allow the same kind of anticipatory processing, which increases the processing load on the brain. Moreover, two or more words of a sentence might contain the same or very similar information, a phenomenon known as redundancy. Again, the human brain takes advantage of this phenomenon, as it is likely that information already processed can be integrated at less processing cost. During the processing of numbers, however, such redundancy does not exist, as every digit expresses a unique meaning. Finally, we know that imageable words, i.e. words describing concrete concepts that can readily be imagined, are easier to process than non-imageable words (Paivio *et al.*, 1994). Given that, with few exceptions, numbers are not imageable, it stands to reason that they might be inherently more difficult to process than other words. From this short discussion, we may conclude that numbers are more difficult to comprehend than ordinary verbal input. It would appear plausible to assume that in a cognitively demanding task such as simultaneous interpreting, this difficulty is exacerbated. This conclusion is supported by experimental evidence showing that the quality of simultaneous interpretation decreases significantly in segments containing numbers (Mazza, 2001; Puková, 2008).

Syntax

From early reading comprehension studies, we know that some syntactic structures, e.g. nesting structures, are more difficult to process than others (Chomsky and Miller, 1963). Other structures, such as verb-final sentences (in languages allowing such constructions), counter-intuitively do not seem to affect the comprehension process. In fact, reading studies show an increase in reading speed (and therefore probably facilitated processing) towards the end of verb-final structures (Konieczny, 1996). It is thus likely that by the time readers arrive at the end of a sentence, lexical, contextual, computational and frequency-related constraints (Gibson and Pearlmutter, 1998) will have allowed the brain to narrow down the possibilities of the sentence-final verb to a minimum. Simultaneous interpreters producing elements in their output before they have been uttered in the input, and, by doing so, anticipating the speaker, may therefore merely verbalize elements that any ordinary comprehenders may also have conceptualized. To conclude from this evidence that syntactic differences between languages are irrelevant or negligible for the simultaneous interpreting process might be tenuous, however (cf. Setton, 1999). Unlike readers or comprehenders, simultaneous interpreters rarely have the benefit of hearing an entire sentence up to the last missing word prior to starting their interpretation. Given that the average lag between the original input and today's simultaneous interpreters' output is approximately two to four seconds (see Timarová *et al.*, 2011 for a comprehensive discussion of ear-voice span in simultaneous interpreting), such syntactic differences are indeed likely to cause an increase in processing load, as supported by empirical evidence (Seeber and Kerzel, 2012).

Accents

In order to discuss the difficulty that accented source speech may represent during simultaneous interpreting, it is important to unambiguously define the concept. In fact, while linguists use the notion of "accent" to refer to phonological-phonetic variations of speech, and thus its

phonological and prosodic features (Adank *et al.*, 2009), professional interpreters often seem to include lexical and syntactic deviation specifically in their understanding of foreign accents (Pöchhacker, 2004). In practical terms, it may be true that many non-native speakers display all the above deviations in their speech. In order to isolate individual problem triggers, however, it is important to differentiate between accents in the strict sense of the term, and grammatically, stylistically and idiomatically non-standard forms of a language. This is particularly true for English, which has been increasingly prevalent as the language used by speakers (regardless of native language) at international conferences. English spoken by non-native speakers has recently been labelled English as a lingua franca (ELF) with some of its proponents advocating its recognition as a language in its own right (for an overview see Channing, 2005). Such non-standard forms of English constitute a challenge for simultaneous interpreters because they already represent a compound of potential individual problem triggers (e.g., non-standard use of lexicon, grammar, syntax, style, intonation and accent). At the same time, however, its heterogeneous nature makes ELF impossible to define formally and thus impossible to isolate as an *individual* problem trigger. I will therefore limit the discussion of accents to two types of speakers: firstly, proficient speakers of a standard variety of a language who, while producing grammatically and syntactically correct sentences, can be identified as non-native speakers due to phonological and phonetic deviations; and secondly, native speakers of unfamiliar (regional) varieties of a language, such as Scottish English or Australian English. We know, for instance, that native listeners make more comprehension mistakes when listening to speakers of a second language (Clarke and Garrett, 2004) and that speech processing is less efficient for unfamiliar native accents (Floccia *et al.*, 2006). This decline in processing efficiency is rather subtle in quiet conditions but becomes more noticeable under adverse listening conditions, possibly because phonetic cues relevant for comprehension might be masked (ibid.). As simultaneous interpreting is a task taking place under adverse listening conditions, with interpreters having to listen to the original input and their own output, comprehension is likely to be negatively affected by accented speech. This rationale is borne out by empirical studies showing that interpreting accuracy decreases significantly with phonemic and prosodic deviations (Lin *et al.*, 2013).

Simultaneous interpreting with text

A somewhat special, yet not uncommon, scenario regularly compounding the above problem triggers is the simultaneous interpretation of prepared texts read aloud by a conference presenter rather than expressed extemporaneously (Setton and Motta, 2007). Simultaneous interpreting with text entails the oral rendition of an orally presented text in a different language that is also available in writing (Gile, 1997; Chernov, 2004; but also Pöchhacker, 2004 for a different nomenclature). When manuscripts of the read texts are made available to the interpreter, a task primarily mediated through the auditory-verbal channel is transformed into a potentially even more complex multi-modal task including a strong visual-verbal component. It is as yet unclear how the availability of the written text affects the complexity of the task. One of the few experiments comparing (student) interpreters' performance during simultaneous with and without text showed that they performed significantly better during simultaneous with text (Lambert, 2004). It is important to add, however, that the design of the experiment makes it impossible to establish whether performance was affected by the availability of the text during the task, the preparation of the text prior to the task, or both.

Furthermore, the claim that little or no interference should occur between the auditory and visual input provided that the speaker does not digress from the text (*ibid.*) is only true when

the message is presented and processed simultaneously on both channels. This means that the interpreter would have to read the text at exactly the speed at which the source speech is read. The extent to which interpreters read the accompanying text ahead of the speaker, in synch with the speaker or after the speaker, however, is unknown. Even if such synchronicity were given, the resulting redundancy effect would be likely to increase accuracy while at the same time reducing efficiency, in other words slowing down the process (Wickens *et al.*, 2011). The dearth of scientific evidence on simultaneous interpreting with text means that a large part of our limited knowledge stems from circumstantial and subjective evidence. Cammoun *et al.*'s survey among 50 professional conference interpreters, for instance, reveals that 92% perceive the text as helpful, as compared to only 2% who see it as a hindrance (Cammoun *et al.*, 2009). They furthermore bring to bear the argument that many interpreter training institutions include simultaneous interpreting with text in their curriculum, suggesting that this task it is indeed different enough from ordinary simultaneous interpreting to warrant specific training. Only a more systematic process analysis, however, will shed light on whether and to what extent the two processes differ and how the additional visual-verbal component affects this already complex language-processing task. (See also Chapter 9 on sight translation.)

The simultaneous interpreter's profile

Over 50 years ago, Herbert (1952) insisted that a good interpreter needed personal qualities like "nervous resistance" and "readiness of speech", intellectual gifts like power of concentration, quickness of mind and good memory, as well as moral attributes like self-control and a sense of responsibility. Above all, however, Herbert was convinced that interpreters' value depended on their "culture", i.e. general knowledge. It is interesting to see that half a century later, AIIC (n.d.) identifies very similar traits as being necessary to become a good interpreter: the polished command of the native language; the complete mastery of non-native languages; familiarity with the cultures of countries in which these languages are spoken; as well as the ability to concentrate and focus, calm nerves, tact and a sense of humour. Crucially, while the first consecutive and simultaneous conference interpreters were self-taught, there seems to be a wide consensus that conference interpreters can be and should be trained. Because of the complexity of the task and the time it takes to acquire, however, most top interpreting programmes apply rather strict admission criteria in an effort to screen applicants at least for some of the skills considered to be directly related to interpreting, such as language and communication skills, comprehension skills, analytical skills and general knowledge (for a comprehensive list, see Timarová and Ungoed-Thomas, 2008). On average, one in four applicants is admitted, and among the top schools, this ratio can be as low as one in 12. The fact that few interpreting programmes have graduation rates above 70% suggests that not all predictors for the successful acquisition of the task have been identified, and that factors such as motivation and teachability might play a significant role. The process of finding candidates capable of acquiring the skills necessary to perform the simultaneous interpreting task, therefore, is as difficult today as it was 70 years ago when the first teams were put together for the Nuremberg Trials.

Simultaneous interpreting: the technology

Early days

The technology enabling simultaneous interpretation in the first place goes back almost a century. By observing interpreters whispering to delegates, the American businessman, social entrepreneur

Figure 5.1 The simultaneous interpreter's workplace (from left to right: Lake Success 1948; New York 1965 and 2003; United Nations Photo, used with permission).

and philanthropist Edward A. Filene understood the mechanics of what was de facto a form of simultaneous interpreting and realized the importance of separating the incoming stream of sound from the outgoing one, so as to minimize auditory interference. Consequently, he conceived of a system comprising a booth with headsets, feeding the sound of the original to the interpreters and a microphone feeding the sound of the interpretation to the delegates (Baigorri-Jalón, 2004). The first interpreting booths, which at the Nuremberg Trials in 1945 were little more than a few glass partitions without a ceiling, had evolved into built-in, soundproof structures by the time the UN General Assembly took place in Flushing Meadows two years later. Interestingly, however, until very recently the interpreter's workplace underwent relatively few changes (see Figure 5.1). Similarly, although the telephone technology originally repurposed for the Filene-Finlay simultaneous interpreting system, including clunky microphones and unwieldy headsets, gradually gave way to more sophisticated and ergonomic equipment, it appears that until very recently these changes were only minor. Today the specifications for the simultaneous interpreter's workplace, the interpreting booth, are laid down in two ISO standards. ISO 2603 defines the specifications for built-in booths in an attempt to ensure the acoustic separation between languages, efficient two-way communication between the interpreters and delegates and a comfortable working environment for interpreters (ISO, 1998a). It provides details about technical requirements (acoustics, insulation, etc.), as well as ergonomic requirements (size, visibility, air circulation etc.). Its fraternal twin, standard ISO 4043, provides the same specifications for mobile simultaneous interpreting booths.

What has changed?

While simultaneous conference interpreters still sit in soundproof interpreting booths, listening to delegates over earphones and speaking their interpretation into a microphone, more often than not, today they are surrounded not only by a lot of paper documents but also by a lot of technology. Video screens in booths have become a necessity in multilingual institutions such as the European Parliament, not in order to replace the direct view of the meeting room, but rather to complement it; in meeting rooms accommodating well over 700 MEPs speaking up to 24 official languages, the interpreting booths are inevitably located at a distance or an angle that makes it impossible to see all the speakers. Indeed, one of the most far-reaching changes in the profession, or in the way in which the profession is practised, came with the advent of modern information and communication technology. The spread of truly portable personal computers combined with ever more widely available wireless access to the internet has allowed interpreters to harness this technology and access conference documents and

terminology databases in real time. However, because of the indirect nature of traditional interfaces, e.g., mouse or keyboard, the advantage of having access to additional real-time information was most likely offset by a considerable cost in terms of memory and attention. A major breakthrough came in 2010 with the release of tablet computers which, thanks to their tactile technology, made the interface more intuitive and probably less effortful. Today, tablet computers are no longer a rarity in interpreting booths (Hof, 2012); in fact, some employers (e.g. The Union of European Football Associations) have gone entirely paperless for some of their meetings and provide all conference documents on a tablet computer for conference delegates and interpreters alike. It stands to reason that while older generations of interpreters might find this transition difficult, for younger generations, so-called "digital natives" who have been raised with these new technologies (see Baigorri-Jalón, 1999), the transition might be relatively smooth.

What lies ahead?

The communication technologies we use every day are inevitably also making their way into the conference room, and technologies for VoIP (Voice or Video over Internet Protocol) transmissions are no exception. As a consequence, over the past decade the question about their integration in a simultaneous interpreting environment has been asked repeatedly. The feasibility of remote interpreting (see Figure 5.2), a technology-enhanced simultaneous interpreting mode whereby the interpreters follow and interpret conference proceedings from a remote location with the aid of television screens capturing what goes on in the meeting room (for a more detailed discussion see Chapter 22), has been rather controversial.

Figure 5.2 Remote interpreting (European Council 2011; European Commission Photo, used with permission).

The debate surrounding it, however, is sometimes reminiscent of that surrounding the introduction of simultaneous interpreting almost a hundred years ago: what simultaneous interpreting was to many consecutive interpreters then, remote interpreting appears to be to many simultaneous interpreters today. One crucial difference between now and then is that, unlike a hundred years ago, today we have research findings informing the debate, as several experiments have been carried out to test the technical feasibility of the technology and its impact on the human factor. For example, we know that issues of sound and image quality and synchronicity can be fixed, and that the overall quality of the output need not suffer, provided certain conditions are met. Importantly, however, interpreters report feeling a lack of participation, alienation and loss of concentration as well as increased fatigue and reduced self-perceived quality (Mouzourakis, 2003, 2006). Much like during the introduction of simultaneous interpreting, however, these perceptions might be subject-contingent variables destined to disappear with the generational shift taking place in the profession. It is important to keep in mind that the most recent large-scale experiment on remote interpreting was carried out in 2004 at the European Parliament on a population aged 45 years on average. In other words, participating interpreters had little or no experience with technologies such as Skype (released in 2003), Facebook (released in 2004) or Twitter (released in 2006), which by now have become household names and may have influenced the way in which the new generation of interpreters reacts to the virtual environment. The fact that since 2011 remote interpreting has been used successfully for working lunches and dinners of the European Council (Vereycken, 2012) might be a first indication that a technology considered "unacceptable" by AIIC just over 10 years earlier (AIIC, 2000) could in fact bring about a revolution like the one the profession experienced with the introduction of simultaneous interpreting a hundred years ago.

Further reading

Baigori-Jalón J (2014) *From Paris to Nuremberg: the birth of conference interpreting*. Translated by Mikkelson H and Slaughter Olsen B. Amsterdam: John Benjamins.
In its fourth edition, this monograph provides one of the most comprehensive accounts of the evolution of conference interpreting, including the transition from consecutive to simultaneous interpreting.

Gaiba F (1998) *The origins of simultaneous interpretation: The Nuremberg Trial*. Ottawa: University of Ottawa Press.
This book provides a detailed description of the Nuremberg Trials, the simultaneous interpretation system used and the interpreting service provided based on official documents and personal accounts.

Pöchhacker F (2011) Simultaneous interpreting. In Malmkjaer K and Windle K (eds) *The Oxford Handbook of Translation Studies*. Oxford: Oxford University Press, 257–93.
This chapter discusses some of the major topics addressed in scholarly research into simultaneous interpreting and provides a good introduction to the field.

Christoffels I K and De Groot A M B (2005) Simultaneous interpreting: a cognitive perspective. In Kroll J F and De Groot A M B (eds) *Handbook of Bilingualism: Psycholinguistic Approaches*. New York: Oxford University Press, 454–79.
A psycholinguistic analysis of the component tasks of simultaneous interpreting that captures its complexity.

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